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Spatial and non-spatial deixis in Cushillococha Ticuna

by

Amalia E. Skilton

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Linguistics

in the

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of the

University of California, Berkeley

Committee in charge:

Associate Professor Lev Michael, Chair
Associate Professor Line Mikkelsen
Professor William F. Hanks

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Spatial and non-spatial deixis in Cushillococha Ticuna

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Abstract

Spatial and non-spatial deixis in Cushillococha Ticuna

by

Amalia E. Skilton

Doctor of Philosophy in Linguistics

University of California, Berkeley

Associate Professor Lev Michael, Chair

This dissertation is a study of the 6-term demonstrative system of Ticuna, a language isolate spoken by 60,000 people in Peru, Colombia, and Brazil.

Much research on demonstratives has claimed that they encode only the distance of the demonstrative referent from the discourse participants. By contrast, I argue that **no** demonstrative of Ticuna conveys any information about distance. Instead, I show, the demonstratives of Ticuna provide listeners with two kinds of information:

- Perceptual information: Demonstratives encode whether the speaker sees the demonstrative referent.
- Spatial information: Demonstratives encode where the referent is located relative to the peripersonal space (reaching space) of the discourse participants. Location relative to peripersonal space is crucially different from distance.

Within the body of the dissertation, Chapters 1 through 3 set the stage for these arguments. Chapter 1 introduces the Ticuna ethnic group, their language, and the language's demonstrative system. Chapter 2 describes the methods used in the study, which range from experimental tasks to recordings of everyday conversation. Chapter 3 lays out the conceptual framework for demonstrative meaning used in the study. This framework draws on research in psychology and anthropology as well as linguistics, recognizing the contribution of multiple disciplines to the study of deixis.

Chapters 4, 5, and 6 are the core of the dissertation. In Chapter 4, I demonstrate, from experimental and elicitation data, that 3 of the 5 exophoric demonstratives of Ticuna encode information about the speaker's mode of perception of the referent. Their perceptual deictic content specifically concerns whether the speaker sees the demonstrative referent at the moment of speech. This meaning relates to the sense of vision -- not to more abstract categories like epistemic modality, identifiability, or general direct evidentiality (*pace* Levinson 2004a, 2018a).

In Chapter 5, I examine the apparent speaker-proximal and addressee-proximal demonstratives of Ticuna. From experimental data, I argue that these demonstratives encode spatial information, but not distance. Instead, their spatial deictic content concerns the location of the

demonstrative referent relative to the speaker or addressee's peripersonal space. The peripersonal space (Kemmerer 1999) is defined as the space which a person can reach (i.e. perceive via the sense of touch) without moving relative to a ground. Since the peripersonal space is a perceptuo-spatial construct, not a sheerly spatial one, even the 'spatial' content of demonstratives is grounded in perception.

Chapter 5 also engages at length with data from maximally informal conversation. In this data, I observe that the speaker- and addressee-proximal demonstratives can also convey non-spatial information about the referent: that the speaker is calling new joint attention to the referent (for the speaker-proximal), that the referent is owned by the addressee (for the addressee-proximal), or that the origo (speaker or addressee) is moving toward the referent (for both proximals). I argue that all of these non-spatial uses of proximals arise from the items' spatial deictic content, via conventional forms of deferred reference and deictic transposition.

In Chapter 6, I analyze the language's apparent medial and distal demonstratives, again drawing on both experimental and conversational data. I show that the apparent medial demonstrative of Ticuna is actually a sociocentric proximal, with the sense of 'sociocentric' developed by Hanks (1990). It encodes that the referent is within a perimeter jointly defined by the locations of speaker and addressee. The distal demonstrative, on the other hand, is a true egocentric distal, encoding only that the referent is outside of the speaker's peripersonal space.

Chapter 7, defending my analysis of deixis against theories that assimilate deixis to anaphora, argues that the deictic and anaphoric systems of Ticuna are minimally related. I show that the demonstrative system of Ticuna exhibits a complete lexical split between exophoric (deictic) and non-exophoric (anaphoric and recognitional) demonstratives. The two classes of demonstratives are distinct in meaning as well as form. Exophoric demonstratives have the rich spatial and perceptual deictic content described in Chapters 4 through 6; non-exophoric demonstratives, by contrast, convey nothing about the referent except its discourse or world familiarity. Chapter 8 summarizes and concludes.

For my consultants

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List of Abbreviations

1 first person. 65, 66, 80, 86, 89, 92, 94, 96, 104, 111, 112, 121, 128--132, 142, 144, 145, 161, 164, 166, 185, 196, 198, 205, 206, 208, 218, 219, 221--227, 230--232, 240, 244, 245, 250--252

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ACC accusative. 72, 74, 81, 86, 89, 94, 96, 102, 107, 131, 132, 134, 144, 151, 161, 164, 185, 205, 206, 219, 223--226, 228, 240

ACHV achievement (Aktionsart class). 224

AL.POSS alienable possession enclitic or pronoun. 70, 71, 85, 86, 89, 91, 93, 96, 98, 107, 112, 121, 122, 124, 134--136, 146, 158, 180, 181, 193--195

ALL allative. 89, 96, 99, 100, 124, 127--129, 132, 144, 152, 154, 184, 186, 198, 205, 206, 218, 220, 221, 227, 228, 236, 237, 283

ALT alternative marker (disjunction, polar question, alternative question). 121, 194

AM associated motion. 78, 220, 240

ANTIPAS antipassive. 223

AREAL.SBJ areal subject. 91, 97--99

ã⁴ma⁴ enclitic deriving (a) contrastive nominal demonstratives, (b) nominal demonstratives without visibility requirements, and (c) direction/bearing descriptions. 100, 112, 126, 153, 154, 186, 200, 206, 236

caus causative. 205, 219, 223, 228

circ.poss circumstantial possibility modal. 219

clf classifier. 200, 206

cntf counterfactual. 94, 106, 153

com/inst comitative/instrumental. 189, 206, 224

comp complementizer. 100, 108, 130, 144, 206, 221, 227, 245

cond conditional. 106, 107

conn temporal connective. 94

cop copula. 70, 71, 85, 86, 89, 91, 93, 96, 97, 100, 107, 112, 121, 122, 127, 134--136, 139, 146, 158, 164, 180, 181, 193--195, 203, 237

def.poss default possessor (of inalienably possessed noun). 70, 99, 130, 144, 220, 230

det determiner. 71, 72, 74, 78, 81, 85, 86, 89, 93, 96, 99, 100, 106, 107, 122, 127, 129, 130, 134--136, 139, 146, 151, 152, 164, 181, 184, 195, 196, 203, 218--220, 222--228, 230, 231, 234, 235, 239, 240, 243, 245

dim diminutive. 188

dir directional. 94, 141, 143, 196

distrib distributive. 143, 225

dloc locative deictic. iv, vii, 17--20, 22, 65, 66, 89, 96, 99, 100, 104, 117, 120, 124--132, 139--155, 160, 161, 166, 171, 173, 174, 178--188, 191--201, 203, 204, 206--210, 212, 217, 220, 221, 224, 226, 228--231, 233--238, 240--246, 250--252, 274--277, 283--286

dnom nominal deictic. iii--vii, 14--19, 22, 25, 41, 65--105, 107--115, 117, 120--125, 129--137, 139--142, 144--160, 162--166, 171, 173, 174, 178--196, 198--201, 203--205, 207--212, 217--246, 249--251, 265--273, 277, 279, 280, 282--286

epist.poss epistemic possibility modal. 191

excl exclusive. 129, 221, 222, 244

FOC focus. 143, 184, 186, 192, 221, 224, 225

FUT future. 78, 134, 143, 151, 152, 161, 205, 240, 242, 245

HABIT habitual. 227

HESIT hesitation word. 124, 127

I verb/proclitic belongs to inflection class with theme vowel *i*. 70, 71, 77, 78, 85, 86, 89--91, 93, 96, 97, 100, 107, 112, 121, 122, 127, 128, 134--136, 139, 141, 143, 146, 152, 158, 180, 193--195, 203, 206, 218, 219, 222--224, 226, 237, 244

IBEN beneficiary of intransitive verb. 86, 111, 112, 128

IMP imperative. 102, 107, 126, 131, 132, 140, 141, 145, 151, 188, 197, 205, 206

IMPERS impersonal. 108, 192

INCL inclusive. 66, 208, 232, 250--252

INFER inferential. 144

INFO information-structural. 78, 100, 128, 139, 144, 151, 152, 163, 186, 192, 203, 206, 219, 221, 225, 236

INTJ interjection. 77, 78, 99, 100, 103, 124, 161, 164, 186, 188, 192, 220, 223, 225, 228, 236

LOC locative. 77, 78, 86, 100, 108, 126, 129, 140, 141, 143, 145, 152--154, 161, 178, 179, 186, 188, 192, 196, 197, 206, 221, 222, 228, 230, 236, 239, 240, 242, 243, 283

NEG negative. 89, 112, 144, 219, 225

NI noun incorporation. 128, 129, 143, 219, 222, 242, 243

NMLZ nominalizer. 89--91, 96--98, 127, 191, 219, 222, 223, 227, 228, 230, 240, 243

OBJ object. 100, 124, 141, 153, 197, 218, 223, 230

PERF perfect. 72, 74, 81, 86, 103, 151, 163, 206

PL plural. 100, 127, 129, 163, 164, 184, 218--224, 227, 228, 244

PRES presentative interjection. 139, 151, 162, 189, 192, 203, 225

PROSP prospective aspect. 179

PURP purposive case. 78, 100, 219, 224, 225, 231, 240, 245

QUOT quotative. 192

R verb/proclitic belongs to inflection class with theme segments *ri*. 94, 108, 145, 179

RCP recipient case. 107, 130, 131, 141, 218, 219

REMPST remote past. 19, 127, 129, 130, 196, 219, 223, 228, 230, 239, 240, 243, 245

RN (spatial) relational noun. 141, 218

SC subordinate clause (inflectional paradigm for proclitics and copula). 72, 74, 78, 81, 89--91, 94, 97--100, 106--108, 127, 129, 141, 143, 144, 152, 161, 164, 181, 184--186, 192, 205, 206, 219--225, 227, 228, 230, 236, 239, 240, 243, 245

SCALAR.FOC scalar focus. 78, 141, 145, 161, 234, 236

SG singular. 65, 66, 70--72, 74, 78, 80, 81, 85, 86, 89, 92--94, 96, 104, 111, 112, 121, 122, 124, 128--132, 134--136, 142--146, 153, 158, 161, 164, 166, 180, 181, 185, 193--196, 198, 205, 206, 208, 218, 219, 221, 223--228, 230--232, 240, 245, 250--252

SUB subordinator. 72, 74, 78, 81, 94, 99, 100, 106--108, 129, 130, 141, 143, 144, 152, 161, 184--186, 192, 205, 206, 220, 221, 224, 225, 236, 239, 245

TOP topic. 70, 89--91, 94, 96--98, 103, 106, 108, 112, 127, 134, 158, 193, 200, 218, 219, 222, 230, 231, 239, 242--244

VCL verb class. 127, 223, 227, 228, 240

VOC vocative. 162, 225

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Chapter 1

Introduction

1.1 Overview

This dissertation is a study of the meaning of demonstratives in the Ticuna language. Demonstratives are words, like English *this*, *that*, *here*, and *there*, that pick out a being, object, or place from the physical surroundings of a discourse, or from the shared knowledge of the discourse participants. Ticuna is a language isolate spoken by approximately 60,000 people in the northwestern part of the Amazon Basin; this study concerns the variety of Ticuna spoken in the town of Cushillococha, Peru. This language has six **nominal demonstratives** (words that translate *this/that*) and six **locative demonstratives** (words that translate *here/there*).

I analyze the meaning of demonstratives that are used to pick out a referent from the physical surround of discourse -- in technical terms, the meaning of demonstratives in **exophoric** use. Much linguistic work on exophoric demonstratives has claimed that they encode only the distance of the referent from the discourse participants. By contrast, I argue that **no** exophoric demonstrative of Ticuna encodes any information about distance. Instead, I show that the language's exophoric demonstratives provide listeners with two kinds of information:

- Perceptual information: Demonstratives encode whether the speaker sees the demonstrative referent.
- Spatial information: Demonstratives encode where the referent is located relative to the reaching space of the discourse participants (speaker and addressees). Location relative to reaching space is crucially different from distance.

I intend these arguments not only as claims about Ticuna, but also as evidence for a more general view of exophoric deixis as an **embodied** and **interactive** phenomenon. In saying that deixis is embodied, I mean that the system relates referents to the bodies of discourse participants -- not to their minds. In saying that deixis is interactive, I mean that it is a tool that speakers use to manage their addressee's attention -- not a neutral system for describing referents in relation to the speaker (cf. Levinson 2004a). As such, my view contrasts with the position, implicit in

many linguistic analyses of demonstratives (§1.1.2), that deixis can be understood egocentrically and without reference to the body.

1.1.1 Why study deixis?

The basic motivation for this study is simple. Demonstratives represent a paradigm case of the interplay between universals and diversity in the cross-linguistic study of meaning.

In the domain of universals, all languages have demonstratives (Diessel 1999:2), and nearly all have at least two. Moreover, in all languages where demonstratives have been studied in any detail, they are the central spoken language tool for establishing joint attention (when two people attend to a third being or object) -- the verbal equivalent of the also-universal hand-pointing gesture (Cooperrider et al. 2018). Because of the link between demonstratives and joint attention, it is hard to imagine a human language without demonstratives. It is also hard to imagine a formal language **with** demonstratives. Even more than other indexicals, demonstratives are a lexical reflex of the fact that language users have bodies and operate in physical space.

Despite these universals, demonstratives vary enormously across languages. Languages vary in the number of demonstratives they have. The demonstratives of different languages have different morphological and syntactic properties, and different semantic content. It is a vast, unanswered question why a class of words that are used to do very similar actions across languages -- directing and managing attention -- are this diverse.

One reason that this question remains open is that linguists have rarely studied the meaning of demonstratives in exophoric use. Instead, researchers in semantics and pragmatics have chosen to focus on indefinite noun phrases, definite descriptions (noun phrases headed by definite articles), and pronouns. Consequently, when they have analyzed demonstrative noun phrases, they have been interested mainly in how they are similar to definite descriptions (e.g. Kaplan 1989 [1977]; King 2001). This kind of comparison is important for understanding the definiteness meaning component of demonstratives, but it misses that demonstratives are not just definites -- they are also indexicals. To arrive at an analysis of demonstratives that is as sophisticated as contemporary analyses of indefinites and definite descriptions, we also need to understand their indexical meaning component. That component can only be studied through the exophoric use.

Another central motivation for this research comes from the study of face-to-face interaction, in psychology and anthropology. For people to coordinate their actions toward an object, or to label an object with a name, they must first establish joint attention on the object. To establish joint attention, they must engage in deixis, whether by producing demonstratives or by making deictic gestures (which are often co-organized with demonstratives). This dependency positions deixis as a central part of the infrastructure for interaction. In studying how deixis is used in conversation in a particular speech community, we are studying not only that community's language, but also its conventional practices for organizing attention and action.

Beyond these motivations for studying demonstratives in general, I have a more specific motivation for examining the demonstrative system of Ticuna: the demonstrative system of this language is very profoundly different from any language represented in the literature. As I outline in §1.1.2, compared to other languages described in the demonstrative literature, Ticuna has

more demonstratives; encodes different deictic content in those demonstratives; and displays a different division of labor between exophoric and non-exophoric demonstratives.

These properties of the language show us that diversity in demonstrative meanings is significantly greater than we knew. I mean this as a claim that the data presented here is novel, not that it is totally incommensurate with our knowledge about other languages. Many of the claims that I make about Ticuna demonstratives have been made in some form in other literature, in many cases in publications more than 100 years old (Chapter 3).

1.1.2 Key claims

In the body of this work, I make five core arguments about the demonstrative system of Ticuna, and about exophoric demonstratives generally. I list these arguments as 'Claims 1-5' below. Claims 1 and 2 have already appeared, in brief, in the first paragraph of this introduction. These two arguments, as well as Claim 4, concern the information that demonstratives convey about their referents. Claim 3 is about whether demonstratives relate referents only to the speaker, or also to other (sets of) discourse participants. Claim 5 concerns the relationship between exophoric and non-exophoric uses of demonstratives.

Claim 1: Visibility

I show that demonstratives can encode information about vision. This information relates to vision as a sense of the human body -- not to any more abstract concept such as identifiability or epistemic modality. Specifically, in Chapter 4 I argue that two of the demonstratives of Ticuna encode visibility (that the speaker sees the referent at the moment of speech), while one encodes invisibility (that the speaker does not see the referent at the moment of speech).

This finding provides the first detailed empirical support for the claim, first made by Boas (1911b), that demonstratives can encode information about the senses of the human body. It opposes claims by Levinson (2004a, 2018a) and Enfield (2003) that demonstratives never encode information about vision.

Claim 2: Peripersonal Space

I argue that the spatial contrasts between demonstratives do not always concern distance. In Ticuna, I argue in Chapters 5 and 6, the spatial deictic content of demonstratives instead concerns the location of the referent relative to the peripersonal space of one or more discourse participants. The peripersonal space is defined as the space around a person's body which they can reach without moving relative to the ground.

This finding supports an emerging consensus among experimental psychologists that speakers' use of demonstratives tracks location relative to peripersonal space, not distance (Kemmerer 1999; Bonfiglioli et al. 2009; Coventry et al. 2008, 2014). It is inconsistent with the distance-based

analyses of demonstratives traditional in linguistics (Fillmore 1973; Anderson and Keenan 1985; Diessel 1999, a.o.).

Claim 3: Addressee- and Dyad-Centering

I argue that demonstratives do not always relate the referent to the speaker alone. They can also relate the referent to the addressee, or to the interactive dyad composed of the speaker and addressee. Egocentric demonstratives (those that relate the referent to the speaker only) are, however, privileged over non-egocentric demonstratives in a variety of ways. Arguments that some demonstratives of Ticuna relate the referent to the addressee alone appear in Chapter 5; arguments that other demonstratives relate the referent to the speaker-addressee dyad appear in Chapter 6.

My argument that some demonstratives relate the referent to the interactive dyad supports proposals, by Hanks (1990), Jungbluth (2003), and Peeters et al. (2015), that many apparent speaker-centered demonstratives may actually be dyad-centered. It opposes the claim, common in linguistic analyses of demonstratives, that demonstratives always relate the referent to either the speaker only or the addressee only (Anderson and Keenan 1985; Diessel 1999, a.o.).

Claim 4: Extended Uses

In Chapter 5, I demonstrate that the actual use of demonstratives in conversation is underdetermined by the location of the referent in space. In Ticuna, the use of the speaker- and addressee-proximal demonstratives is also sensitive to (a) whether the referent is in joint attention at the moment of speech, (b) whether the referent is owned by the addressee, and (c) whether the referent is a motion goal for one or more discourse participants. I label uses of these demonstratives motivated by attention, ownership, and motion considerations as 'extended uses,' contrasting them with the 'core uses' of the speaker- and addressee-proximals, which are motivated by the location of the referent relative to peripersonal space.

My findings on joint attention and ownership represent the first evidence that these factors influence demonstrative use in maximally informal conversation. They confirm the results of several experimental studies of joint attention and demonstratives (Coventry et al. 2014; Küntay and Özyürek 2006; Piwek et al. 2008; Peeters et al. 2015). However, I depart from the experimental authors in my analysis of the reason for the joint attention, ownership, and motion effects. They interpret such effects as evidence that demonstratives have no spatial deictic content; I argue that the extended uses of the proximals are possible specifically because of their spatial deictic content.

Claim 5: Exophoric/Non-Exophoric Split

I propose that exophoric and non-exophoric uses of demonstratives arise from separate lexical items, for which speakers have separate cognitive representations. The empirical evidence for

this claim, presented in Chapter 7, is that Ticuna displays a near-complete lexical split between exophoric and non-exophoric demonstratives. Only one demonstrative robustly appears in both exophoric and non-exophoric use. No principled semantic analysis of the exophoric uses of this item can assimilate them to the non-exophoric ones.

My analysis of exophoric demonstratives as lexically distinct from non-exophoric ones is consistent with findings in language acquisition research, which show that children acquire non-exophoric uses of demonstratives substantially after exophoric ones (Clark and Sengul 1978, Ahn and Arunachalam 2019). It is inconsistent with most analyses of demonstratives in semantics, which have focused on deriving both kinds of use from a single, highly underspecified meaning (Fillmore 1973; Enfield 2003; Wolter 2006, a.o.).

Relation of key claims to the thesis

As I explore in more detail in Chapter 8, my claims about visibility (Claim 1), peripersonal space (Claim 2), and the exophoric/non-exophoric split (Claim 5) contribute to the broader argument that exophoric demonstratives relate referents to discourse participants' **bodies**, not their minds. The vision claim (Claim 1) and peripersonal space claim (Claim 2) are the core of this argument. Vision is a sense of the body; peripersonal space is projected from the body and defined by the body's motor capacities. However, the exophoric/non-exophoric split (Claim 5) is also crucial to my embodiment thesis. We can give exophoric demonstratives an embodied semantics, centering on vision and peripersonal space, only if we separate them from non-exophoric ones. If exophoric and non-exophoric uses are collapsed in our analysis, we will be obliged to cut information about the body out of the semantics in order to accommodate non-exophoric uses.

Likewise, my arguments about addressee-/dyad-centering (Claim 3) and about extended uses of proximals (Claim 4) support a view of demonstratives as tools for **managing addressees' attention** in interaction, not pragmatically neutral ways for speakers to describe referents in relation to themselves. Addressee- and dyad-centered demonstratives (Claim 3) are the clearest evidence for this view, since they relate the referent to discourse participants other than the speaker. But the extended uses of proximals (Claim 4) are also relevant, since in Ticuna these uses primarily track relations between the addressee and the referent, rather than between the speaker and the referent.

1.1.3 How to read the dissertation

The remaining two sections of this introduction provide context for the rest of the study. §1.2 gives background information about the Ticuna language, as well as about the circumstances in which I collected the data. §1.3 lists the demonstrative lexical items of Ticuna and overviews their most important morphosyntactic properties.

Beyond the introductory sections, this dissertation has been written specifically for an audience interested in the study of exophoric demonstratives. Since this audience potentially includes people trained in several different disciplines, I avoid making assumptions that the reader is a

specialist in linguistics. Some sections do, however, assume that the reader is familiar with concepts from linguistic pragmatics. An example is §4.4.3, which assumes knowledge of the Gricean concept of implicature.

Readers who are interested generally in Ticuna or in the indigenous languages of South America will find that this dissertation includes relatively little information about topics other than deixis. However, they may be interested in the remainder of this introduction; the discussion of perception-related (evidential) meanings in demonstratives (Chapter 4); and the discussion of anaphora (Chapter 7). I provide a brief summary of the dissertation in Spanish in Appendix B.

1.2 Language and data

In this section, I provide background information about the Ticuna language and people (§1.2.1); review previous literature on the language (§1.2.2); and describe the field site (§1.2.3). This information is important as context for the body of the dissertation.

1.2.1 Language and people

This section presents general information about the location and number of Ticuna speakers and the general typological properties of the Ticuna language.

1.2.1.1 Location and speaker demographics

Ticuna is spoken by 38,680 (Lewis et al. 2014) to 69,000 (Instituto Socio-Ambiental 2017) people living in the northwestern part of the Amazon Basin. The true number of speakers is more likely to be at the high end of this range than at the low end, as the Ethnologue population estimate is based on national censuses which tend to undercount indigenous people. Regardless of the true number of speakers, it is among the largest languages of the Amazon Basin. It is also the single largest indigenous language of Brazil; according to the results of the 2010 Brazilian census, 12.3% of all Brazilians who speak an indigenous language speak Ticuna.

Genetically, Ticuna is either an isolate or the only surviving member of a very small family. The only language with a plausible genetic relationship to it is Yurí, a language variety which is no longer spoken (Carvalho 2009). Yurí was documented only in brief wordlists collected by nineteenth-century adventurers (e.g. Martius 1867:268-272). While the transcriptions in these wordlists are very poor, they show a number of obvious cognates, including in basic vocabulary such as body part terms, with modern Ticuna. Based on these cognates, Carvalho (2009) suggests that Yurí was a sister language to Ticuna. I find this plausible, but -- given the small volume and low quality of data on Yurí -- also find it plausible that Yurí was simply a variety of Ticuna (that would have been intelligible to contemporary Ticuna speakers). Finally, Seifart and Echeverri (2014) suggest that the language of the Carabayo people, a group living in voluntary isolation in southern Colombia, may be related to Ticuna and Yurí.

Current Ticuna territory is along the course of the Amazon/Solimões River in the region of Loreto, Peru; the department of Amazonas, Colombia; and the state of Amazonas, Brazil. Ticuna

political leaders in Peru believe that there are approximately 160 predominantly Ticuna towns across Peru, Brazil, and Colombia. Not all of these towns are the same size. The majority of the Ticuna population in Peru and Brazil is concentrated into large towns of 1,000 to 8,000 people; for example, it is my estimate (below) that at least half of all Ticuna people in Peru live in Cushillococha.

The map in Figure 1.1 shows the location of the current Ticuna territory within northern South America. The two yellow circles mark the east and west extremes of Ticuna settlement along the Amazon River -- the town of Cushillococha, Peru, site of this study, at the west, and the mouth of the river Jutai, in Brazil, at the east. The yellow line between the two circles follows the course of the Amazon. Most large Ticuna towns, including Cushillococha, are located either on the main course of the river or very nearby.

Figure 1.1: The Ticuna region within northern South America (base map via Google Earth)

Ticuna speakers from across the region are readily able to understand one another. From a linguistic point of view, there is some dialect variation, most of which is phonological and lexical.

The name 'Ticuna' is not interpretable as a word of the language or any living indigenous language of the region. Speakers use this name as the name of both their people and language when speaking in Spanish and Portuguese. When speaking in the language, they usually refer to the people as *ti³¹ku³na¹* (the phonological adaptation of the name) but the language as *ta³¹ga¹*, which simply means 'our language' or 'human language.'

1.2.1.2 Language background

The following background information is specific to the variety of Ticuna documented in this study. It should not be taken to make claims about other varieties, since I have data on only one.

In terms of general phonological typology, Ticuna has a very simple segmental phonology and a very complex suprasegmental phonology. Segmentally, there are 14 surface consonants, six vowels, and two diphthongs (which behave as one syllable). Supragsementally, the language has eight lexical tones on monosyllables, contrastive creaky voice, and contrastive nasality on vowels. As well as lexical tone, there is grammatical tone, which marks noun class agreement on many constituents of the noun phrase and also marks clause type on verbs. The reader is referred to Skilton (2017) for further discussion of the phonology and morphology.

The morphological and syntactic typology displays a mixture of head- and dependent-marking characteristics. For morphology narrowly defined, the language has an alienable/inalienable noun contrast, noun class, and inflection classes for verbs. Verbs bear proclitics that index the person, number, and noun class of the subject, as well as the clause type of the clause. In terms of syntax, the language displays nominative/accusative alignment, but with very extensive differential object marking based on animacy and the argument structure of the verb. Adjuncts are licensed by oblique case markers, not by applicatives. Information structure has conspicuous effects on syntax, with both topic and focus being marked by dedicated syntactic structures, and both topicalization and focus movement ubiquitous in discourse. The information-structurally unmarked order of constituents depends on the argument structure of the verb. Transitive and unergative verbs prefer S(O)V constituent order, and unaccusative verbs usually prefer VS constituent order.

1.2.2 Previous literature

The linguistic literature on Ticuna is small and focuses mainly on phonology. It has been produced by three sets of authors: academic linguist Maria Emilia Montes Rodriguez, academic linguist Marilia Facó Soares, and SIL members Lambert and Doris Anderson. Students of Montes Rodriguez and Soares have also written some works on the language.

Montes Rodriguez' works are based on fieldwork in the town of San Martín de Amacayacu, Colombia. Her main contributions are a description of the phonology focusing on tone, submitted as her dissertation (Montes 1995); a roughly 100-page sketch of the phonology and morphology, part of which is a summary of the dissertation (Montes 2004b); and an article that offers highlights of the sketch and some findings about dialectology (Montes 2004a). Under Montes Rodriguez' supervision, Abel Santos, a native speaker of Ticuna, completed a master's thesis on the dialectology of the Colombian Ticuna region (Santos 2004). Montes Rodriguez and Santos' works are in Spanish.

Facó Soares' works are based on fieldwork with speakers from several different towns in Brazil. Her works focus on syntax and include a dissertation to which I have not had direct access (Soares 1986) and a book which discusses basic syntactic issues using Government and Binding theory (Soares 2000). Soares has also published journal articles on word order (Soares 1992) and tense (Soares 2017). Her student Fernando Carvalho has published articles on phonetics based on work with speakers from near the town of Benjamin Constant, Brazil (Carvalho 2010, 2012). Facó Soares and Carvalho's works are written in Brazilian Portuguese.

Lambert and Doris Anderson are SIL missionaries who first visited Cushillococha in 1952, lived there for decades in the second half of the 20th century, and returned to live in Cushillococha for several months per year beginning in 2017. The Andersons have spent the majority of their time on efforts to promote literacy, formal education, and biomedical health care, and on translating the Bible into Ticuna. They have also published four major descriptive works: an article on tone contrasts (Anderson 1959); an article on syntax (Anderson 1966); a textbook for English-speaking missionaries learning Ticuna, which (though not intended for linguists) is a very accurate and useful source of organized language data (Anderson 1962); and a Ticuna-Spanish/Spanish-Ticuna dictionary (Anderson and Anderson 2017).

As well as writing these works and translating many Spanish-language educational, religious, and health materials, in 1984 the Andersons published a translation of the complete New Testament into Ticuna. This translation is widely read, at least in Cushillococha and the adjacent Ticuna areas in Brazil. It has been issued in several editions; the most recent is Anderson and Anderson (2010). Currently, the Andersons are working on finalizing a translation of the complete Old Testament. Their 1959 and 1966 articles, as well as the 1962 textbook, are written in English. The dictionary, educational, and health materials are bilingual Spanish/Ticuna, and the religious materials are mostly monolingual Ticuna.

There are also many other researchers and missionaries who have studied Ticuna but have not (yet) published descriptive work. Denis Bertet, a doctoral student at DDL Lyon, conducted fieldwork in San Martín de Amacayacu, Colombia, between 2016 and 2018; his thesis is in preparation as of this writing. I am also aware of at least five missionaries to Ticuna communities in Brazil who have studied the language for more than conversational purposes.

Besides linguists and missionaries, there are a number of anthropologists who have worked with Ticuna people, though they do not include substantial language data in their works. It is beyond the scope of this section to cite all of their works, but I do wish to highlight one. Nimuendajú (1952) was the first ethnography of the group and contains more language data than other works by anthropologists.

Finally, a large number of books incorporating Ticuna traditional narratives, in Ticuna or Spanish, have been published in the countries where the language is spoken. It is also beyond the scope of this section to cite all of these publications. The most recent and longest is a book of traditional narratives in Ticuna with facing Spanish translations, produced by three Ticuna speakers from Colombia in collaboration with Montes Rodriguez and anthropologist Jean-Pierre Goulard (Goulard et al. 2016).

Most of the works discussed above do not include any discussion of semantics or pragmatics, and therefore I do not directly engage with them in this study. However, understanding phonology, morphology, and syntax is a prerequisite to understanding meaning. I did use these works to inform my general descriptive research on the language, which underlies this study.

1.2.3 Field site and fieldwork

All of the data in this dissertation comes from fieldwork with Ticuna speakers born and raised in the town of Cushillococha, Peru. Here I describe the geography of the town and its region

(§1.2.3.1), the language situation (§1.2.3.2), and the economic activities and technologies present there (§1.2.3.3). Then I discuss the time and conditions of the fieldwork in which I gathered the data (§1.2.3.4).

1.2.3.1 Geography

Cushillococha is located in the district and province of Mariscal Ramón Castilla (part of Loreto region). It neighbors a lake of the same name, which is adjacent to the main course of the Amazon River. Both the town and the lake are known in Ticuna as *Kɨ³ʔtʃi³tu¹* (a morphologically opaque proper name). Under Peruvian law, Cushillococha is categorized as a *Comunidad Nativa*, meaning an indigenous community where all land title is held in common and private land ownership is not allowed. According to unofficial estimates provided to me by Ministry of Health personnel, the population of Cushillococha and its adjacent unincorporated communities was approximately 5,000 as of July 2018. The population is skewed very young: roughly 50% of the population was under the age of 15 and 20% was under the age of five. This age structure reflects a combination of high birth rates and emigration by young adults.

Cushillococha directly adjoins the multi-ethnic town of Caballococha, which is the capital of the district and province of Mariscal Ramón Castilla. Caballococha, like Cushillococha, is located on a lake of the same name, adjacent to the main course of the Amazon River. The town and its lake are known in Ticuna as *Ko³we⁴na²* (which is also an unanalyzable proper name). Caballococha has a population of perhaps 15,000, about three times the size of Cushillococha. The people living in Caballococha are ethnically diverse. They include non-indigenous people born in the area, indigenous and non-indigenous migrants from the Andean highlands, and Ticuna and other indigenous Amazonian people. The predominant language in Caballococha is Spanish, though the variety of Spanish spoken there is very heavily influenced by Brazilian Portuguese. One can also hear many other languages spoken in Caballococha, including (in rough order of frequency) Ticuna, highland and lowland Quechua, Brazilian Portuguese, and Yagua (a Peba-Yaguan language).

Cushillococha and Caballococha are connected by an 8km all-weather paved road with development along the entire course of the road (homes, businesses, agricultural fields, and cattle pasture). Many Cushillococha people travel this road every day to work, market agricultural produce, or attend school in Caballococha, and many Caballococha people travel it to buy produce in Cushillococha. As a result, the economic and geographic connection between the towns is so strong that Cushillococha can be thought of as a kind of suburb of Caballococha. Many Ticuna towns are very close to multiethnic towns and cities and maintain this kind of relationship. For example, in Colombia, the Ticuna community of Los Lagos adjoins the city of Leticia, and in Brazil, the Ticuna town of Umariaçu adjoins the city of Tabatinga.

Other destinations where Cushillococha people often travel within northwestern Amazonia are the city of Iquitos, Peru (located 400km upriver) and the twin cities of Leticia, Colombia and Tabatinga, Brazil (located 70km downriver). Outside the region, it is common for young people to emigrate to Lima and Pucallpa, Peru and Manaus, Brazil for work and education.

1.2.3.2 Language and bilingualism

At present, effectively everyone in Cushillococha speaks Ticuna as their first and dominant language. Though there are some signs of language shift among older children and teenagers, Ticuna is still the main language spoken in all domains of life, including church, school, marketing, and government. This relative vitality places Ticuna in marked contrast with the other indigenous languages of Loreto, most of which are seriously endangered.

The use of Ticuna in writing is not as common. Since the 1960s, the language has been the medium of instruction in Cushillococha's primary school, and when asked, a large majority of adults will say that they know how to read and write it. Outside of primary school, however, almost all reading and writing is done in Spanish or Portuguese. The exception is that many adults regularly read the Ticuna translation of the New Testament (Anderson and Anderson 2010).

Most Cushillococha adults have some knowledge of Spanish, the national language of Peru. Essentially all teenage boys and men speak enough Spanish to hold a conversation, though they do not all speak it well enough to talk about complex, unfamiliar, or abstract topics. Teenage girls and women have a larger range of knowledge of Spanish. In my experience, roughly 10% of women do not speak or understand Spanish at all, 30% have passive knowledge only, and 60% have active knowledge sufficient to hold conversations about at least some topics (but again, not necessarily sufficient to talk about complex, unfamiliar, or abstract topics). Children up to about age eight generally do not speak or understand any Spanish unless they have a non-Ticuna family member. Older school-age children's knowledge directly correlates with their age, since Spanish is taught in school beginning in grade three (age 8-9).

There is very significant traffic between Cushillococha and the Ticuna region in Brazil. Many people living in Cushillococha were born in Brazil or have a parent who was. As a result, almost everyone has a nuclear family member living in Brazil, most often in the town of Umariaçu, Amazonas state. People who have lived or traveled extensively in Brazil speak Brazilian Portuguese in addition to Ticuna and Spanish. There are a few people who migrated from Brazil as adults, and consequently speak Brazilian Portuguese but not Spanish.

1.2.3.3 Economy and technology

Many non-indigenous Peruvians, as well as many people in Western countries, assume that Amazonian indigenous people -- especially those who continue to speak indigenous languages -- lack formal education, are not exposed to Western technology, and live isolated from other populations. These assumptions are false and lead to problematic associations between indigeneity, poverty, and lack of education. In order to challenge this stereotype, below I provide some information about the economy and level of technology present in Cushillococha.

Cushillococha is a basically agricultural town. Almost all households engage in slash-and-burn swidden agriculture, with two to three total agricultural plantings. The agricultural holdings of a household usually consist of one or two main slash-and-burn field(s), located between 90 minutes and three hours walking distance from the house, and another set of crops planted around or immediately behind the house. The main crops are bitter manioc and plantains. Excess

produce is marketed in Caballococha or (in the case of bitter manioc) in Leticia/Tabatinga, and marketing produce is a very common source of cash income. Keeping chickens, wild-gathering plants, and fishing are also important economic activities. Like agriculture, they contribute both to subsistence and to cash income. Due to the depletion of game populations, hunting is not a common activity.

Wage labor is also part of the economy. Most households have at least one member who sometimes or usually works for wages. Common wage labor jobs include teaching school, working for other government programs, driving taxis on the Cushillococha-Caballococha road, and construction. As a rough index of the level of participation of Cushillocochanos in the cash economy, as of July 2018, there were 15 businesses in Cushillococha that were larger than one room of a home. These consisted of 11 general stores, one restaurant, two hair salons, and one motorcycle repair shop. The town also had three evangelical Christian churches, three public kindergartens/day care centers, an elementary school, a high school, an institute for training Christian pastors (though this operates only two months per year), and a water treatment and supply plant. These institutions are primarily staffed by local people, trained at the teachers' college in Caballococha or at universities in larger Peruvian cities. In all of the institutions, Ticuna is the main or sole language of business.

Because of the proximity of Cushillococha to its province's capital, the level of technology available in Cushillococha is higher than in more rural parts of Loreto. Again as of July 2018, there was 24-hour electricity, 3G cell phone service, and water piped directly to houses (although no houses had indoor plumbing). Almost all households had some part of their house that was made from commercially manufactured materials such as concrete, cinderblocks, and corrugated metal. The majority of houses also had a gas stove, a television, at least one bicycle, and at least one cell phone. Pieces of technology that a minority of households owned include outboard motors, chest freezers, refrigerators, motorcycles, mototaxis (a motorcycle-driven vehicle that can accommodate three adult passengers plus some cargo), and radios/stereos. The only major piece of Western technology that no Cushillococha family owns is a car or truck.

Many types of cultural production created in the United States and in urban Peru and Brazil circulate regularly in Cushillococha. Since most households have televisions, they are exposed to Peruvian national television and American television productions syndicated in Peru. There is a brisk trade in recordings of Spanish-language pop music from the United States, as well as Ticuna-language pop and worship/gospel music recorded in Brazil. People who have digital technologies such as cell phones routinely use them for activities that would be familiar in Western countries, such as downloading music and sharing pictures on social media.

In sum, although nearly all Cushillococha people retain some connection to subsistence agriculture, they also participate in the cash economy, have significant access to formal education, and are exposed to technology and cultural products originating in other countries. At the same time, they continue to speak their language and to engage in many distinctively Ticuna practices other than language, such as herbal medicine.

1.2.3.4 Fieldwork

I conducted the fieldwork for this dissertation over approximately 11 months between 2015 and 2018. I took four field trips to the Caballococha-Cushillococha area, consisting of seven weeks in 2015, 10 weeks in 2016, 17 weeks in 2017, and 12 weeks in 2018. During the first two field trips, I worked on general description of the language and did not collect any data specific to this dissertation. During the second two trips, I did both general descriptive research and research specific to this study. It is potentially relevant that before the first field trip, I was already very familiar with the Loreto region and the general typological characteristics of the languages spoken there, as I spent 12 months between 2012 and 2015 conducting research on Máíhĩki, a Tukanoan language spoken in Loreto about 500km northwest of the Ticuna region.

Due to security issues in the Caballococha-Cushillococha area, I lived for the entire fieldwork period, except for three weeks in 2016, in accommodations rented to me by a Franciscan convent in Caballococha. I worked in Cushillococha three to five days a week, and in a predominantly Ticuna neighborhood of Caballococha one to three days a week. I also attended a Ticuna-speaking church in Cushillococha every Sunday in 2016, 2017, and 2018.

I used different languages as my main language of communication during the different field trips. During the 2015 and 2016 fieldwork, I did not speak Ticuna well enough to hold a conversation, and therefore I spoke Spanish with everyone. Spanish is not my native language, although I have spoken it as a second language for many years. By the middle of my 2017 fieldwork, I could speak Ticuna reasonably well and therefore told some of my consultants and friends that I no longer wanted to speak Spanish with them. This led to rapid improvement in my speaking and understanding ability, and by the end of the 2017 fieldwork, I could easily sustain a conversation about any topic. Following this, in my 2018 fieldwork I spoke Ticuna most of the time, although I still spoke Spanish to non-Ticuna people in Caballococha and to a few Ticuna people who did not want to speak to me in Ticuna. By the end of the 2018 fieldwork, the only situations where I had major trouble speaking or understanding were situations that would present problems in any language, such as understanding overlapped speech.

1.3 Demonstrative inventory

This section presents the inventory of nominal and locative demonstratives in Ticuna. I include this material as background to the meaning analysis in the following chapters. §1.3.1 describes the nominal demonstrative inventory, and §1.3.2 describes the locative demonstrative inventory.

1.3.1 Nominal demonstratives

In this section, I provide the nominal demonstrative inventory and pre-summarizes the meaning analysis of the nominal demonstratives presented in Chapters 4, 5, and 6.

1.3.1.1 Nominal demonstrative forms

Ticuna displays six nominal demonstratives (DNOMs), shown in Table 1.1. DNOMs are the words syntactically equivalent to English *this* and *that*. They can be used either to modify a noun (adnominally) or to replace a noun (pronominally). In both uses, DNOMs agree in noun class with the noun which they modify. There are five noun classes; the basis of noun class assignment is primarily semantic.

Table 1.1 labels each DNOM with an arbitrary number identifying the demonstrative lexical item (i.e. the set of all five noun class forms of the item). I assign the numbers in order to create a way of referring to the DNOMs that (a) abstracts away from noun class agreement and (b) captures the correspondences between DNOMs and locative demonstratives. In the rest of the study, I will refer to demonstrative lexical items using the arbitrary numbers plus the form for noun class IV (which is the largest and default noun class). Thus DNOM1, which has the noun class forms *da³¹ʔe²* (I), *da²a²* (II), *da³¹a¹* (III), *ɲa⁴a²* (IV), *ɲa⁴³a²* (V), will be referred to simply as 'DNOM1 *ɲa⁴a²*'.

Table 1.1: Nominal demonstratives: inventory

Noun Class Example N	Class I *kɨ³ʔtʃi¹* 'knife'	Class II *tʃe³ra¹* 'handsaw'	Class III *ʎu³¹e³* 'canoe'	Class IV *ta³ra⁵* 'machete'	Class V *pa⁴kɨ³* 'young woman'
DNOM1	da^{31}ʔe^{2}	da^{2}a^{2}	da^{31}a^{1}	ɲa^{4}a^{2}	ɲa^{43}a^{2}
DNOM2	ɟi^{31}ʔe^{2}	ɟi^{2}a^{4}	ɟi^{2}a^{2}	ŋe^{3}a^{2}	ŋe^{43}a^{2}
DNOM3	gu^{31}ʔe^{2}	gu^{2}a^{4}	gu^{2}a^{2}	ʄe^{3}a^{2}	ʄe^{43}a^{2}
DNOM4	DNE	do^{2}ma^{4}	do^{31}ma^{2}	ɲo^{4}ma^{4}	DNE
DNOM5	ɟi^{31}ʔe^{2}ma^{4}	ɟi^{2}ma^{4}	ɟi^{2}ma^{2}	ŋe^{3}ma^{2}	ŋe^{4}ma^{2}
DNOM6	gu^{31}ʔe^{2}ma^{4}	gu^{2}ma^{4}	gu^{2}ma^{2}	ʄe^{4}ma^{4}	ʄe^{4}ma^{2}

There are significant morphological regularities within the nominal demonstrative paradigm. Within each noun class, the first syllable of DNOM1 is always the same as the first syllable of DNOM4 (except for a phonologically predictable change of /a/ to /o/ before labials). Taking the forms for Class IV as our example, the first syllable of DNOM1 is *ɲa⁴*, and the first of the DNOM4 is *ɲo⁴*. Likewise, the first syllable of DNOM2 is always the same as the first syllable of DNOM5, and the first syllable of DNOM3 is always the same as the first syllable of DNOM6. In the same way, within each noun class, the second syllables of DNOMs 1, 2, and 3 always have one form, and the second syllables of DNOMs 4, 5, and 6 always have another.

Despite these morphological regularities, I do not analyze the DNOMs as synchronically morphologically complex. I have one morphological and one semantic reason for this decision.

Morphologically, nothing ever intervenes between the first and second syllables of any DNOM. As such, there is no positive evidence for a morpheme break. There is also negative evidence against a morpheme break in that, in some morphophonological contexts (e.g. before the clitic *=ĩ¹ka⁵* 'only'), the final syllable of a DNOM can be deleted with no semantic effect.

Semantically, the DNOMs that appear to be morphologically related do not have a clear semantic relationship. Take DNOMs 3 and 6. These forms appear to be morphologically related

because they share an initial syllable. But DNOM3 is an exclusively exophoric demonstrative used to index referents outside the speaker's reaching space (Chapter 6), while DNOM6 is an exclusively anaphoric demonstrative that appears only in remote past clauses (Chapter 7). It is hard to imagine a common semantics for the initial syllable that would be compatible with both of these meanings.

A few syntactic properties of nominal demonstratives are relevant in the following chapters. First, except in certain types of relative clause, nominal demonstratives are never obligatory. Thus any token of a nominal demonstrative (that is not modified by a relative clause) always carries some deictic or anaphoric force. It is never simply a placeholder. Second, nominal demonstratives occupy a dedicated syntactic position and do not compete syntactically with possessors, quantifiers, or any other element of the noun phrase. This means that, unlike in English, speakers never need to choose between using a demonstrative and using another kind of nominal modifier. Third, in presentative constructions, it is nominal demonstratives and not locative demonstratives that act as the predicate. So while English presentatives focus a locative demonstrative, in structures like *Here* *it is* and *There* *they go*, Ticuna ones focus a nominal demonstrative, with structures like *This* *it is* and *Those* *they go*. This structure will become relevant in the many examples in Chapters 4 through 6 which involve presentative constructions.

Nominal demonstratives used pronominally (i.e. in a noun phrase that does not include an overt noun) are clearly distinct from third-person pronouns. Semantically, nominal demonstratives are deictic: they convey information about the relation between the discourse participants and referent. Third-person pronouns are not: they convey nothing about the referent in relation to the participants. Likewise, nominal demonstratives and third-person pronouns share almost nothing in terms of phonology, morphology, or syntax. Phonologically, nominal demonstratives are prosodically independent words; third-person pronouns are not. Morphologically, nominal demonstratives display little allomorphy (except for noun class); third-person pronouns display extensive allomorphy conditioned by their case enclitics. Syntactically, demonstratives pattern with nouns in the language's system of differential object marking; third-person pronouns pattern away from both demonstratives and nouns. For all of these reasons, I view pronouns and demonstratives as separate systems at all levels of the grammar of Ticuna, and I do not further consider pronouns in this study.

1.3.1.2 Nominal demonstrative meanings

Uses of demonstratives are typically divided into four categories: exophoric, endophoric, discourse deictic, and recognitional (Levinson 1983; Diessel 1999; Levinson 2004a; Hanks 2011). Exophoric demonstratives pick out their referents from the physical-perceptual surround of the discourse. Endophoric demonstratives pick them out from the set of referents that have been introduced in the discourse. Discourse deictic demonstrative refer to propositions, speech acts, or stretches of discourse, and pick out those referents from the ongoing discourse itself (not from the set of referents established in it). Recognitional demonstratives pick out their referents from the set of referents mutually known to the discourse participants.

In Ticuna, exophoric deixis is done with DNOMs 1, 2, 3, and 5. Endophoric and recognitional reference uses DNOMs 5 and 6. Discourse deixis uses DNOM 5 and 6, and marginally DNOM1.

The use of the exophoric forms -- in very rough terms -- is as follows. DNOM1 *ɲa⁴a²* indexes a referent that is on the speaker's body or is close enough for them to reach. DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* index referents that the speaker sees, but that are not within their reach. DNOM2 *ŋe³a²* typically indexes a referent located between the speaker and the addressee, while DNOM3 *ɟe³a²* indexes referents located anywhere beyond the speaker's reaching space. DNOM5 *ŋe³ma²* indexes a referent that is on the addressee's body or is close enough for the addressee to reach. It also indexes any referent that the speaker does not see. In Chapter 3, I argue that the invisible use and the addressee-centered use of DNOM5 *ŋe³ma²* represent two homophonous lexical items (not one polysemous or vague item).

Beyond the prototypical uses just introduced, the speaker- and addressee-proximals, DNOM1 *ɲa⁴a²* and DNOM5 *ŋe³ma²*, also have some less common uses in which they can index a referent beyond the speaker or addressee's reaching space. I refer to these collectively as the 'extended' uses of the proximals (as introduced in §1.1.2). They turn on issues of joint attention, ownership, and motion. Speakers can use the 'speaker-proximal,' DNOM1 *ɲa⁴a²*, to call new joint attention to a referent located anywhere in space (not only in their own reaching space). Likewise, speakers can use the 'addressee-proximal,' DNOM5 *ŋe³ma²* to index a referent located anywhere in space (not only in the addressee's reaching space) if the addressee owns the referent, or if the referent is being transferred to the addressee. Additionally, both DNOM1 *ɲa⁴a²* and DNOM5 *ŋe³ma²* can be used to index a referent that the speaker (DNOM1) or addressee (DNOM5) is moving toward. In contrast to the two proximals, DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* do not have any extended uses.

Among the discourse deictic and endophoric/recognitional forms, DNOM5 *ŋe³ma²* is used for reference to preceding parts of the discourse (anaphoric discourse deixis) and for anaphoric and recognitional reference in clauses with any temporal reference. I treat these non-exophoric uses of DNOM5 *ŋe³ma²* as arising from a separate lexical item from the two exophoric uses (addressee-centered and invisible). DNOM6 *ɟe⁴ma⁴* is used for anaphoric and recognitional reference in clauses that have remote past temporal reference. DNOM1 *ɲa⁴a²* is generally an exophoric demonstrative, but also has two (somewhat marginal) discourse deictic uses. It can be used to direct the addressee's attention to following parts of the ongoing discourse (cataphoric discourse deixis), and it can also be used to make reference to the ongoing discourse as a whole.

DNOM4 *ɲo⁴ma⁴* is omitted from the above discussion because it is not a full-fledged member of the demonstrative system. While DNOM4 *ɲo⁴ma⁴* is morphologically a demonstrative, it is different in two ways from other demonstratives. First, unlike the other DNOMs, DNOM4 *ɲo⁴ma⁴* can never index people or objects. It can index only regions of space that include the speaker (in phrases such as 'this house' and 'this town') and time periods that include the present (like 'this year'). DNOM1 *ɲa⁴a²* also appears in both of these functions, and -- except in some lexicalized expressions -- is much more frequent in both than DNOM4 *ɲo⁴ma⁴*. Second, DNOM4 *ɲo⁴ma⁴* is morphologically defective, lacking forms for noun classes I and V. (Speakers reject the predicted forms for these classes as non-words.) Thus, DNOM4 *ɲo⁴ma⁴* is effectively a low-frequency, low-productivity hyponym of DNOM1 *ɲa⁴a²*. Because of this, I do not include DNOM4 *ɲo⁴ma⁴* in the summary table at the end of this section, and I do not further consider it in the body of this study,

except to point out the functions of DNOM1 *ɲa⁴a²* which it shares.

Table 1.2 below visually represents the meaning analysis of the DNOMs which I summarized above, and for which I argue in Chapters 4 through 6. In the 'Perceptual Content' column, '[+visible]' means that the speaker sees the demonstrative referent at the moment of speech.

Table 1.2: Nominal demonstratives: analysis

Demonstrative	Phoricity	Spatial Content	Perceptual Content	Temporal Content
DNOM1 *ɲa⁴a²*	Exophoric	Within reach for Spkr	∅	
DNOM2 *ŋe³a²*	Exophoric	Between Addr and Spkr	[+visible]	
DNOM3 *ɟe³a²*	Exophoric	Not within reach for Spkr	[+visible]	
DNOM5 *ŋe³ma²* - Item 1	Exophoric	Within reach for Addr	∅	
DNOM5 *ŋe³ma²* - Item 2	Exophoric	∅	[-visible]	
DNOM5 *ŋe³ma²* - Item 3	Non-Exophoric			∅
DNOM6 *ɟe⁴ma⁴*	Non-Exophoric			[+remote past] (clausal scope)

1.3.2 Locative demonstratives

This section gives the locative demonstrative inventory and previews the meaning analysis of locative demonstratives presented in Chapters 4 through 6.

1.3.2.1 Locative demonstrative forms

There are six locative demonstratives (DLOCs), shown in Table 1.3. DLOCs are the words syntactically equivalent to English *here* and *there*. They can be used as adjuncts, as the complements of certain enclitics, and as predicates expressing static location. They cannot be used as arguments.

DLOCs do not display noun class agreement, but they do display other morphological alternations, as shown in Table 1.3. Each DLOC has three forms: the locative form, the allative form, and the predicate form. I now briefly explain the distribution of the three forms.

The locative[1] form of DLOCs acts only as an adjunct. It appears in syntactic contexts where a noun phrase would have the locative case marker *=gu²*. The allative form of DLOCs acts as an

[1]Very broadly, locative noun phrases and the locative form of DLOCs express the ground of motion, and allative noun phrases and DLOCs express the goal of motion. However, the alternation between the locative and allative is also influenced by many factors other than the semantic role of the adjunct, such as the transitivity of the verb heading the clause, whether the verb is a verb of motion, and morphological and lexical aspect properties of the verb. A full discussion of the locative/allative alternation would require its own chapter and is beyond the scope of this study.

Table 1.3: Locative demonstratives: inventory

Lexical Item	Predicate	Locative Adjunct	Allative Adjunct / Enclitic Complement
DLOC1	nu²ʔũ⁴	nu²ʔa²	nu⁵a²
DLOC2	ŋe²ʔa⁴	ŋe²ʔa⁴	ŋe⁵a²
DLOC3	ɟe²ʔe⁴	ɟe²ʔa⁴	ɟe⁵a²
DLOC4	nu²ʔma⁴	nu²ʔma⁴	nu⁵ma²
DLOC5	ŋe²ʔma⁴	ŋe²ʔma⁴	ŋe⁵ma²
DLOC6	ɟe²ʔma⁴	ɟe²ʔma⁴	ɟe⁵ma²

adjunct, but can also act as the complement of certain enclitics, such as *=kɨ̰¹q̃¹* 'originating from (place).' As an adjunct, the allative form appears in syntactic contexts where a noun phrase would have the allative case marker *=wa⁵*. As a complement of enclitics, the allative form appears in contexts where a noun phrase could not have any case marking, since the relevant enclitics are mutually exclusive with case. The predicate form of DLOCs acts as a stative predicate (meaning 'be here,' 'be there'). In most of the paradigm, it is identical to the locative case form.

The locative and allative forms of DLOCs are always a minimal laryngeal pair. The allative form always has the tone melody 5.2 and does not have a medial glottal stop. Allative DLOCs are the only disyllabic 5.2 words in the language. The locative form has the tone melody 2.4 (except for DLOC1) and always has a medial glottal stop. This is part of a more general grammatical tone phenomenon where the locative and allative case forms of certain spatial words (for example, the words translating 'upriver,' 'downriver,' and 'nearby') contrast in laryngeal features rather than bearing segmentable case enclitics. Additionally, DLOCs 2, 3, 5, and 6 are in minimal laryngeal pairs with the Class IV and Class V forms of DNOMs 2, 3, 5, and 6. This can be seen by comparing Table 1.3 with the Class IV and Class V columns of Table 1.1. The minimal tone pair relationship between these paradigms is exclusive to DNOMs and DLOCs. It is not part of a broader grammatical tone phenomenon.

Finally, the DLOC paradigm displays the same kind of morphological regularities as we observed in the DNOM paradigm. Across all of the forms, DLOC1 shares the same first syllable with DLOC4, DLOC2 with DLOC5, and DLOC3 with DLOC6, just as in the nominal paradigm. Likewise, DLOCs 1, 2, and 3 share the same last syllable, while DLOCs 4, 5, and 6 share a different last syllable, again identical to the pattern in the nominal paradigm. Despite these similarities, the same arguments against morphological complexity apply for DLOCs as for DNOMs. Nothing ever intervenes between the first and second syllable of a DLOC; it is possible to delete the second syllable of DLOCs without meaning change; and the forms that share syllables do not have a clear semantic relationship. For all of these reasons, I do not analyze the DLOCs as morphologically complex.

1.3.2.2 Locative demonstrative meanings

DLOCs display exactly the same division of exophoric vs. endophoric and recognitional labor as DNOMs. DLOCs 1, 2, 3, 4, and 5 have exophoric uses (like DNOMs 1, 2, 3, and 4), and DLOCs 5 and

6 have endophoric and recognitional uses (like DNOMs 5 and 6). DLOCs are not used in discourse deixis.

Among the exophoric terms, DLOC1 *nu⁵a²* typically indexes a point or region on the speaker's body or a region that encloses the speaker (e.g. the boundaries of a piece of land). DLOC2 *ŋe⁵a²* and DLOC3 *ɟe⁵a²* index points and regions that are not on the speaker's body and do not enclose the speaker. As in the nominal paradigm, the referent of DLOC2 *ŋe⁵a²* is normally a place located between the speaker and addressee, while the referent of DLOC3 *ɟe⁵a²* can be anywhere outside the speaker's reaching space. DLOC5 *ŋe⁵ma²* indexes the addressee's reaching space as a region, and points within it. DLOC1 *nu⁵a²* also has an extended use, analogous to the joint attention-associated extended use of DNOM1 *ɲa⁴a²*. Speakers can use DLOC1 *nu⁵a²* to call new joint attention to a place located anywhere in space -- even if it is beyond their own reaching space. No other DLOC has any extended or otherwise spatially exceptional uses.

Among the endophoric and recognitional terms, DLOC5 *ŋe⁵ma²* is used for anaphoric and recognitional place reference in clauses with any temporal reference. As in the nominal demonstrative paradigm, I treat this non-exophoric use of DLOC5 *ŋe⁵ma²* as representing a separate lexical item from its exophoric use (which is addressee-centered). DLOC6 *ɟe⁵ma²* is used for anaphoric and recognitional place reference in clauses with remote past temporal reference. Additionally, the predicate forms of DLOC5 *ŋe⁵ma²* and DLOC6 *ɟe⁵ma²* can be used as non-deictic, non-anaphoric predicates that resemble existentials. They appear in existential contexts, as the verbs of location predicates where the location is expressed as an adjunct, and in possessive predicates. In these uses, I gloss the predicate forms of DLOCs 5 and 6 as 'be.in.place' (DLOC5) and 'be.in.place.REMPST' (DLOC6), not as DLOCs.

DLOC4 *nu⁵ma²* is omitted from the above discussion because -- much as DNOM4 *ɲo⁴ma⁴* is marginal in the nominal demonstrative paradigm -- DLOC4 *nu⁵ma²* is marginal in the locative demonstrative paradigm. DLOC4 *nu⁵ma²* can be used only to index a region that encloses the speaker, such as a room. Unlike all of the other DLOCs, it cannot index a point. Since DLOC1 indexes both regions that include the speaker and points within those regions, this means that DLOC4 displays a proper subset of the uses of DLOC1. Even in reference to regions, where the two DLOCs overlap, DLOC4 is at least an order of magnitude less frequent than DLOC1. This is exactly the same relationship as found in the nominal demonstrative paradigm: DLOC4 is a low-frequency hyponym of DLOC1, just as DNOM4 is a low-frequency hyponym of DNOM1. Therefore, as with DNOM4, I do not further consider DLOC4 *nu⁵ma²* -- except to note functions of DLOC1 which the item shares -- and do not include it in summary tables.

Table 1.4 visually represents the analysis of the locative demonstrative meanings summarized above and defended in Chapters 4 through 7.

1.4 Summary

I opened this introduction by motivating why the study of exophoric deixis is valuable (§1.1.1), and overviewing the key claims which I make about the deictic system of Ticuna in the body of the dissertation (§1.1.2). In order to evaluate the evidence for these claims, it is necessary to

Table 1.4: Locative demonstratives: analysis

Demonstrative	Phoricity	Spatial Content	Temporal Content
DLOC1 *nu⁵a²*	Exophoric	Within reach for Spkr	
DLOC2 *ŋe⁵a²*	Exophoric	Between Spkr and Addr	
DLOC3 *ɟe⁵a²*	Exophoric	Not within reach for Spkr	
DLOC5 *ŋe⁵ma²* - Item 1	Exophoric	Within reach for Addr	
DLOC5 *ŋe⁵ma²* - Item 2	Non-Exophoric		∅
DLOC6 *ɟe⁵ma²*	Non-Exophoric		[+remote past] (clausal scope)

understand how the demonstratives of Ticuna cohere as a system, and how they are related to other grammatical systems of the language. Likewise, background information about the Ticuna ethnic group in general, and my field site of Cushillococha in particular, is important as context for the methods that I discuss in Chapter 2 and the examples given in Chapters 4 through 7. I therefore provided basic information about the Ticuna language and people and the conditions of my fieldwork in §1.2. Next, I described the phonology, morphology, and syntax of the language's demonstrative system in §1.3. Finally, as shown in Tables 1.2 and 1.4, I previewed the meaning analysis of the demonstratives proposed in Chapters 4 through 7.

Chapter 2

Methods and participants

In the interest of transparency, this chapter describes in detail the methods which I used to collect the data in the body of this study (§2.1). I then discuss the equipment which I used to record the data (§2.2), the citation style and transcription conventions through which I represent the data (§2.3), and the participants who provided the data (§2.4).

2.1 Data collection methods

I used four primary methods to collect the data presented here: semantic elicitation based on an imaginary discourse context (§2.1.1), semantic elicitation with the Demonstrative Questionnaire (§2.1.2), recording naturally occurring events (§2.1.3), and recording staged events (§2.1.4). I chose this combination of methods in order to balance researcher control with ecological validity, as explained in more detail in the method-specific sections below.

As well as using these methods to collect intersubjectively available data, I also engaged in participant observation and took notes on overheard speech in order to learn the language myself. Additionally, I used several other kinds of observational and non-observational methods to collect data for the general description of the language. However, since only the methods that I used to collect data about demonstratives are directly relevant to the study, I describe only those in the following sections.

2.1.1 Semantic elicitation based on imaginary contexts

2.1.1.1 Procedure

I collected some of the data in Chapters 4 and 7 using context-based semantic elicitation (Matthewson 2004; AnderBois and Henderson 2015; Bohnemeyer 2015). In this procedure, the researcher describes an imaginary discourse context, and then asks the consultant a question about whether some sentence of the object language would be acceptable and/or true to say in that context. If the question is about whether the object sentence is acceptable in the context, the consultant is doing an acceptability judgment task, and if the question is about whether the object language

sentence is true, they are doing a truth value judgment task. A variation is that the researcher can describe the discourse context and then ask the consultant to translate a sentence in some other language into the object language given that context. In this variation, the consultant is doing a translation task. Most of the elicited data in this study comes from acceptability judgment tasks.

I used both Spanish and Ticuna as metalanguages for the semantic elicitation. Many of the discourse contexts were complicated, and not all of my language consultants had the knowledge of Spanish necessary to follow a long, complex context description. Therefore, to ensure that consultants understood the contexts, I would typically describe each context first in Spanish and then in Ticuna. The consultants issued their judgments in both languages. I followed a similar procedure for interpreting reactions to judgment elicitation tasks as Tonhauser et al. (2013). That is, if consultants laughed, looked confused, said 'what?,' and so on in response to a sentence, I treated that reaction as evidence that the sentence was unacceptable in the context -- even if the consultant did not metalinguistically say 'no' to it.

On a few occasions, I also conducted semantic elicitation interviews where I offered consultants a Ticuna utterance, and then asked them to describe (in Ticuna) a situation in which that utterance would be felicitous. I used this kind of form-to-context elicitation procedure both as the sole procedure of interviews, and as a way of prompting consultants to make comments on sentences judged unacceptable in acceptability judgment tasks.

Compared to acceptability judgments, consultant responses from form-to-context elicitation are richer, but also longer and much more difficult to interpret in isolation. Because of these factors, I do not directly cite any form-to-context elicitation data in the body of this study (though I sometimes cite consultant comments that could be interpreted as form-to-context judgments). I do refer to form-to-context elicitation data as a point of comparison in discussing the results of other elicitation tasks.

2.1.1.2 Motivations

Semantic elicitation based on imaginary contexts is the only technique which allows the researcher to probe contexts that (a) do not regularly appear in observational data and (b) cannot be created in the actual surround of the elicitation interview. For example, this technique allowed me to study the temporal requirements of the remote past anaphoric demonstrative, DNOM/DLOC6 (Chapter 7). I could not have uncovered the requirements of this demonstrative based only on observational data, as it rarely appears in conversation, or based on the results of the Demonstrative Questionnaire, as it was never volunteered in that task.

At the same time, semantic elicitation based on imaginary contexts also has significant disadvantages. One is that it is not especially reliable. Consultants sometimes reject structures that are attested or accept ones that are questionable (often because they have come to a different understanding of the discourse context than the researcher intended). I controlled for false positives and negatives by checking all of my elicited data based on imaginary contexts with at least three consultants.

Another, more serious weakness of this procedure is that it does not replicate the conditions in which people actually use language. All experimental tasks are to some degree artificial, but

semantic elicitation based on imaginary contexts is especially artificial because it involves a procedure -- metalinguistically judging the acceptability of an utterance -- that never takes place as part of naturally occurring language use. Other types of elicitation, including those described in §2.1.2 below, involve more naturalistic tasks.

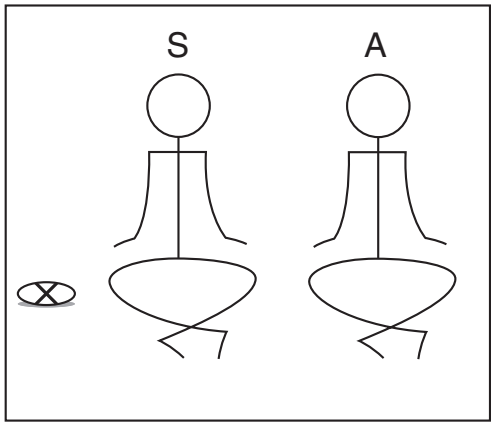
Becuase of these disadvantages, in the analysis in Chapters 4 through 7, I refer to data from semantic elicitation based on imaginary contexts only when I lack any other form of data on the issue at hand.

2.1.2 The Demonstrative Questionnaire

2.1.2.1 Procedure

I collected most of the elicited data in Chapters 4 through 6 using the Demonstrative Questionnaire (Wilkins 1999a, 2018). The Demonstrative Questionnaire is an interview guide created by David Wilkins for studying the spatial and perceptual deictic content of demonstratives. It consists of 25 'scenes.' In each scene, the researcher sets up a specific spatial configuration of the interview participant, an addressee, and an inanimate object, such as a ball or book. For example, in Scene 6 of the Demonstrative Questionnaire, shown in Figure 2.1, the researcher is directed to seat the participant and the addressee side by side, then place the inanimate object on the far side of the speaker from the addressee.

Figure 2.1: Example scene of the Demonstrative Questionnaire: Scene 6



Once the participant, addressee, and object are in the required spatial configuration for a given scene of the Demonstrative Questionnaire, the researcher asks the participant to produce a sentence that makes demonstrative reference to the object. The participant never has to imagine what they would say in some spatial configuration. Instead, they produce the target sentences while they are actually in that configuration.

I collected the Demonstrative Questionnaire data as follows. I administered Wilkins' original version of the questionnaire to 10 speakers, six women and four men. I acted as the addressee for

all speakers. In each scene of the questionnaire, I first asked the speaker to produce a sentence with a nominal demonstrative reference to the object, typically in the frame 'Is DEM Noun yours?.' Then I repeated the speaker's volunteered sentence with each of the other exophoric nominal demonstratives, and asked him or her to judge if the sentence was still acceptable in the scene. Seven of the 10 participants were video-recorded completing the task. Of the other three, two did not consent to be video-recorded and one could not be video-recorded for logistical reasons.

I also created four modified versions of the Demonstrative Questionnaire and administered them to three to five speakers each. The modified versions of the questionnaire were as follows:

1. Locative demonstrative modification - This modification, run with five participants, was designed to elicit locative demonstratives (place reference) rather than nominal ones (object reference). To accomplish this, I replaced the frame sentence 'Is DEM Noun yours?,' which elicits only nominal demonstratives, with the frame 'Go and stand DEM,' which is syntactically compatible only with locative demonstratives.

2. Motion goal modification - This modification was designed to elicit nominal demonstrative references to objects that are motion goals for the speaker, addressee, or both. Participants produced responses while they, I (the addressee), or both of us were in motion toward the demonstrative referent.

3. No manual pointing modification - This was designed to test the effects of manual (hand) pointing on nominal demonstrative reference. Participants completed the questionnaire task while holding a large sheet of plastic in both hands, preventing them from pointing.

4. Tool pointing modification - This modification was intended to test the effects on nominal demonstrative reference of using a tool to extend the speaker's reaching space. Participants were constrained to point using a 70cm tool while they completed the questionnaire task.

The locative demonstrative modification did not alter the questionnaire in any way except the change of frame sentence. In the other modifications, some scenes were removed because they were not relevant to the research questions which the modifications were designed to answer. The modifications of the questionnaire were all video-recorded, except for sessions with two participants who did not consent to be video-recorded.

Results of the locative demonstrative and motion goal modifications of the questionnaire are presented in Chapters 5 and 6 of this study, alongside the results of the unmodified questionnaire. The results of the unmodified questionnaire, locative demonstrative modification, and motion goal modification are also presented in tabular form in Appendix A. Results of the no-pointing and tool-pointing modifications are not presented in this work. There are two reasons I do not include the data from these final two modifications: qualitatively, the data from these modifications does not display obvious differences from the unmodified task, and quantitatively, the number of participants in them is too small to detect statistical differences.

I used both Spanish and Ticuna as metalanguages to administer the Demonstrative Questionnaire and its modifications. In the parts of the tasks that involved giving judgments, I used the

same procedure for interpreting judgments as in semantic elicitation based on imaginary contexts.

In Chapters 4 through 6, I often describe the results of the Demonstrative Questionnaire and its modifications by saying that participants displayed 'high,' 'moderate,' or 'low' agreement on a particular demonstrative in a particular scene. I describe participants as showing 'high' agreement if at least 80% of participants volunteered the same demonstrative in a given scene. Volunteering a demonstrative and metalinguistically judging it acceptable represent two different responses. Thus, if eight of 10 participants volunteer DNOM1 *ɲa⁴a²* in a given scene, then I say that participants display 'high agreement' that DNOM1 is the most natural demonstrative in that scene. However, if six of 10 participants volunteer DNOM1 in a scene, and four of 10 judge it acceptable, I do not analyze the responses as showing 'high agreement' on DNOM1, since there are fewer than eight participants sharing a single response. For the categories below 'high' agreement, I describe participants as showing 'moderate' agreement if at least 60% display the same response, and as showing 'low' agreement if less than 60% display the same response.

The 60% floor for the 'moderate' category and the 80% floor for the 'high' category are based on the probability of obtaining the same result due to chance. Under the null hypothesis, the probability that 6 of 10 participants choose the same demonstrative (out of 4 possible exophoric demonstratives) is 0.051. The probability that eight of 10 participants choose the same demonstrative is approximately 0.00069. Therefore, 'moderate' (60%) agreement on a given demonstrative represents a preference for that item that very closely approaches statistical significance (i.e. $p < 0.05$), while 'high' agreement represents a highly significant preference ($p < 0.001$). I also note some scenes where all 10 participants volunteered the same item. The probability of this outcome under the null hypothesis is approximately 9.5e-7 (less than one in 1,000,000).

The 'high,' 'moderate,' and 'low' agreement labels defined above apply only to volunteered data. I do not attempt to apply quantitative threshholds for significance to the judgment data. This reflects the structure of the data. While the judgment data is treated as binary in the results tables in Appendix A, it is actually not binary. As any researcher who has done acceptability judgment tasks knows, consultants express a range of judgments between acceptable and unacceptable -- not just 'yes' and 'no' (or even 'yes,' 'no' and 'maybe'). The participants' gradient judgments are represented in my fieldnotes and in the recordings of the experiments. However, they cannot be represented as a binary data matrix, and I have no principled way to convert them into a multinomial matrix.

Because of these issues, my interpretation of the judgment data is primarily qualitative. I place more weight on the volunteered forms than on the judged forms, since -- as just discussed, and as will be discussed further below -- the task of producing demonstratives is much more ecologically valid than the task of producing acceptability judgments on demonstratives. Thus, if a form is never volunteered in a scene, I do not consider it acceptable unless a supermajority of participants (at least 70%) judge it acceptable, as smaller numbers of judgments as acceptable could reasonably arise from chance.

Split judgments sometimes occur in the data set. I define a demonstrative as displaying split judgments in a given scene of the Demonstrative Questionnnaire if the demonstrative is both (a) volunteered by at least 20% of participants and (b) rejected by at least 20% of participants. Under

this definition, in the results of the unmodified questionnaire, 13 out of 100 scene-demonstrative pairs display split judgments. The low degree of experimental control in this task, especially in scenes 6 through 23, is the most likely source of the split judgments. Since each participant completed the task in a different location, differences in the physical environment (e.g. the size of the cleared space used in scenes 13 through 17) between the locations may have confounded the responses. Likewise, variation in the locations where I placed the referents may have affected the responses -- referents in the 'same' scene may not have been at the same absolute distance from the speaker, or the same location relative to their reaching space. By contrast, variation in speakers' cognitive representations of the demonstratives is not a plausible explanation for the split judgments, as the splits do not consistently involve the same participants.

In line with my emphasis on volunteered data over judgment data, I treat scenes that display moderate or higher agreement in volunteered forms, but splits in judgment data, like any other moderate or high agreement scene. Thus, if a given demonstrative is volunteered by six of 10 participants, accepted by two, and rejected by two, I treat that demonstrative as acceptable in the scene (reflecting the moderate agreement in volunteered forms).

2.1.2.2 Motivations

The Demonstrative Questionnaire has many advantages as a tool for collecting data on demonstratives. Like semantic elicitation based on imaginary contexts, it allows the researcher a fairly high degree of control over the discourse context. Unlike less concrete elicitation techniques, however, it does not require participants to do a highly artificial task. Instead, participants are asked to complete only tasks -- pointing at objects and making demonstrative reference to them -- that are actually part of routine language use. Another advantage of the questionnaire is that it can easily be adapted to study different demonstrative subsystems of the same language, or to study how speakers use a single demonstrative subsystem in different extralinguistic contexts (as the modifications of the questionnaire described above illustrate). Similarly, since the questionnaire has been used to collect data on many different languages, it affords a principled way to compare different languages' demonstrative systems.

Despite these advantages, the Demonstrative Questionnaire also has some limitations. Its most serious limitation relevant to this study is that the stimulus scenes are not balanced for the visibility of the referent. Some scenes are balanced (e.g. scenes 13 and 15 are the same except for the visibility of the referent), but most are not (e.g. scene 1 has an invisible referent, but there is no parallel scene with a visible one). Another limitation of the procedure is that it does not include a principled way to control for the effects of joint attention. In my implementation of the procedure, I controlled for joint attention to the extent possible by using the same referent for all of scenes 6 through 23, such that the referent was always already in joint attention at the moment of the participant's demonstrative reference. However, it is impossible to use this technique to control for joint attention throughout the entire questionnaire, since some scenes involve referents that are intrinsically beyond the researcher's control -- for example, the speaker's teeth (the referent in scene 1) and features of the landscape (the referents in scenes 24 and 25).

Because the Demonstrative Questionnaire is more controlled and more ecologically valid than semantic elicitation based on imaginary contexts, I treat data from the questionnaire as more reliable than other elicited data. At the same time, the questionnaire data (like data from any kind of behavioral experiment) does not capture how participants actually produce or comprehend demonstratives in their everyday language use. Therefore, in Chapters 4 through 6, I assign questionnaire data lower analytical priority than data from naturally occurring events.

2.1.3 Recording naturally occurring events

2.1.3.1 Procedure

A large part of the data in Chapters 4 through 6, and some of the data in Chapter 7, comes from recordings of naturally occurring events (events that would have occurred in similar form without my intervention). Most of the naturally occurring events that I recorded were maximally informal conversations -- that is, conversations where all participants knew one another well, taking place in the participants' homes or in other places familiar to them.[1] I also recorded some events other than maximally informal conversations, such as soccer games and church services. All of the recordings of naturally occurring events include both audio and video, except for one church service recorded with audio only.

My usual procedure for recording naturally occurring events was that I made an appointment with a household, arrived at their house at the agreed time, set up the video recording equipment in the kitchen (or another place where an extended activity was happening), and then left for 30 to 60 minutes, returning for a minute or two every 15 minutes to check that the equipment was working correctly. Therefore I am not present in most of the video recordings. Speakers do sometimes comment on the presence of the video camera in the recordings, but in general they appear to be continuing whatever tasks they were doing before the video camera was turned on.

As well as recording conversations using this procedure, I also made some opportunistic handheld video recordings of events taking place around me while I was acting as a participant observer. In this material I am present, but the speakers do not usually talk to me.

After I collected the video recordings of naturally occurring events, I selected passages that included a reasonable proportion of speech and had acceptable quality audio. Audio quality was a crucial consideration, since Cushillococha people's houses are all within 100m of the busy Caballococha-Cushillococha road, and it can be difficult to record audio without severe road noise. I viewed the recording, segmented it, and transcribed the contents myself using the application ELAN (Wittenburg et al. 2006). Then I worked with a transcription consultant to check my transcription, transcribe any passages that I did not initially understand, and translate the content into Spanish. All transcripts were checked in full twice. Angel Bitancourt Serra (§2.4) was the transcription consultant for the great majority of the recordings. The Transcription Mode of ELAN (Dingemanse et al. 2012) made the transcription process much faster than it otherwise have been.

Table 2.1 lists and characterizes all of the transcribed recordings of naturally occurring events.

[1] See Stivers et al. (2010:2617) for a more complete technical definition of 'maximally informal' conversation.

Table 2.1: Contents of the corpus of recordings of naturally occurring events

Unique identifier	Recording time	Description
20170527a	34m16s	A young woman, her mother-in-law, and her 2y6m-old daughter on a social visit to the mother-in-law's father. Briefly joined by the daughter-in-law's husband.
20170527b	10m2s	The same woman from 20170527a on a social visit to her husband's aunt. Again briefly joined by husband.
20170604	20m25s	A woman preaches a Christian sermon about a recent missionary trip to another town to an audience of about 30 adults, then her husband summarizes.
20170613a	17m1s	A man and a woman coach the Cushillococha high school girls' soccer team in a game against another town.
20170613b	3m20s	Four women and one man chat while watching a soccer game (different game from 20170613a).
20170630	8m23s	Three sisters and the husband of one of them make cuttings of plants in one sister's yard.
20170717	2m0s	Two women and several onlookers discuss plans for a church fundraiser.
20170818	5m1s	Five coresident adults chat in their kitchen.
20180607	28m23s	Two coresident sisters chat in the company of one's 7m-old daughter and the other's 1y6m-old son.
20180622	16m7s	A man and his father process wild cane into arrows. Briefly joined by the younger man's sister and then his wife.
20180628	20m0s	A revolving group of 3-6 closely related adults on a social visit. (two discontinuous 10m segments taken 20m apart from 75m interaction)
20180707	10m0s	A young woman chats with her husband and coordinates the activities of her younger siblings while taking care of her 6m-old daughter.
20180728	2m30s	The same woman from 20180707 chats with her mother and other coresidents while taking care of her 6m-old daughter.

The total transcribed time from conversations is 2h20m and the total transcribed time of all naturally occurring data is 2h57m.

2.1.3.2 Motivations

I take as given that the goal of pragmatics is to account for speakers' use of language in actual communication (i.e. in events that would take place independent of research). This entails that data from naturally occurring events should be the gold standard for research in the sub-

field. Consequently, I assign naturally occurring data the highest analytical priority in Chapters 4 through 6.

While data from naturally occurring events is the most ecologically valid form of data, it also has some limitations. One limitation of the corpus of naturally occurring data used in this study is that all of it was recorded using a single video camera (rather than multiple cameras recording simultaneously from different angles). As a result, there are many passages in the corpus where some of the discourse participants are out of the shot, or where the referents of the participants' demonstratives are out of the shot. While it still usually possible to infer the locations of the participants and referents, the need for inference introduces some uncertainty into the analysis.

Another limitation of my corpus of naturally occurring data is that -- while comparable in size to corpora of conversation for many less-studied languages (see e.g. San Roque et al. 2015) -- it is small in absolute terms. The absolute small size of the corpus reflects that processing of conversational data, especially data from conversations with more than two participants, is extremely time-consuming. Creating the 3h corpus of naturally occurring data required approximately 300 person-hours of labor from me and 225 person-hours from Angel and other transcription consultants.

2.1.4 Recording staged events

2.1.4.1 Procedure

Especially in Chapter 7, some data in this study comes from recordings of staged speech events. The staged material includes (a) locality description interviews (total transcribed recording time: 3h15m); (b) descriptions of built spaces such as houses and yards (36m); (c) two staged conversations (1h12m); and (d) other procedural and narrative discourses (4h precisely).

The locality descriptions and built space descriptions are video-recorded interviews between me and one consultant, conducted in Ticuna only. In the locality description interviews, I ask the consultant questions about how their locality (the Cushillococha/Caballococha region in general, and the area surrounding the house where they personally live) has changed over time, what it is like now, and how it might change in the future. The interview questions are based on Kita (2001). In the built space decriptions, I am in a yard or construction site with a consultant who is acknowledged as an owner of that space. I ask the consultant questions about the history, current ownership, and plans for the space. All of the locality and built space descriptions were recorded in July 2017 and later, since prior to that time I did not speak Ticuna well enough to conduct interviews.

The staged conversations are video-recorded interviews between my transcription consultant/research assistant Angel Bitancourt Serra (cited in examples as ABS) and one other speaker per conversation. The method for creating this data was that I gave Angel a question prior to the interview and asked him to discuss that question with the interviewee. One of the staged conversations is a built space description interview between Angel and his classificatory aunt about work on the aunt's house. The other one is a conversation between Angel and his half-brother,

Nicasio Witancort Guerrero, about Nicasio's recent trip to the town of Maturá, Amazonas, Brazil. One of the staged conversations was recorded in July 2017 and the other in June 2018.

The other procedural and narrative discourses are audio-recorded discourses where the speaker is addressing me (or the recorder, for the discourses recorded before I could understand the language). They include procedural texts, traditional narratives/folktales, personal and oral history narratives, responses to targeted construction storyboards, responses to questions posed by me (e.g. 'What will happen this rainy season' or 'How should young men behave'), and vernacular definitions of content words. I recorded these discourses between 2015 and 2018. They are the only part of my corpus that represents staged monologic discourses.

The recordings of staged material were transcribed according to the same procedure as the recordings of conversation, except that in most cases the transcription was checked with the consultant only once, and consultants besides Angel also participated in transcription. The total transcribed time of all staged data is 9h3m. The total transcribed time of all naturally occurring data and staged data combined is 12h1m.

2.1.4.2 Motivations

Data from staged speech events, especially from the monolingual interviews that make up most of my staged corpus, is richer than elicited and experimental data. It includes more speech, a wider vocabulary, and a greater variety of structures. At the same time, staged data is much less rich than naturally occurring data, especially in the kind of attention-directing sequences that are most valuable for the study of deixis. For example, people often ask their addressees to pass them things in informal conversations, but rarely do so in interviews.

While data from staged events is less ecologically valid than data from maximally informal conversations, it is also more controlled. This greater control makes staged data much easier to process and analyze than naturally occuring data. For instance, in staged data the researcher is able to control where participants sit or stand; in naturally occurring data, participants come and go as they wish. This means that in staged video recordings, it is easy to ensure that participants are always in the shot and that the camera is positioned to capture all of their meaningful visual behaviors. By contrast, as I noted above, participants are often outside the shot in (single-camera) video of maximally informal conversation.

The majority of the staged data collected in this research was gathered for a study of deictic gesture (Skilton et al. 2018). Because this study does not appear as part of the dissertation, I rarely refer to staged data in the text. When I do, I assign it the same analytical priority as experimental data (i.e. higher than elicited data, but below data from naturally occurring events).

2.2 Recording methods

I made audio-only recordings using a Zoom H4N audio recorder sampling at 44.1kHz and writing to WAV format. During elicitation sessions and recordings of staged speech events, the Zoom H4N was attached to either an ATH-M30 lapel microphone or a Shure SM10 headworn micro-

phone, depending on the level of environmental noise (the headworn microphone was necessary in some very noisy environments). I also used Zoom H4N, Zoom H1N, and Olympus VP10 audio recorders recording via the external microphone to make some recordings of naturally occurring events. These devices -- especially the VP10, which can be worn clipped to a participant's clothing -- provided an additional audio track to the video camera audio, which was useful for recording in noisy or echoing environments.

I made video recordings using a Sony PJR540 video camera with no external microphone (this camera does not support an external microphone) in 2017, and using a Canon XA30 video camera recording audio via a Rode NT4 stereo microphone in 2018. The Rode NT4 was equipped with a 'dead kitten' windshield and placed on a freestanding microphone boom stand to approach as close as possible to participants and minimize environmental noise. I used the same video equipment to make video recordings of all types of data. The video equipment recorded the videos in HD format directly to SD cards. Because there was no intermediate step of digitizing the video, I was able to work on transcribing video as soon as it was recorded.

During semantic elicitation sessions, I took notes in a paper notebook in addition to recording. I also took paper notes on overheard speech and wrote a daily fieldwork diary. I did not take paper or digital notes while collecting other forms of data.

All of the audio recordings, video recordings, paper fieldnotes, and transcriptions made in this project have been deposited in the California Language Archive and are publicly accessible. They are distributed across the archival collections 'Ticuna conversations' (SCL 2018-19), 'Ticuna experiments' (SCL 2018-20), and 'Ticuna elicitation and texts' (SCL 2015-06).

2.3 Citation style and transcription conventions

In the body of the text, examples from all types of semantic elicitation are cited by the consultant who provided them, followed by the year, number, and page of the field notebook where they appear. Thus the citation 'LWG: 2018.1.47' means that the item comes from consultant LWG, recorded in notebook one of year 2018, page 47.

Many examples from elicitation bear the acceptability judgment symbols ✓, #, and ?, which can be placed either before a sentence (scoping over the entire sentence) or before a word (scoping over that word). The symbol ✓ means that the sentence or word in its scope is acceptable in the context given. The symbol ? means that the sentence or word is questionably acceptable (e.g. that it is accepted by some consultants and rejected by others, or that consultants report a judgment that the sentence is acceptable but odd). The symbol # means that the sentence or word is unacceptable for semantic or pragmatic reasons. I do not use the symbol * (meaning that a sentence is unacceptable for syntactic reasons) because, to my knowledge, all example sentences shown in the dissertation are syntactically acceptable. Examples with no acceptability judgment symbol are acceptable.

Examples from staged speech events are cited by the speaker who produced them, followed by a unique identifier for the recording, followed by the recording time in minutes and seconds. Thus

the citation 'HCG Locality Description 29:01' means that the example is produced by consultant HCG in a locality description interview at 29 minutes and one second of the recording.

Examples from recordings of naturally occurring events are cited by the unique identifiers provided in Table 2.1, followed by the recording time (mm:ss format) at the beginning of the excerpt. The contributions of individual speakers in naturally occurring examples are identified by the speakers' names if I know them and by letters if I do not. In examples that include a video still, the video still always appears before the example.

All examples in this dissertation, whatever their source, have at least four lines. The first line is a phonetic transcription using IPA characters (except that <r> represents the tap rather than the trill). I choose to use the IPA rather than a practical orthography because there are at least four different orthographies for Ticuna circulating in the countries where it is spoken, and I do not wish to endorse one of the practical orthographies over another. Spanish and Portuguese words which appear in the first line, such as names, are written in the orthography of the relevant language and not in the IPA.

In examples from conversations and other naturally occurring speech events, the first line of each example uses the conventions for representing informal talk given in Tables 2.2 and 2.3. Most, but not all, of these conventions are taken from the Conversation Analysis transcription system developed by Jefferson (2004). Conventions shared with the Jefferson system are shown in Table 2.2; conventions not shared, in Table 2.3. Where I do not adopt Conversation Analytic conventions, it is generally because those conventions are not compatible with the IPA. For example, since the IPA does not officially include capital letters, I do not use capitals to represent loudness.

Table 2.2: Transcription conventions used in the first line of examples: Shared with Conversation Analysis

Symbol	Represents
[	two [symbols, on two lines by separate speakers, represent the onset of overlapping talk
]	two] symbols, on two lines by separate speakers, represent the offset of overlapping talk
=	at the end of a line, represents 'latching' - no discernible pause between the line ending with = and the following line
(1.0)	numbers in parentheses represent silence, measured in seconds
-	hyphens represent a speaker being interrupted by another, or interrupting themselves to reformulate
()	empty parentheses represent speech that cannot be heard or cannot be understood
?	question mark represents polar or content question intonation (broadly, rising)

Table 2.3: Transcription conventions used in the first line of examples: Not shared with Conversation Analysis

Symbol	Represents
[loud]	unusually loud talk is preceded by [loud] or [very loud]
[scolding voice]	talk with phonetic features conventionally associated with some affective state is preceded by e.g. [scolding voice]
(RGW)	speaker attributions in parentheses represent that the speaker is off camera
:	IPA length symbol represents that a vowel is lengthened
↘	IPA global fall symbol represents continuing/declarative intonation (broadly, falling)

After the first line, the second line of each example separates the morphemes and shows each morpheme in its underlying phonological form. For verbs that undergo grammatical tone alternations, this means that I undo the tone alternations and show the underlying tone of the verb. The third line individually glosses the morphemes, using Leipzig glossing conventions and the additional conventions given in the List of Abbreviations. In the second and third lines, I use the character - to separate affixes, = to separate clitics, and + to separate inalienably possessed nouns, which behave like clitics in some ways and like affixes in others. Note that = in the first line represents latching, per Table 2.2, and not clitic boundaries.

The fourth line of each example is an English sentence gloss. The English sentence glosses are mine and are based on what I know about the truth and felicity conditions of the sentence and my general knowledge of the language. Where I have Spanish glosses by consultants, I also take them into account in formulating the English sentence gloss. (Note, however, that much of my data -- including all of the Demonstrative Questionnaire data -- lacks Spanish glosses.)

Examples drawn from video recordings of naturally occurring events have additional transcript lines for gestures and other visual behavior. The speaker's visual behavior is always represented in the first line under the English translation. Any visual behavior by other discourse participants that coincides with the speaker's turn is represented in additional lines. Lines for other discourse participants' visual behavior are always placed under the lines for the speaker's visual behavior.

All descriptions of visual behavior are enclosed in double parentheses. If there is no visual behavior given for a line from a video-recorded example, it is because neither the speaker nor any other discourse participants are engaged, during that line, in any visual behavior that I consider relevant to the talk.

2.4 Participants

Including all of the people who appear in the recordings of naturally occurring events, there are at least 50 people represented in the data presented in this thesis. It is not possible for me

to acknowledge and describe all of these people, especially as I do not know all of them. I do, however, want to describe the contributions of all adult participants who I know.

Table 2.4, at the end of this section, lists 15 participants whose data substantially informed the dissertation, and who have either given consent to release their names or have specifically chosen to be anonymous.

Beyond the participants listed in Table 2.4, there are an additional 10 participants whose data substantially informed the dissertation, but who did not state a clear preference about disclosure of their names. I acknowledge these people in thanks for the important data which they contributed, and in the interest of privacy, I identify them by anonymous codes. They are listed in Table 2.5, which appears immediately after Table 2.4. Most of the people acknowledged in Table 2.5 are friends who I occasionally recorded, but did not work with on a regular basis.

All of the 25 participants listed in Tables 2.4 and 2.5 were born in Cushillococha or nearby and have lived in the Cushillococha-Caballococha region for most of their lives. Among the 25, five -- HCG, LGC, MJP, SCG, and AYM (women aged 25 to about 60 in 2018) -- do not speak any language other than Ticuna well enough to hold a conversation, although they understand Spanish to some extent. All of the other participants speak Spanish, some of them substantially better than I do, and a few also speak Brazilian Portuguese. All of the participants provided informed consent for the study components they participated in, including to have data and images published.

2.5 Summary

At the opening of this chapter, I introduced each of the four primary methods that I used to collect the data reported in Chapters 4 through 7: semantic elicitation based on imaginary contexts (§2.1.1); experiments based on the Demonstrative Questionnaire (§2.1.2); recording of maximally informal conversations and other naturally occurring events (§2.1.3); and recording of staged events (§2.1.4).

I chose this combination of methods in order to balance ecological validity with the need for researcher control. Because I believe that pragmatics must be accountable to actual language use, I see maximally informal conversation as the most important and most reliable source of data for this study. At the same time, data from maximally informal conversation is (by design) completely uncontrolled. I therefore paired collection of data from maximally informal conversation with a variety of more controlled tasks -- the most important being the tasks based on the Demonstrative Questionnaire (Wilkins 1999a).

The structure of my arguments in Chapters 4 through 6 reflects this mixed-methods approach. I introduce the analysis of each exophoric demonstrative by first summarizing participants' use of that demonstrative in the Demonstrative Questionnaire. Then, I use representative examples from the corpus of maximally informal conversation to illustrate how speakers' use of the same demonstrative in conversation is (or is not) consistent with the results of the Demonstrative Questionnaire. I refer to elicited and staged data only to answer questions that cannot be answered based on either the Demonstrative Questionnaire or the conversational corpus. Chapter 7, on anaphoric and recognitional uses of demonstratives, departs from this structure, drawing more

on staged and elicited data and less on the Demonstrative Questionnaire. This is a consequence of the chapter's topic. The Demonstrative Questionnaire is designed only to collect data on exophoric uses of demonstratives. I therefore look to other sources of controlled data, including elicitation, to examine anaphoric and recognitional uses.

Following the discussion of data collection methods, in §2.2 I discussed the recording equipment and procedures used in the data collection; in §2.3, the transcription and citation conventions in the body of this work; and in §2.4, the participants who contributed to the research. I am explicit about these aspects of the methods not only in the interest of transparency, but also in order to educate readers who are interested in collecting data on deixis (or data on maximally informal conversation) about the resources necessary to carry out this style of research.

Table 2.4: Table of participants who have consented to release their names or have chosen to be anonymous

Code	Participant Full Name	Gender; age (2018)	Forms of data or assistance provided
ABS	Angel Bitancourt Serra	m; 68	Demonstrative Questionnaire, staged discourses, transcription assistance (responsible for all conversation transcription)
DGG	Deoclesio Guerrero Gómez	m; ∼70	Semantic elicitation (many topics), staged discourses, conversation recordings, assistance arranging conversation recordings, general description prior to deixis study
DRW	Diandra Rimabaque Witancort	f; 20	Demonstrative Questionnaire, transcription assistance
'ECP'	anonymous	f; ∼50	Semantic elicitation (many topics), transcription assistance
ECG	Elvira Coello Guerrero	f; ∼50	Demonstrative Questionnaire, staged discourses, conversation recordings
KSC	Katia Lucero Salate Cándido	f; 22	Semantic elicitation (many topics), general description prior to deixis study
HCG	Ortensia Coello Guerrero	f; ∼60	Staged discourses
LCS	Ling Cándido Serra	m; 40	General description prior to deixis study
LVI	Lesli Victoria Guerrero Coello	f; 40	Staged discourses, conversation recordings, assistance arranging conversation recordings
LWG	Lilia Witancort Guerrero	f; 42	Semantic elicitation (many topics), staged discourses, transcription assistance
MFC	Marcelo Farías Cayetano	m; ∼70	Demonstrative Questionnaire, general description prior to deixis study
NWG	Nicasio Witancort Gómez	m; ∼75	Staged discourses
SSG	Sotil Suárez González	m; 41	Semantic elicitation (many topics), staged discourses
'UGW'	anonymous	f; ∼40	Conversation recordings
YCG	Yaneth Cándido Guerrero	f; 36	Semantic elicitation (many topics), staged discourses, assistance arranging conversation recordings

Table 2.5: Table of participants who have neither consented nor withheld consent to release their names

Participant Code	Gender; age in 2018	Forms of data or assistance provided
JRP	m; 24	Conversation recordings
KGW	f; ∼40	Conversation recordings
LGC	f; 57	Staged discourses
LFG	f; 22	Conversation recordings, assistance arranging conversation recordings
MJP	f; 34	Conversation recordings
RGW	f; ∼50	Conversation recordings
SCG	f; 25	Conversation recordings, assistance arranging conversation recordings
AYM	f; 26	Conversation recordings
TGC	m; 38	Conversation recordings, assistance arranging conversation recordings

Chapter 3

Concepts in the cross-linguistic study of exophoric deixis

3.1 Introduction

In order to provide context for the discussion of Ticuna demonstratives in Chapters 4 through 6, this chapter reviews literature on the deictic content of exophoric demonstratives. Many of the authors who have contributed most to the study of deictic words are not linguists, but psychologists or anthropologists. Therefore, I do not limit this review to literature that is written by linguists or uses the analytical framework of linguistics. In the interest of space, I do limit the discussion to work on the deictic content of demonstratives in exophoric use. I leave aside endophoric uses, since I discuss endophora only in Chapter 7; deictic words other than demonstratives, since I discuss only demonstratives in this study; and work on the definiteness component of demonstrative meaning, since I am focused on demonstratives' status as deictics, rather than their status as definites.

The review is divided into four sections. §3.2 introduces the conceptual framework for demonstrative meaning which I apply in this study. §3.3 reviews and evaluates the literature about 'visibility' and other perception-related content in demonstratives. §3.4 examines the literature about the spatial deictic content of demonstratives, focusing on debates about whether that content concerns the distance of the referent from the speaker (a continuous variable), or the location of the referent relative to a perimeter (a categorical variable). §3.5 discusses literature, primarily from psycholinguistics, about the relationship between demonstratives and attention. §3.6 summarizes and describes the content of Chapters 4 through 6 in relation to the literature reviewed.

3.2 Conceptual framework

In this section, I begin by proposing an operational definition of the category 'demonstrative' (§3.2.1). I then observe that demonstratives can have multiple orthogonal meaning components: a deictic component, a definiteness/quantificational component, and a classificatory component

(§3.2.2). This study is concerned almost exclusively with the deictic component of demonstrative meaning. Therefore, in §3.2.3, I lay out the model of the deictic meaning of demonstratives which I employ in the rest of this literature review and in Chapters 4 through 7. Last, in §3.2.4, I define the concepts of deictic transposition and deferred reference -- uses of demonstratives which involve either shifts of reference away from the object indexed by the demonstrative (deferred reference), or shifts of perspective (deictic transposition). In §3.2.5, I summarize and conclude.

3.2.1 Defining demonstratives

I define a demonstrative as a closed-class lexical item which picks out a referent from the physical surround of discourse, or from the shared knowledge of the discourse participants, by relating it to the participants. The fact that demonstratives are relational -- that they encode spatial, perceptual, or other relations between the participants and the referent -- is what distinguishes them from similar noun phrase constituents, such as third-person pronouns and (definite) articles. Third-person pronouns and articles do not encode anything about the relation between the discourse participants and the referent; demonstratives do.

This definition of 'demonstrative' is exclusively pragmatic. In order to encompass both nominal and locative demonstratives, it does not include syntactic criteria. Definitions of particular syntactic categories of demonstratives (e.g. nominal demonstratives) or definitions of 'demonstrative' specific to an individual language can, of course, include syntactic or other formal criteria. For example, my definition of the category 'locative demonstrative' for Ticuna includes syntactic and phonological criteria as well as pragmatic criteria (§1.3).

3.2.2 Components of demonstrative meaning

Demonstratives can have multiple meaning components. Here, I define three components of demonstrative meaning: deictic content, definiteness/quantificational content, and classificatory content.

By the definition given in §3.2.1, all demonstratives have **deictic content**. The deictic content of a demonstrative is **what the demonstrative conveys about its referent in relation to the discourse participants**. For example, take the English demonstrative *that*. The deictic content of *that*, on a traditional (distance-based) view of the English demonstrative system, encodes that the referent is far from me, the speaker.

The term 'deictic content' is my own. Other authors use a wide variety of terms to refer to what I call 'deictic content,' including 'spatial meaning,' 'locative meaning,' 'indexical meaning,' and 'relational value' or 'R-value.' I avoid the terms 'spatial' and 'locative' because they presuppose that the content is exclusively about space, which is not true (§3.3 and Chapter 4). I avoid the terms 'indexical' and 'relational,' and prefer the term 'deictic,' in the interest of precision, as the classes of indexical and relational words are larger than the class of deictics. For example, transitive verbs are relational (they encode a relation between two entities, the agent and the patient) but not deictic. Likewise, sociolinguistic variables such as /s/-fronting in English are indexical (they provide information about the speaker's persona or group affiliation) but not deictic -- as they

convey relations between participants and non-referent third parties, not between participants and referents. This leaves 'deictic' as the only word that describes just those meanings which relate participants to referents, rather than relating referents to one another (like transitive verbs) or relating participants to non-referents (like /s/-fronting).

As well as deictic content, demonstratives (especially nominal demonstratives) can also have **definiteness/quantificational content**. The definiteness/quantificational content of a demonstrative is defined by how the demonstrative participates in the language's system of nominal quantification and (in)definiteness. This content also includes any information which the demonstrative conveys about the uniqueness, non-uniqueness, or familiarity of the referent as a result of its status within the language's quantificational system. As an example of the definiteness/quantificational content of demonstratives, again consider the English demonstrative *that*. Noun phrases that contain *that* pattern as strong on the weak/strong quantifier distinction (Milsark 1974), meaning that they are not allowed in the pivot of an existential construction (e.g. #*There is that fish in the pond*). This and related syntactic behaviors are typically taken as evidence that *that*, like *the*, encodes uniqueness (Wolter 2006). Thus, uniqueness is part of the quantificational/definiteness content of *that*, while the requirement that the referent is far from the speaker is part of the item's deictic content.

Demonstratives that display number agreement (as in English) or noun class agreement (as in Ticuna) also convey information about the number or noun class assignment of their referents. Following Nunberg (1993), I refer to this information as the 'classificatory content' of demonstratives. I assume that classificatory content is orthogonal to both deictic and quantificational/definiteness content.

In the following chapters, I am concerned exclusively with analyzing the deictic content of the demonstratives of Ticuna. I generally do not address the definiteness/quantificational content, nor the classificatory content. My decision to focus on the deictic content reflects an asymmetry in the linguistic literature on demonstratives, alluded to in Chapter 1. Linguists have already developed a strong cross-linguistic theory of the definiteness/quantificational content of demonstratives. Our theory of deictic content, on the other hand, remains weak.

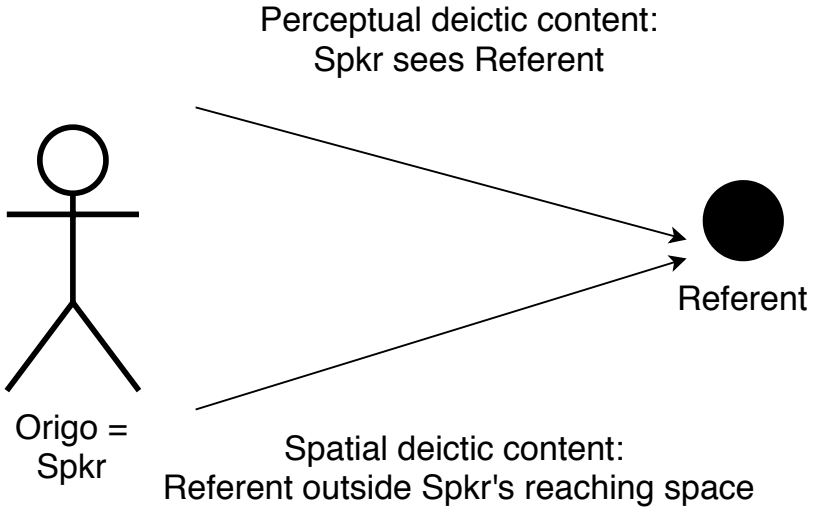
3.2.3 Properties of deictic content

As I observed in defining demonstratives in §3.2.1, the deictic content of demonstratives is relational. It conveys information about relations between the referent and one or more discourse participants. The discourse participant (or set of participants) to whom a demonstrative relates its referent is the **origo** of that demonstrative.

I take for granted that the deictic content of a demonstrative can concern any kind of relation between the origo and the referent -- not just spatial relations. In the following, I will refer to deictic content that concerns how the origo perceives the referent as 'perceptual deictic content;' deictic content that concerns where the origo and referent are located in space, as 'spatial deictic content;' and deictic content that concerns the origo's attention state relative to the referent, as 'attentional deictic content.'

I also assume that the deictic content of demonstratives can be heterogeneous, at both item and system levels. At the item level, the deictic content of a single demonstrative can potentially encode multiple, orthogonal relations between the origo and the referent. For example, in Chapters 4 and 6, I claim that DNOM3 *ɟe³a²* encodes two unrelated relations between the speaker -- who is the sole origo of this demonstrative -- and the referent. It requires that the speaker sees the referent at the moment of speech (a piece of perceptual deictic content) and that the referent is located outside the speaker's reaching space (a piece of spatial deictic content). This analysis of the multiple types of deictic content encoded in DNOM3 *ɟe³a²* is shown visually in Figure 3.1.

Figure 3.1: Multiple kinds of deictic content in DNOM3 *ɟe³a²*



Likewise, at the system level, across a demonstrative paradigm, different lexical items may have different origos or different kinds of deictic content. For example, a single demonstrative paradigm can include both speaker-centered and addressee-centered demonstratives.

Finally, I do not make any assumptions about how different kinds of deictic content are related. In particular, for demonstrative items or systems that have multiple kinds of deictic content, I adopt no position about whether the kinds of content are related hierarchically. There are some languages represented in the literature review below where a hierarchical analysis appears to be appropriate. For example, in the determiner system of Sḵwx̱wú7mesh (Salish), only distal determiners display visibility contrasts (Gillon 2009:18-19). This kind of dependency between spatial and perceptual features invites a feature-geometric analysis, with perceptual deictic content ranked below spatial deictic content. But conversely, there are other languages which offer no evidence of hierarchies between different kinds of deictic content. In Chapter 4, for instance, I argue that the nominal demonstratives of Ticuna have both spatial and perceptual deictic content, and that the relationship between the two kinds of deictic content is flat (not hierarchical).

3.2.4 Deferred reference and deictic transposition

Speakers often make creative use of the deictic content of demonstratives through the processes of deferred reference and deictic transposition. Understanding these processes is crucial to understanding the extended uses of the proximal demonstratives of Ticuna, described in Chapter 5, as well as some of the data on visibility presented in Chapter 4. Therefore, in the following subsections, I define both processes.

3.2.4.1 Deferred reference

Deferred reference, a term coined by Quine (1971) and best known to linguists via Nunberg (1993), occurs when a speaker indexes one referent, typically present in the surround, in order to refer to an associated referent, typically absent from the surround. The referent which is present in the surround is the 'pivot' or 'immediate referent,' and the one which is absent is the 'deferred referent.'

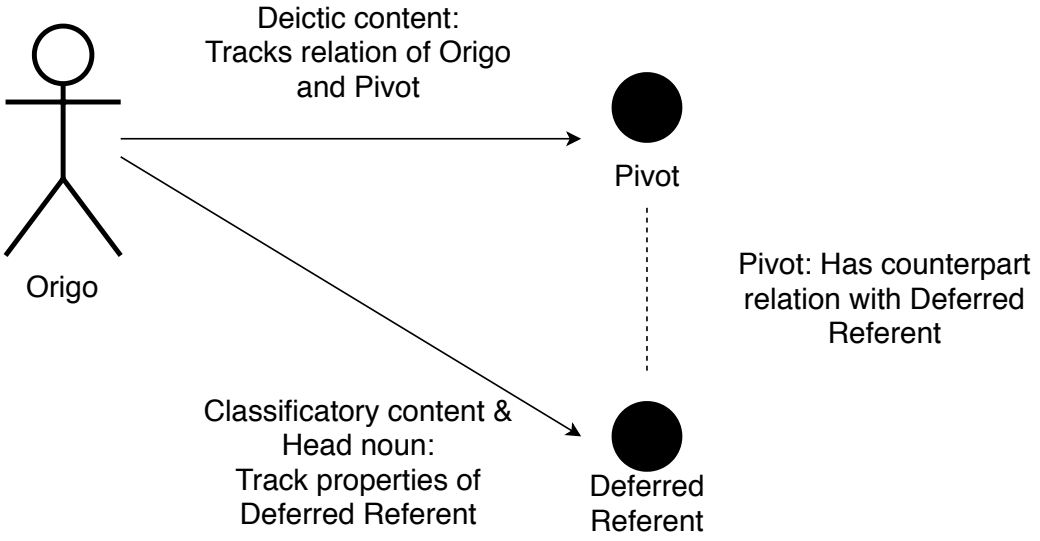
As an example of deferred reference, consider the following constructed scenario in English. Suppose that I hold up a picture of two missing children to you and say, *Have you seen* *these* *children?*. In this kind of utterance, I am drawing your attention to the photograph and to the representations of the children that it contains. However, my goal is not to refer to the representations, but rather to the children themselves. My utterance is therefore an act of deferred reference, where the pivot is the photograph and the deferred referent is the actual children. Within the utterance, the deictic content of the demonstrative *these* picks up on the relation between me and the pivot -- the photograph is near me. It does **not** pick up on the relation between me and the deferred referent, as the children's location is unknown. By contrast, the head noun of my demonstrative noun phrase (*children*) and the agreement on my demonstrative (plural) convey properties of the deferred referents (plural children), not the properties of the pivot (a singular photograph).

Both of these features are defining of deferred reference. The deictic content of the demonstratives used in deferred reference always tracks the relation between the origo and the pivot -- in the example, between me and the photograph. By contrast, every other feature of a demonstrative noun phrase produced in an act of deferred reference -- the head noun, agreement, and so on -- tracks properties of the deferred referent (in the example, the children).

Deferred reference is always made possible by some kind of counterpart relation between the pivot and the deferred referent (Hanks 2005, citing Fauconnier and Sweetser 1996). In the photograph example, the photograph is in a counterpart relation with the children because it contains a visual representation of them. Not all counterpart relations, though, depend on representations. For example, counterpart relations also exist between a person and the places that they habitually occupy. Thus, I can point at a child's empty crib and say *Where did* *this* *child go?*, because the child's habitual location in the crib places it in a counterpart relation with them.

Figure 3.2 visually represents the relationships between origo, pivot, and deferred referent in an act of deferred reference.

Figure 3.2: Deferred reference: Relations between origo, pivot, and deferred referent



3.2.4.2 Deictic transposition

Deictic transposition, a concept first defined by Bühler (1982 [1934]), occurs when a speaker shifts the underlying origo of a demonstrative to a new origo. The new origo can be defined by another discourse participant, by a discourse referent, or by a past or future version of the underlying origo.

To understand deictic transposition, consider the following constructed English example from Hanks (2011:311). A parent is feeding her pre-linguistic infant child, with a spoon in her hand; the child grimaces and pushes away the parent's spoon. Gazing at the infant, the parent says, *Oh Mommy, I don't like* [*that*]. In this example, the parent's spoon -- in her own hand -- is near her, but relatively far from the child. In an utterance that did not involve deictic transposition, the parent would therefore index the spoon with *this*. But since she has transposed the origo from herself to the child, the value of her deictic picks up not on the relation between her and the spoon, but on the relation between the child and the spoon, leading to the use of *that*.

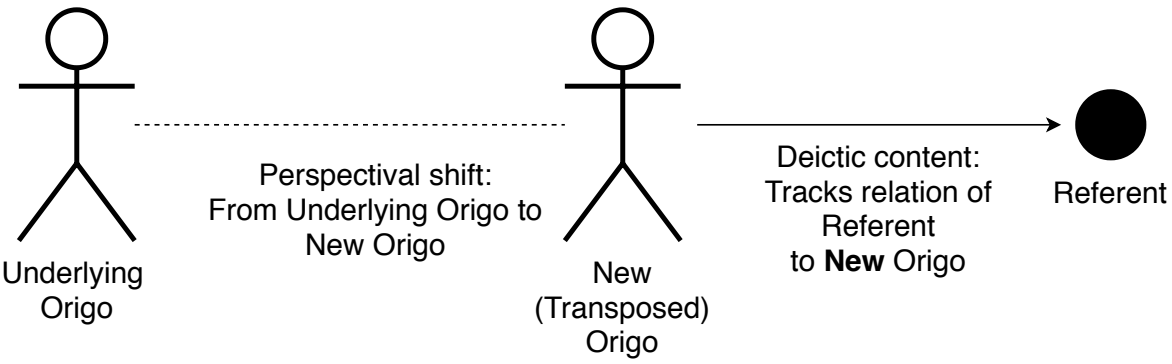
Hanks' example involves shift of both the local pronoun *I* and the deictic *that* to reflect the perspective of the new origo. However, not every example of deictic transposition involves complete perspectival shift. For example, suppose that you have just applied sunscreen to your own face, and I am looking directly at you. I might point to my own cheek and say, *You missed some* [*here*], encouraging you to rub in a stray bit of sunscreen on your own cheek. In this utterance, I have not transposed the origo of the pronoun *you* -- it still refers to my addressee. But deictic transposition has still occurred. Your cheek is relatively close to you, and relatively far from me (especially if I am not making a manual point at it). In an utterance without deictic transposition, I would therefore refer to your cheek as *there*. If I instead refer to it as *here*, I am engaging in a

shift of perspective from myself to you: my deictic picks up on the spatial relation between **you** and the referent, not between **me** and the referent.[1]

Unlike deferred reference, deictic transposition does **not** rely on counterpart relations. Rather, it is a perspective-shifting operation, analogous to the shifting of perspective in direct speech reports or attitude reports. Like these better-known kinds of perspective-shifting, deictic transposition arises primarily from speakers' capacity to re-construe referents from the perspective of other participants, or from their own past or future perspectives. The primary difference between deictic transposition and perspectival shift in other contexts is in the role of embedding. While other types of perspectival shift require the use of embedding elements such as attitude or speech report verbs, deictic transposition does not require embedding of the deictic.

To summarize, Figure 3.3 represents the relationships between underlying origo, transposed origo, and referent in an act of deictic transposition.

Figure 3.3: Deictic transposition: Relations between underlying origo, transposed origo, and referent



3.2.5 Interim summary

I began this section by providing an operational definition of demonstratives (§3.2.1). I then distinguished between the deictic content of demonstratives -- what they encode about the relation between the demonstrative referent and the discourse participants -- and the items' other meaning components, which include definiteness/quantificational content and classificatory content (§3.2.2).

Next, in §3.2.3, I introduced some key concepts for the study of deictic content. One of these is the idea that deictic content is relational; it expresses a relation between the referent and one or more discourse participants, called the origo. Another key concept introduced in §3.2.3 is that

[1]Like many cases of deictic transposition, this example can also be seen as a case of deferred reference (Hanks 2005:201). Under a deferred reference analysis, my cheek is the pivot, while your cheek is the deferred referent; the deferred reference is made possible by the similarity in plan between all human bodies.

deictic content can concern any kind of relation between the referent and origo. That is, I do not assume the deictic content of demonstratives always concerns spatial relations between the referent and origo. Finally, I also noted in §3.2.3 that the deictic content of demonstratives can be multi-dimensional at the item level, the system level, or both. Individual demonstratives can have multiple kinds of deictic content (e.g. both spatial and perceptual content), which may or may not be hierarchically organized. Likewise, demonstrative systems can involve multiple kinds of content and/or multiple origos.

Last, in §3.2.4, I provided background on two ways that speakers make creative use of demonstratives: deferred reference and deictic transposition. The availability of deferred reference and deictic transposition appears to be a very general property of deixis, across languages (Haviland 1996; Hanks 2005) and modalities (DeVos 2013).

In the following three sections, I use the framework introduced in this section to analyze theoretical debates about the role of perception (§3.3), space (§3.4), and joint attention (§3.5) in demonstrative systems.

3.3 Perceptual deictic content

Many grammars of languages of the Americas, especially of North America, describe perception-related meanings in demonstratives. These meanings are usually characterized as conveying whether the referent is 'visible.' While many grammar authors make visibility claims, they do not usually provide evidence supporting them. As a consequence, some authors have expressed skepticism that the demonstratives of any language actually encode information about visibility. Instead, they suggest that apparent visibility meanings are epiphenomenal on perceptual deictic content relating to senses (of the body) other than vision; epistemic modal or identifiability content; or spatial deictic content.

In this section, I first survey the literature that argues in favor of visibility and other perceptual deictic content in demonstratives (§3.3.1). Then I review authors who argue against the existence of perceptual deictic content (§3.3.2). Finally, I summarize the most important themes from both sets of literature (§3.3.3).

Throughout this literature review and the rest of this study, I use the term 'perceptual deictic content,' rather than 'visibility,' to refer to meanings of demonstratives that are related to senses of the human body. I do this in order to emphasize that (a) vision is not the only sense that is relevant to these meanings, and (b) that the perceptual content is deictic, not classificatory. It would also be appropriate to refer to the sensory meanings as 'evidential' (cf. Hanks 1984, 1990). I choose 'perceptual' over 'evidential' in order to highlight that all of the claimed perception-related meanings involve **the senses of the human body**. The kinds of morphemes known as 'evidentials' can encode both sensory modes of access and non-sensory modes of access, like inference and hearsay (Michael 2008; Murray 2017). Demonstratives, on the other hand, encode only **sensory** modes of access: there is evidence in the literature for demonstratives that encode vision as the mode of access to the referent, but none for demonstratives that encode inference or hearsay. Where I am discussing the work of other authors, I use their terms.

3.3.1 Arguments in favor of perceptual deictic content

Boas, in his contributions to the *Handbook of American Indian Languages*, was the first to argue that demonstratives and determiners in some languages convey information about perception (Boas 1911a,b). For the Wakashan language Kwak'wala, he specifically claimed that three of the language's six postnominal determiners encode that the referent is visible, while the other three encode that it is invisible (Boas 1947). Over the more than 100 years that have passed since the publication of Boas' first visibility claim, Americanist linguists have continued to take the position that visibility contrasts exist, and to claim that deictic elements in specific American languages encode visibility.

Most descriptive authors who report visibility contrasts in demonstratives do not describe the semantics of those contrasts in detail. However, there are two important sets of literature that engage in depth with perceptual content in deictics: the work of Hanks on deixis in Yucatec Maya, and the large body of research on deictic determiners in the Salish language family. In this section, I first overview all of the languages where some author has claimed that at least one demonstrative encodes perceptual information (§3.3.1.1). Then I discuss the specific arguments about perceptual deictic content made for Yucatec Maya (§3.3.1.2) and the Salish languages (§3.3.1.3).

3.3.1.1 Overview of all claims of perceptual deictic content

Many descriptive authors claim that the demonstratives of their object languages encode 'visibility.' A few also claim that there are demonstratives encoding that the speaker perceives the referent through a sense other than vision. I review the claims about visibility first, then those about perception through other senses.

Diessel (1999:12) cites seven languages described as having **visibility** contrasts in demonstratives: West Greenlandic (Eskimo-Aleut), Halkomelem (Salish), Quileute (Chimakuan), Passamaquoddy-Maliseet (Algonquian), Tümpisa Shoshone (Uto-Aztecan), Ute (Uto-Aztecan), and Epena Pedee (Chocó). All of them are American. To Diessel's list, Hanks (2011:329-330) adds six more languages with visibility contrasts not mentioned by Diessel -- Chinook (Chinookan), Kwak'wala (Wakashan), Crow (Siouan), Malagasy (Austronesian), Santali (Munda), and Yucatec Maya (Mayan) -- and again, four of the six are American.

Turning to deictic determiners (deictic elements that introduce nouns but cannot be used pronominally), at least five Salish languages besides Halkomelem have determiners that encode visibility. Matthewson (1996), in her survey of Salish determiner systems, describes visibility distinctions in determiners for St'átimcets (also called Lillooet Salish; citing van Eijk 1985:201), Nuxalk (also known as Bella Coola; citing Davis and Saunders 1975), the Lummi dialect of Straits Salish (citing Jelinek and Demers 1994), and Sechelt (citing Beaumont 1985). More recently, Gillon (2009) presents data showing that the deictic determiners of Sḵwx̱wú7mesh (also known as Squamish), another Salish language, also encode visibility.

Beyond these examples, I am aware of 17 more languages where, in some work, visibility is reported to be encoded on nominal or locative demonstratives. Eight of the 17 are American, predominantly from North and Central America. The American languages are Ayutla Mixe (Mixe-

Zoque) (Romero-Méndez 2009); Blackfoot (Algonquian) (Schupbach 2013); Baure (Arawak) (Admiraal 2016); Kogi, also called Arhuaco/Arwako (Chibchan) (Knuchel and Bergqvist 2017); Paresi-Haliti (Arawak) (Brandão 2014); San Pablo Güilá Zapotec (Oto-Manguean) (Arellanes 2017); San Juan Quiahije Chatino (Oto-Manguean) (Mesh 2017), and Tiriyó (Carib) (Meira 1999). The other nine of the 17 are predominantly from the Pacific. They are Gawri (Indo-European) (Lange 2017); Nivkh (isolate) (Gruzdeva 2006); Yelî Dnye (isolate) (Henderson 1995, but cf. Levinson 2004b), and six Austronesian languages cited or described in van Kranenburg (2016): Amarasi, Muna (van den Berg 1989), Iloko (Rubino 2005), Mori Bawah (Mead 2005), Kavalan (Jiang 2006), and Paiwan (chuan Chang 2006).

With the languages cited above, we have a total of 35 languages which are claimed to encode visibility in some part of the deictic system. 24 of the 35 are indigenous languages of the Americas. This distribution might reflect that perceptual contrasts are actually more common in the Americas than in other areas and families. Or it might simply mean that Americanists are more attentive to perceptual contrasts than scholars trained in other descriptive traditions.

For a handful of languages, authors have also described demonstratives which encode that the speaker directly **perceives the referent through a sense other than vision**. These languages are Yucatec Maya (Mayan) (Hanks 1990), Santali (Munda) (Neukom 2001), Nyelayu (Austronesian) (Ozanne-Rivierre 1997), and Khaling (Kiranti) (Jacques and Lahaussois 2014).

In Yucatec and Santali, the non-visual sensory demonstratives are not specific to a particular non-vision sense. They simply require that the speaker directly perceives the referent via a sense other than vision. The Yucatec non-visual sensory demonstrative *héʔel ɓe* is compatible with perception by any of smell, hearing or taste (Hanks 1990:330), and the Santali equivalent is compatible with perception by smell, hearing, taste, or touch (Neukom 2001:42).

In Nyelayu and Khaling, the non-visual sensory demonstratives are specifically auditory. They require that the speaker perceives the referent via the sense of hearing, and are not compatible with access by other non-vision senses. Jacques and Lahaussois (2014) demonstrates in great detail that the Khaling 'auditory demonstrative' is acceptable only if the speaker perceives the referent via hearing and not if they perceive it via smell, taste, haptic touch, or proprioception. Ozanne-Rivierre (1997) provides similar data that the auditory demonstrative of Nyelayu (unrelated to Khaling) is compatible only with access via hearing. Beyond these two languages, Meira (2018:236) suggests that one of the demonstratives of Tiriyó -- the one characterized as 'invisible' in Meira (1999) -- may actually convey access via hearing.

3.3.1.2 Language-specific claims about perceptual deictic content: Yucatec Maya

Hanks (1984, 1990, 1993, 2011) has argued at length that the presentative demonstratives of Yucatec Maya have encoded perceptual deictic content. Other authors on Yucatec, such as Bohnemeyer (2018), disagree. Since this is the only language where the existence of perceptual deictic content is under active debate, I review the arguments on both sides of the Yucatec debate in depth.

Hanks' works are based primarily on data from naturally occurring interactions. Under his analysis, Yucatec has three presentative deictics: *héʔel aʔ* 'here it is (I give it to you, take it!),'

héʔel oʔ 'there it is (I point it out to you, look!),' and *héʔel ɓeʔ* 'there it is (I hear it, listen!)' (Hanks 1990:255). He analyzes the presentatives as displaying a three-way evidential contrast. *Héʔel aʔ* is tactual. It encodes that the speaker does or can access the referent by touch, that is, that the referent is within arm's reach for the speaker. *Héʔel oʔ* is visual, encoding that the speaker accesses the referent by vision. *Héʔel ɓeʔ* is 'peripheral sensory,' encoding that the speaker 'has perceptual access to the referent at the instant of utterance...but can neither see nor touch it' (Hanks 1990:255). It is compatible with the speaker perceiving the referent via hearing, smell or taste (Hanks 2011:330).

According to Hanks, the perceptual contrasts among the presentatives relate to the speaker's **mode of perception** of the referent. That the contrasts are not about location is made clear by the existence of *héʔel ɓeʔ*, used specifically to present a referent which is accessed by a sense other than vision or touch. Though (as I discuss in §3.3.2) some authors have tried to reduce visibility contrasts in demonstratives to contrasts of identifiability or epistemic modality, the contrasts among the Yucatec presentatives definitely do not concern epistemic modality. Not only are the presentatives grammatically banned from co-occuring with modals (Hanks 1990:256), Hanks's many examples of the forms show that all of them can be used both in contexts where the speaker perceives a referent clearly and is certain of its identity, and in contexts where the speaker does not perceive the referent clearly or is uncertain what it is (Hanks 1990:275, cf. 283). Because of the specifically sensory quality of the presentatives, Hanks (1990) refers to them as 'ostensive evidentials,' emphasizing the similarity of their perceptual deictic content to the more familiar propositional type of evidentiality.

Bohnemeyer (2018) (also published in very slightly different form as Bohnemeyer 2012) is a study of the demonstratives of Yucatec based exclusively on the Demonstrative Questionnaire. It proposes a different analysis of the presentatives from Hanks, arguing that the contrasts between the presentatives convey information not about the speaker's mode of perception of the referent, but instead about the **'accessibility'** of the referent to the speaker (where accessibility is primarily a function of location inside vs. outside the reach of the speaker's arms). Specifically, Bohnemeyer (2018) analyzes *héʔel aʔ*, Hanks's 'tactual' presentative, as encoding more generally that the referent is 'accessible to' the speaker and *héʔel oʔ*, Hanks's 'visible' presentative, as encoding that the referent is 'not accessible to' the speaker.[2]

Even though Bohnemeyer (2018) rejects Hanks's evidential analysis, two aspects of Bohnemeyer's study are potentially more consistent with Hanks's perspective than with a perception-free analysis. First, Bohnemeyer (2018) suggests that the contrast between immediate deictic forms (including *héʔel aʔ*, Hanks's 'tactual' presentative) and non-immediate deictic forms (including *héʔel oʔ*, the 'visual' presentative) depends on whether the demonstrative referent is within 'easy reach' of the speaker (Bohnemeyer 2018:196). Since 'easy reach' is defined by the speaker's ability to touch the referent -- i.e. by the speaker's potential perceptual relation to it (cf. §3.4.3 below) -- this means that the immediate/non-immediate deictic contrast is perceptual as well as

[2]Bohnemeyer does not address *héʔel ɓe*, Hanks (1990)'s 'peripheral sensory' presentative, because it does not exist in the object dialect of his study (Bohnemeyer 2018:198-199). Scott AnderBois, conducting research on propositional evidentiality in Yucatec, found that his consultants did not recognize *héʔel ɓe* as a word (AnderBois p.c., October 2017).

spatial. Second, Bohnemeyer (2018:198-199) finds that when the referent is both invisible and outside the 'easy reach' zone, four out of five participants rejected the presentatives with *héʔel*. Instead, they directed attention to the referent using a definite noun phrase modified by a relative clause (a structure like 'the N that is there'). This could be taken to suggest that the presentatives with *héʔel* require either visual or tactual access. If that is the case, then the items do have perceptual deictic content, counter Bohnemeyer's (2018) conclusions.

3.3.1.3 Language-specific claims about perceptual deictic content: Salish languages

There is an extensive literature on the semantics of determiners in Salish languages. Compared to the elements labeled as determiners in other languages, Salish determiners are unusual in two ways. First, in most Salish languages, all nouns (including proper names) must be introduced by a determiner; and second, in every language of the family, either all determiners or all but one convey deictic information (Matthewson 1996:76, 28). There are at least five Salish languages where visibility has been reported as part of the deictic information that the deictic determiners encode. However, detailed discussions of visibility have appeared for only two Salish languages, Nuxalk (Davis and Saunders 1975) and Sḵwx̱wú7mesh (Gillon 2009).

Nuxalk (also known in the literature as Bella Coola) has six sets of determiners. They are all deictic. Three determiners encode that the referent is visible to the speaker; they contrast in spatial deictic content. Davis and Saunders (1975) label the visible determiners 'closest to conversation,' 'near conversation,' and 'far from conversation.' The other three are invisible. One of the invisible determiners is specifically proximal. It can be used to talk about referents which are in the next room of a house from the speaker, or around the corner from them (Davis and Saunders 1975:15). The other two invisible determiners are both distal and contrast for distance, one for relatively nearer and one for farther referents. Thus, visibility and location, or more generally perceptual and spatial deictic content, are orthogonal in the Nuxalk deictic system.

Sḵwx̱wú7mesh (also known as Squamish) has four sets of determiners (Gillon 2009). Three of the four are deictic, and one is non-deictic. One deictic determiner is neutral in terms of both space and visibility; one expresses that the referent is proximal to the speaker; and one expresses that the referent is both distal to the speaker and invisible. Thus the deictic determiners are already different from their Nuxalk equivalents, since not all of them encode visibility. The non-deictic determiner of Sḵwx̱wú7mesh has no deictic content. It is used when (a) the speaker cannot assert that the referent exists (for example, in existential questions) or (b) the speaker knows that the referent exists, but does not know where it is (Gillon 2009:18-26). The existence and distribution of the non-deictic determiner in Sḵwx̱wú7mesh, and the existence of non-deictic determiners in many other Salish languages (Matthewson 1996:56-70), provide evidence that the invisible determiners of Salish languages actually encode information about vision and not epistemic modal information. I explore this issue in more detail in §3.3.2.2.

Beyond its four determiners, Sḵwx̱wú7mesh also has five sets of demonstratives, syntactically distinct from determiners. All five demonstratives are deictic. One is spatially neutral, but perceptually marked: it requires that the speaker does not see the referent, but provides no information about its location. The other four demonstratives consist of a proximal, which is neutral in

visibility; a medial, also neutral for visibility; and a pair of two distal demonstratives, one visible and one invisible. Both of the invisible demonstratives -- the spatially unmarked invisible and the distal invisible -- are acceptable in contexts where the speaker directly perceives the referent via the sense of hearing (Gillon 2009:18). This suggests, as I discuss in greater detail in §3.3.2.2, that the 'visibility' contrasts in Sḵwx̱wú7mesh convey information about the sense of vision, rather than representing a general direct/indirect evidential contrast.

3.3.2 Arguments against perceptual deictic content

Especially in the last two decades, some authors have expressed skepticism that demonstratives ever encode visibility or other forms of perceptual deictic content. Enfield (2003) and Levinson (2004a,b, 2018a) are prominent scholars who have taken this position. I discuss first Enfield's position, then Levinson's.

3.3.2.1 Enfield (2003)

Enfield's challenge to visibility appears in his analysis of the two nominal demonstratives of Lao. On Enfield's analysis, one of the Lao nominal demonstratives, *nii⁴*, encodes only the underspecified indexical meaning DEM. DEM is a 'semantic prime' (a concept from Natural Semantic Metalanguage, Wierzbicka 1996), meaning that it cannot be further analyzed; it has no spatial or perceptual semantics. The language's other nominal demonstrative, *nan⁴*, encodes DEM and that the referent is 'not here' from the perspective of the speaker. Of *nan⁴*, Enfield (2003:96) writes:

> I am arguing that a speaker's physical and/or perceptual access to a referent can be a factor in selection of one of the two Lao demonstratives, but I am **not** saying that 'visibility' or 'access' are encoded in their semantics. The speaker's lack of access to the referent is what causes it to be conceived of as 'not here,' and it is the conception of the referent as 'not here,' rather than the 'lack of access,' that is encoded in the Lao demonstrative *nan⁴*. The descriptive linguist thus has reason to show caution before claiming that a factor such as 'visibility' is **semantically encoded** in a demonstrative system (see e.g. Diessel 1999:40-42). This is **not** to deny the possibility that visibility might be encoded in a demonstrative system, but to caution care in distinguishing whether a feature such as visibility is part of encoded meaning or is a contextual factor that forces the choice of another, more general semantic meaning. (emphases in original)

Part of this passage is an argument for applying Neo-Gricean pragmatics to demonstratives. Earlier in the paper, Enfield (2003:91) argues that analysts should treat demonstratives as monosemous until they are proven to be polysemous. In the paragraph cited above, he suggests that the best analysis of a demonstrative is the one that proposes the simplest and most general encoded meaning, and derives the distribution of the demonstrative from that meaning plus conversational implicature and world knowledge. Both of these are simply proposals to treat demonstratives in the same way that Neo-Griceans treat other functional morphemes, such as modals.

The argument against visibility in this passage, however, is separate from the Neo-Gricean argument. At the same time as Enfield is arguing in favor of Neo-Gricean pragmatics in general, he is also comparing his proposed analysis of *nan⁴* with a hypothetical analysis where *nan⁴* encodes that the speaker lacks perceptual access to the referent. Under Enfield's actual analysis, *nan⁴* encodes 'not here.' Under the hypothetical perception-based analysis, it encodes 'not perceptually accessible.' Enfield holds not just that the 'not here' analysis is more explanatory for his data, but also that it is **simpler**, because it leads to a 'more general' encoded meaning for the demonstrative.

Yet there is no evidence given in Enfield (2003) for why 'not here' should be considered a 'more general' meaning than 'not perceptually accessible.' Forms of evidence which could support this claim include (a) that 'not here' logically entails 'not perceptually accessible' or (b) that the semantic composition of 'not here' is simpler than the composition of 'not perceptually accessible.' Whether (a) is true cannot necessarily be evaluated in Enfield's framework, since he treats 'here' as an unanalyzable semantic prime. However, examples in the paper suggest that referents which are sufficiently far from the speaker count as 'not here' even if the speaker can see them (e.g. Enfield 2003:93, figure 2a). This indicates that 'not here' does not entail 'not perceptually accessible,' meaning that (a) is false.

Similarly, because Enfield (2003) does not give explicit reasons why some predicates and not others qualify as semantic primes, it is difficult to make a principled evaluation of whether (b) is true. If 'here' and 'perceptually accessible' are both semantic primes, then the composition of 'not here' and 'not perceptually accessible' is equally simple; if 'here' is a semantic prime but 'perceptually accessible' is not, then the composition of 'not perceptually accessible' is more complex. But since the analysis offers no criteria for status as a semantic prime, it is impossible to know whether 'perceptually accessible' is a prime. Absent such criteria, I conclude that 'not here' and 'not perceptually accessible' (or 'not visible') should be assumed to be equally general.

3.3.2.2 Levinson (2004a,b, 2018a,b)

In a variety of works, Levinson has expressed skepticism that any language has visibility contrasts in demonstratives. Some of his works make language-specific claims that visibility is not encoded in the demonstratives of Yelî Dnye (an isolate spoken in Papua New Guinea); others make much more general arguments that visibility is not encoded in the demonstratives of any language. I discuss first the language-specific arguments, then the general ones.

Visibility in Yelî Dnye

Levinson first expressed skepticism about the existence of visibility meanings in two publications from 2004: his chapter on deixis in the Blackwell *Handbook of Pragmatics* (Levinson 2004a) and the chapter on Yelî Dnye in his edited collection *Grammars of Space* (Levinson 2004b).

In Levinson (2004a:117), overviewing non-spatial deictic content in demonstratives, he writes that 'visibility is a feature reported in many North American Indian languages, and not only for demonstratives,' but then adds that 'caution is in order with a gloss like "visibility."' His sole

evidence that 'caution is in order' (echoing Enfield) before positing visibility meanings comes from his own findings on the demonstrative system of Yelî Dnye, reported briefly in the chapter and at more length in Levinson (2004b) and Levinson (2018b).

Yelî Dnye has five nominal demonstratives: speaker-proximal *ala* and -distal *mu*; addressee-proximal *ye*; unmarked *kî*; and *wu*, the object of visibility-related debate (Levinson 2004b, 2018b). Henderson (1995), a sketch grammar of the language, characterizes *wu* as indexing a referent that is invisible to the speaker. Levinson disagrees, writing (in summary of several acceptability judgment tasks) that '*wu* may not be used for known but invisible locations...[and] it may be used for visible locations where there is some doubt about which referent is at issue' (Levinson 2018b:331). He takes this as evidence that *wu* 'marks indirect or inferential access to the referent, or difficulties of access for addressee or both speaker and addressee ("uncertainty")' (Levinson 2018b:331-332).

Visibility in general

Levinson's Yelî Dnye findings, and those of other contributors to Levinson et al. (2018), lead him to suggest in the introduction to that volume that visibility is **never** an encoded part of the deictic content of demonstratives (Levinson 2018a:30). Instead, he argues, some apparent visibility meanings are '[criteria] constraining use of demonstratives,' but not part of their encoded semantics (cf. Enfield 2003's claim that perceptual access is only a a 'factor' in the use of demonstratives in Lao). Other apparent visibility meanings, on the other hand, are encoded but do not concern visibility. Instead, Levinson (2018a:30) writes, apparent encoded visibility meanings actually have an 'evidential character.'

It is worth evaluating what Levinson (2018a) means by 'evidential character,' and whether the 'evidential' properties of some demonstratives should affect our willingness to believe that visibility contrasts can exist. Levinson's examples of studies in the volume where an apparent visibility meaning is revealed to be 'evidential' are his chapter on Yelî Dnye, discussed above; Burenhult's chapter on Jahai, which has a demonstrative for referents perceived via their emissions (that is, through hearing or smell or proprioception); and Meira's chapter on Tiriyó, which displays a demonstrative specific to referents perceived via hearing (though cf. Meira 1999). Levinson's analysis of the Yelî Dnye system suggests that the deictic content of *wu* involves both perception and the speaker or addressee's ability to identify the referent (a kind of epistemic modal meaning). However, the chapters on Jahai and Tiriyó make clear that the emissions demonstrative of Jahai and the auditory demonstrative of Tiriyó do not convey epistemic modal information. Their content is exclusively about perception, requiring that the speaker perceives the referent using the sense of hearing (for Tiriyó) or using a sense other than vision or touch (for Jahai).

The Jahai and Tiriyó examples cited by Levinson do not show that demonstratives never encode information about visibility. Rather, at a general level, the systems of these languages indicate that it is possible for demonstratives to encode information about the sense which the speaker uses to perceive the demonstrative referent, including (for Tiriyó) that it is possible for them to encode that the speaker perceives the referent by a specific sense of the body (hearing).

These systems do not, however, give rise to any conclusions about whether demonstratives can encode specifically that the speaker perceives the referent via the sense of vision. In fact, insofar as the Jahai and Tiriyó examples show that demonstratives can encode perceptual information in general, they are more consistent with the hypothesis that visibility is a possible part of deictic content than the hypothesis that it is not.

The Yelî Dnye example is valuable for showing that the deictic content of demonstratives can include information about epistemic modality, as well as information about perception. Nevertheless, this case study should not change our evaluation of the visibility contrasts reported in the literature. The reason is that the role of visibility in Yelî Dnye is not at all similar to what is reported in detailed descriptions of other languages with visibility contrasts, such as those discussed in §3.3.1.2 and §3.3.1.3. These descriptions do not report any interplay between epistemic modality and perception contributing to the felicity of the invisible demonstratives. Instead, they consistently find that the invisible demonstratives can be used to index invisible referents even if their location is known and/or they are clearly identifiable to the speaker. For example, Hanks (1990:285) provides examples of Yucatec speakers identifying sounds coming from known locations by saying the peripheral sensory presentative. Conversely, in situations where speakers of languages with visibility contrasts need to index referents but do not know where they are, they do not use invisible demonstratives. Thus, Gillon (2009:20) is explicit that in Sḵwx̱wú7mesh it is the non-deictic determiner, **not** the distal invisible determiner, that is used in speaking about referents which the speaker cannot locate. This indicates that Levinson's arguments against visibility for Yelî Dnye cannot be extended to all languages which have an apparent visibility contrast.

3.3.3 Summary of literature on perceptual deictic content

Visibility has been discussed as a possible form of non-spatial deictic content in demonstratives for more than a century. In §3.3.1, I reviewed a large number of published and unpublished works which make claims about visibility and other forms of perceptual deictic content in demonstratives. Within the literature about visibility, I was able to find only three authors who provided a significant volume of evidence for their visibility claims: Hanks (1984, 1990) on Yucatec Maya, Davis and Saunders (1975) on Nuxalk (also known as Bella Coola; Salish), and Gillon (2009) on Sḵwx̱wú7mesh (also known as Squamish; Salish). I discussed the kinds of perceptual deictic content which these three authors posit, focusing on the evidence that these meanings relate specifically to the sense of vision, not to epistemic modality or general direct evidentiality.

In §3.3.2, I considered the ideas of two authors who have expressed skepticism that demonstratives ever encode visibility, Enfield (2003) and Levinson (2004a,b, 2018a). I suggested that Enfield's (2003) argument against visibility requires accepting a priori the idea that 'visible' is a less semantically basic concept than 'here' or 'near me.' I also disentangled Levinson's language-specific arguments that visibility is not part of the deictic content of demonstratives in Yelî Dnye, from his cross-linguistic argument that visibility is never encoded in demonstratives.

The authors reviewed in this section come from a variety of disciplinary backgrounds and take strongly diverging perspectives about the reality of visibility contrasts. Despite this, all of the authors, except for Enfield (2003) and Bohnemeyer (2018), do agree on one idea: it is possible

for demonstratives to encode information about **what sense the speaker uses to perceive the demonstrative referent**. The Americanist authors, in line with Boasian tradition, focus on the sense of vision, and most refer to perceptual deictic content as conveying 'visibility,' rather than as conveying 'evidential' or 'perceptual' meanings. The authors on other languages, such as Jacques and Lahaussois (2014) and Levinson (2018a), are more interested in demonstratives encoding perception via non-vision senses, and refer to the sensory meanings as 'perceptual' or 'evidential.' But crucially, both the authors in favor of 'visibility' and those against it acknowledge the existence of some forms of perceptual deictic content.

In Chapter 4, I use the literature reviewed in this section as background to ask whether the demonstratives of Ticuna have perceptual deictic content, and what senses of the body that content concerns. Although I conclude that three of the five exophoric demonstratives convey information about the sense of vision, I do not frame the main question of the chapter as 'visibility,' nor do I focus exclusively on the sense of vision. Instead, informed by the literature about 'perceptual' and 'evidential' meanings other than vision, I explore the compatibility of all of the exophoric demonstratives with perception via all of the senses, including hearing, smell, haptic touch, and proprioception.

3.4 Spatial deictic content

Almost all linguistic literature takes for granted that the primary deictic content of demonstratives concerns space. In this section, I review claims (and implicit assumptions) in the literature about the spatial deictic content of demonstratives. The purpose of this review is to set the stage for the analysis, in Chapters 5 and 6, of the spatial deictic content of the demonstratives of Ticuna.

I divide the literature reviewed in this section in three. One body of literature claims or assumes that spatial deictic content primarily concerns the distance of the demonstrative referent from the discourse participants. Another strand of research argues that spatial deictic content concerns the location of the demonstrative referent relative to a socioculturally or interactionally defined 'here-space.' I review research focusing on distance in §3.4.1, and ideas focusing on interactionally and socioculturally defined spaces in §3.4.2. I then summarize in §3.4.3.

3.4.1 Arguments that spatial deictic content always concerns distance

3.4.1.1 Literature focusing on distance

All typological works on the deictic content of demonstratives written prior to 2000 assume that the primary contrasts between demonstratives concern the distance of the referent from the discourse participants (Fillmore 1973; Lyons 1977; Anderson and Keenan 1985; Diessel 1999, a.o.). All formal semantic works on demonstratives (Kaplan 1989 [1977]; King 2001; Roberts 2002; Wolter 2006, a.o.) also assume that the deictic content of the items concerns distance. I use the word 'assume' here, rather than 'claim' or 'argue,' because these works do not generally make an explicit claim that distance is the sole deictic content. Instead, this is taken for granted; the first

arguments concern not why distance should be taken as the primary kind of deictic content, but rather, how the demonstratives of different languages map onto distance values.

Typological works that assume that all deictic content concerns distance attach great importance to the number of demonstratives in a language (or paradigm). According to these works, in all demonstrative systems that have exactly two terms -- such as the English nominal demonstratives *this* and *that* -- one demonstrative encodes that the referent is close to the speaker, and the other that it is far from the speaker (Fillmore 1973:65-67; Anderson and Keenan 1985:281; Diessel 1999:50; Levinson 2004a:109). These analyses then divide demonstrative systems with exactly three terms into two categories. Some three-term systems are person-oriented. They have one term encoding that the referent is close to the speaker, one that it is close to the addressee, and one that it is not close to either. Other three-term systems are distance-oriented. They have three terms that contrast for distance from the speaker, who is understood to be the only reference point for the system.

Since only a small proportion of languages have more than three demonstratives, typological authors do not give much consideration to demonstrative systems with more than three terms. They sometimes claim that, even in very large demonstrative systems, the deictic content of every demonstrative still concerns only distance from the speaker and/or addressee. For example, Anderson and Keenan (1985:292) argue that the seven locative demonstratives of Malagasy contrast only for distance from the speaker. In other typological works, authors describe large demonstrative systems as displaying types of deictic content that involve space, but not distance. Kinds of non-distance spatial deictic content recognized in the typological literature include the referent's location in a geocentric frame of reference (e.g. upriver/downriver relative to the speaker), the referent's location in an intrinsic frame of reference (e.g. inside/outside relative to the speaker), and the referent's direction of motion (e.g. toward speaker/away from speaker). Formal semantic works about deictic systems with more than two terms are limited to the Salish language family and do not invoke spatial concepts other than distance (Matthewson 1996; Gillon 2009).

3.4.1.2 Discussion of distance literature

Three attributes of the literature reviewed above are important for the rest of this review.

First, the distinction between 'person-oriented' and 'distance-oriented' three-term demonstrative systems made in this literature should not be taken at face value. It is important that -- even though the typological authors call only one kind of three-term system 'distance-oriented' -- their analyses of both kinds of system center on distance. The contrast between the kinds of systems relates only to the number of discourse participants that can be used as deictic **origos**. As introduced in §3.2.3, the origo of a deictic is the discourse participant(s) to whom a demonstrative relates its referent. In a 'person-oriented' system, either the speaker or the addressee can be a deictic origo, while in a 'distance-oriented' system, the speaker is the only deictic origo.

Second, almost none of the works reviewed above provide any empirical data (such as acceptability judgments), or cite any works that include empirical data, to provide evidence for the idea that distance is the primary form of deictic content in demonstratives. Instead, these works appear to derive their claims about distance from non-context-specific native speaker intuitions.

These intuitions are only accessible to the speakers who have them. As a consequence, it is impossible to evaluate the distance claims against the data they are based on.

Third and last, the ideas about demonstratives put forward in these works do not make concrete predictions about how speakers of any given language will use demonstratives in any given configuration of speaker, addressee, and referent. This is because the distance contrasts are expressed in terms of predicates like 'near' and 'far' and not in terms of either measurable distance or location relative to a participant's body (e.g. location within the reach of the speaker's arms). In order for a egocentric distance-based view of demonstratives to generate predictions, it needs to include an analysis of what locations in space relative to the speaker count as 'near' or 'far.' There are some descriptive works that include this type of analysis (e.g. Gillon 2009) but most do not.

3.4.2 Arguments that spatial deictic content concerns location relative to a 'here-space'

Hanks (1990, 2005) and Enfield (2003) take the position that the spatial deictic content of demonstratives does not concern distance, but instead, location relative to socioculturally or interactionally salient spaces. Hanks (1990, 2005) emphasizes that both socioculturally and interactionally defined spaces can impact the use of deictics, while Enfield (2003) focuses on interactionally emergent spaces. Since the two authors' positions are influential, I review them separately.

3.4.2.1 Hanks (1990, 2005): location relative to socioculturally established and interactionally emergent spaces

Hanks' works, introduced in §3.3.1.2, examine the demonstratives of Yucatec Maya primarily through data from naturally occurring discourse, recorded in written notes. While Hanks assigns spatial deictic content to some of the Yucatec demonstratives, his most detailed descriptions of the spatial deictic content do not invoke distance. Instead, he argues that the demonstratives of Yucatec locate their referents relative to socioculturally or interactionally defined spaces.

Under Hanks' analysis, socioculturally established spaces (spaces which have relatively stable extension and last beyond a single interaction) relevant to deictic reference include the speaker's own body space; tangible perimeters, such as walls; intangible perimeters, such as the borders of a geographic region; and perimeters defined by landmarks (Hanks 1990:ch. 9). Interactionally emergent spaces (spaces that come into and fall out of existence in the course of an interaction) are also relevant to deictic reference. Though Hanks (1990) dedicates much more attention to socioculturally established spaces than to interactionally emergent ones, he does place great emphasis on the importance of the sociocentric space -- an interactionally emergent space defined by the locations of speaker and addressee -- as a deictic origo.

As an example of the style of Hanks' analysis, consider his description of the locative deictic *way e?*, glossed as 'here.' Hanks writes that this deictic indexes a perimeter with known boundaries that includes the speaker. The evidence for this semantics is that the most typical referents of *way e?* in everyday usage are the speaker's own body space, 'the space of a single

walled room...the first-level *soólar* [yard] space of a single marriage pair...the agricultural plots or orchards worked by a single man...the region frequented by the interactants, and the earth inhabited by man' (Hanks 1990:406).

This list of referents illustrates a crucial feature of Hanks' approach to the spatial deictic content of demonstratives. He views deictics, and in fact all spatial language, as reflecting (and contributing to) the social division of space. In his words, 'here-now is never a sheer physical reality...it is inevitably a **lived space** made up of perspectival subspaces, costructured with the corporeal fields of human actors, and located within a broader sociocultural frame space' (Hanks 1990:516; emphasis in original).

3.4.2.2 Enfield (2003): location relative to interactionally emergent spaces

While Hanks (1990, 2005) emphasizes the relevance of both socioculturally and interactionally defined spaces to deictic reference, Enfield (2003) narrows the focus to interactionally defined spaces.

Enfield's study, introduced in §3.3.2, examines the two nominal demonstratives of Lao based on video recordings of naturally occurring discourse. The main claim of this paper, also summarized above, is that one of the language's two nominal demonstratives encodes only a semantically primitive demonstrative meaning DEM, while the other encodes DEM and that the referent is 'not here' from the perspective of the speaker.

Citing Hanks, Enfield emphasizes that it is not distance which qualifies a demonstrative referent as 'here' or 'not here.' Instead, what makes a referent count as 'here' is whether it is within the speaker's 'here-space' (Enfield 2003:89). The here-space is an invisible perimeter which must enclose the speaker's body and can also enclose an unbounded amount of additional space (much as in Hanks' description of the perimeter of *way e?*). Referents outside the here-space can be indexed with either of the two demonstratives; referents inside it must be indexed with the demonstrative that encodes only DEM.

What defines the here-space? In all of Enfield's examples, it is always transitory, interactionally emergent factors, such as the speaker's manual activity, attention, and gaze. He alludes to the possibility that the extension of the here-space could be defined by tangible objects like vegetation or walls. But Enfield does not appear to take socioculturally defined spaces -- such as the boundaries of owned pieces of land, to take one of Hanks' examples -- as potentially defining the extension of the here-space.

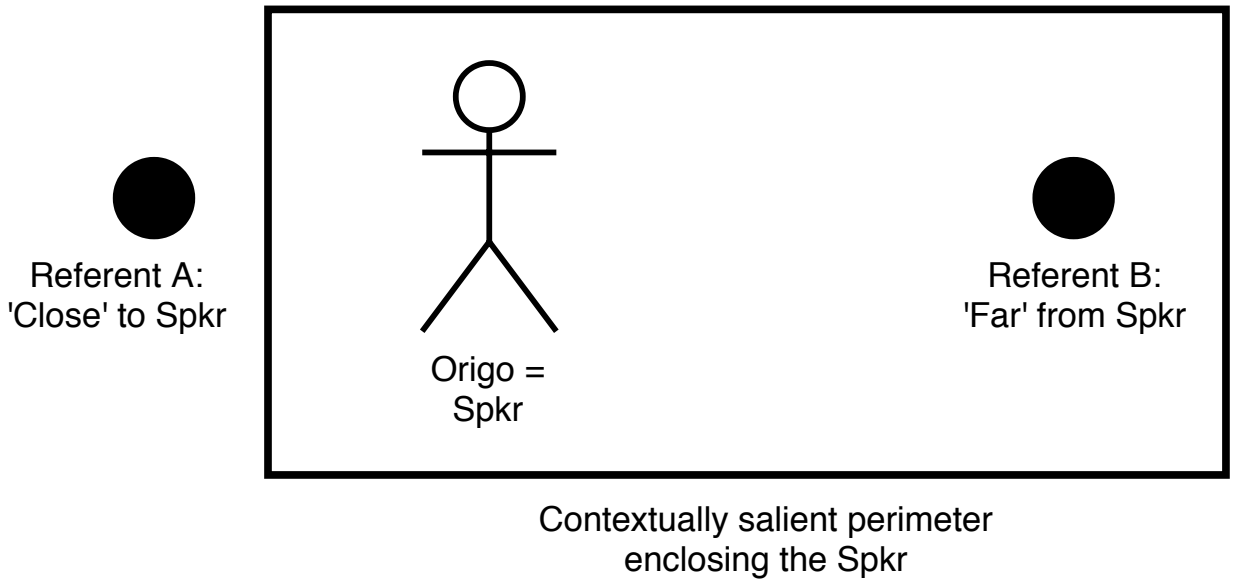
In other words, Hanks (1990, 2005) and Enfield (2003) are interested in ways of dividing space for deictic reference that operate on different time scales. Hanks (1990, 2005) is interested in divisions of space that persist for times ranging from years (for example, the division of land into owned parcels) to seconds (for example, the division of the ground of interaction into the sociocentric space between interactants vs. the space outside). Enfield (2003), on the other hand, is interested in divisions that persist for times ranging from minutes to milliseconds. It is the millisecond-level phenomena -- for example, the division of a speaker's surroundings into targets vs. non-targets of their gaze -- that he engages with most in the 2003 study.

3.4.2.3 Discussion of 'here-space' literature

Despite the differences discussed above, what is similar about Hanks (1990, 2005) and Enfield (2003) is that both define the spatial deictic content of demonstratives in terms of the referent's **location relative to a perimeter** that encloses the discourse participants, rather than in terms of the referent's **distance** from the participants. On the analyses of both authors, 'proximal' demonstratives convey that the referent is inside of a contextually relevant perimeter that contains the speaker -- to use Enfield's term, the here-space. 'Distal' demonstratives, on the other hand, convey that the referent is outside the here-space.

Figure 3.4 illustrates the difference between a distance-based analysis and a location-based analysis (following Hanks and Enfield). It takes as an example the spatial deictic content of a speaker-centered proximal demonstrative like English *this*. This figure schematically represents a speaker and two referents, Referent A and Referent B. Referent B is twice as far from the speaker as Referent A; we will assume that Referent A counts as 'close' to the speaker in terms of distance, and Referent B as 'far' from the speaker in terms of distance. The figure also shows a rectangle enclosing the speaker. This rectangle represents a contextually salient perimeter, such as the walls of a house (as in Hanks' works) or the perimeter of the speaker's manual activity (to take an example from Enfield 2003). Referent A, though 'close' to the speaker in terms of distance, is outside the perimeter; Referent B, though 'far,' is inside.

Figure 3.4: Comparing distance- vs. location-based analyses of speaker-centered proximals



On the distance-based analysis of *this*, following authors such as Fillmore (1973) and Anderson and Keenan (1985), Referent A in Figure 3.4 counts as proximal to the speaker because it is relatively close to them. Referent B counts as distal because it is relatively far from them. Thus,

Referent A could be appropriately indexed by a demonstrative like *this*, while Referent B could not. It does not matter, under this theory, that Referent B is inside a salient perimeter with the speaker (represented by the rectangle in the diagram) and Referent A is not. All that matters is that A is near, while B is far.

On a location- or here space-based analysis of *this*, like those proposed by Hanks (1990) and Enfield (2003), the opposite predictions appear. According to this style of analysis, Referent A in Figure 3.4 counts as distal to the speaker, since it is outside of the salient perimeter that encloses them (i.e. outside the rectangle). Referent B counts as proximal because it is inside the perimeter. As a consequence, Referent **B** could be appropriately indexed by a proximal form such as *this*, while Referent **A** could not. It does not matter that B is twice as far from the speaker as A. Rather, what is important is that B is inside the perimeter and A is not.

3.4.3 Summary of literature on spatial deictic content

Distance-based approaches to the spatial deictic content of demonstratives, like those reviewed in §3.4.1, are ubiquitous in descriptive grammars, typological literature, and formal semantic literature. They conform to the general intuitions of many native speakers of European languages, and they have the weight of tradition behind them. However, these analyses have almost no empirical basis. All detailed observational studies of demonstrative use reject distance-based analyses. Instead, they adopt the position that spatial deictic content instead conveys location inside vs. outside of an emergent 'here-space,' whether the here-space is taken to be defined only by interactional factors (Enfield 2003; Jungbluth 2003) or by a combination of interactional and sociocultural factors (Hanks 1990, 2005).

A here-space of special importance, and perhaps the source of intuitions about 'distance,' is the speaker's peripersonal space -- a concept from neuroscience (Kemmerer 1999). A person's peripersonal space is defined as the space which they can reach without moving relative to the ground; their extrapersonal space is all of the space beyond their reach. These spaces have species- and lineage-wide relevance to spatial perception. In both humans and macaques, different brain areas subserve perception of objects in peripersonal space vs. in extrapersonal space (Halligan and Marshall 1991; Berti and Rizzolatti 2002; di Pellegrino and Làdavas 2015).

In unmarked conditions, the peripersonal space is a circular space projected from a person's body, with a radius roughly equal to the length of their limbs. However, when people use tools to extend their reach, peripersonal space can extend as far as the end of the tool (see Longo and Lourenco 2006 for neuropsychological evidence for this claim, and Coventry et al. 2008 for evidence from the use of demonstratives). These findings indicate that the boundaries of peripersonal space are defined by the perceiver's moment-to-moment reaching capacity -- that is, by the maximum extension of the perceiver's (assisted) sense of touch -- and not by absolute spatial considerations such as the length of their limbs.

Several psychologically oriented studies of demonstrative production have found that, modulo the position of the addressee, people index referents within their peripersonal space using 'proximal' demonstratives, and index referents in the extrapersonal space (no matter their distance) using 'distal' demonstratives. This pattern has been observed in experimental work in En-

glish (Coventry et al. 2008), Spanish (Coventry et al. 2008), Dutch (unpublished results by David Peeters), and Ticuna (Skilton and Peeters 2019; note I do not discuss the relevant Ticuna data in this study). Three of the papers in Levinson et al. (2018) report similar findings about the role of reaching space in the Demonstrative Questionnaire (Bohnemeyer 2018 on Yucatec Maya; Terrill 2018 on Lavukaleve, a Papuan language; and van Staden 2018 on Tidore, also a Papuan language).

The peripersonal space findings cited above are more consistent with a here-space analysis of the spatial deictic content of demonstratives than with a distance analysis. Distance analyses incorrectly predict a linear relationship between distance of the referent and the probability of a distal demonstrative; here-space analyses correctly predict a non-linear one. The recent peripersonal space findings are also, ironically, inconsistent with Kemmerer's original analysis of the relationship between peripersonal space and demonstratives. Kemmerer (1999) first raises the hypothesis that speaker-proximal demonstratives encode location within the speaker's peripersonal space, then rejects it, arguing that the space indexed by proximal demonstratives is much larger than the speaker's peripersonal space. In fact, the studies cited above consistently find that -- when non-spatial factors like the visibility of the referent are experimentally controlled -- the space indexed by proximals is extremely similar to the speaker's peripersonal space, extending approximately 75cm from the speaker's body in unmarked conditions.

In Chapters 5 and 6, I put forward an analysis of the Ticuna exophoric demonstratives that combines the here-space-oriented analyses of Hanks (1990, 2005) and Enfield (2003) with an analogy between demonstratives and local pronouns first proposed by Bühler (1982 [1934]). I argue that all five of the exophoric demonstratives of Ticuna convey location relative to a perimeter, not distance. In line with the recent psycholinguistic work cited above, and also in line with the discussion of 'tactual' access in Hanks (1990), I propose that the perimeters relevant to demonstratives are defined primarily by the peripersonal spaces of the speaker and addressee. I depart from the here-space-oriented authors in arguing that multiple such perimeters, projected by different (sets of) discourse participants, can exist simultaneously within an interaction.

Because of this claim for multiple origos, I am able to analyze the spatial deictic content of all four exophoric demonstratives of Ticuna while appealing only to peripersonal space (and not to distance). This demonstrates, again contrary to Kemmerer (1999), that peripersonal space analyses can account for demonstrative systems with more than two terms -- provided that we assume people are able to calculate the extension of peripersonal space for their addressees, as well as for themselves.

3.5 Attentional content

For a few languages, recent psychologically oriented literature has argued that some demonstratives do not have either spatial or perceptual deictic content. Instead, authors in this literature argue, those demonstratives encode only information about attention (or related psychological constructs), with their apparent spatial or perceptual deictic content epiphenomenal. Some claims about attention also appear in more narrowly linguistic studies of demonstrative use based on the Demonstrative Questionnaire. I review psychological literature about attention and demon-

stratives in §3.5.1 and more linguistically oriented literature in §3.5.2. I summarize findings about attention in §3.5.3.

3.5.1 Psychologically oriented studies of attention

Psychologists have used experimental paradigms to study the role of attention in demonstrative use in three languages: Turkish, Dutch, and English.

3.5.1.1 Turkish

Turkish has three nominal demonstratives. Historically, some authors have analyzed the demonstratives as forming a 'person-oriented' system, and others as forming a 'distance-oriented' system (see the citations in Küntay and Özyürek 2006:307). These two analyses of the demonstrative system are shown in (1).

(1) The demonstratives of Turkish: two traditional analyses

Demonstrative	Person-Oriented Label	Distance-Oriented Label
bu	Spkr-proximal	proximal
şu	Addr-proximal	medial
o	Spkr-distal	distal

Küntay and Özyürek (2006) argue, on the basis of video recordings of task-oriented communication in a controlled setting, that both of these analyses are incorrect. Instead, they claim that the demonstratives are organized by two orthogonal properties: (a) deictic content concerning the addressee's visual attention (gaze), and (b) deictic content concerning the referent's location in space. On the dimension of attention, the 'medial'/'addressee-centered' *şu* directs the addressee's gaze to the referent; the 'distal' *o* presupposes that the addressee's gaze is already on the referent; and the 'proximal' *bu* has no attentional requirements. On the dimension of space, *bu* requires that the referent is close to the speaker, *o* requires that the referent is not close to the speaker, and *şu* has no spatial requirements. This analysis is shown in (2).

(2) The demonstratives of Turkish: analysis proposed by Küntay and Özyürek (2006)

Demonstrative	Attentional Deictic Content	Spatial Deictic Content
bu	none	close to Spkr
şu	calls Addr's gaze	none
o	presupposes Addr's gaze	far from Spkr

Peeters et al. (2014) conducted a controlled study of demonstrative production in Turkish that manipulated the distance of the referent from the speaker and addressee; whether the referent was in preexisting joint attention (operationalized as joint gaze); and whether the speaker pointed at the referent. Their findings confirmed the Küntay and Özyürek (2006) analysis of *bu*, showing that it was not sensitive to joint attention and required that the referent was near the speaker. They also confirmed the previous study's analysis of *o*, showing that it was very significantly more

likely to be used when the referent was in joint attention prior to the demonstrative reference. However, Peeters et al. (2014) did not confirm the Küntay and Özyürek (2006) claim that *şu* calls joint attention to a referent: they found no effect of joint attention on the use of *şu*.

3.5.1.2 Dutch

Dutch has two nominal demonstratives, cognate with English *this* and *that*. Piwek et al. (2008), also from video recordings of task-oriented communication in a lab setting, argue that the contrast between the two demonstratives tracks joint attention rather than distance or location. These authors find that Dutch speakers use the 'proximal' demonstrative in preference to the 'distal' demonstrative to index referents that are already the focus of joint attention. From this finding, they argue that the proximal demonstrative encodes 'high domain accessibility,' a perceptual-cognitive construct, rather than location or distance. Peeters et al. (2014), using exactly the same experimental paradigm as for the Turkish study, dissented from these findings. They found no effect of joint visual attention on the production of either demonstrative in Dutch.

3.5.1.3 English

Stevens and Zhang (2013) conducted a perception experiment in which English-speaking participants viewed images showing a speaker, addressee, and referent. The images varied the location of the referent (near speaker vs. near addressee vs. not near either participant) and the direction of gaze of the addressee (toward vs. away from referent); they did not vary the speaker's direction of gaze, which was always at the referent. In each condition, participants heard one auditory stimulus with *this* and one with *that*. Their responses to the stimuli were evaluated in two ways: (a) participants pressed a button to judge the stimulus utterance as acceptable or unacceptable, and (b) participants' electroencephalogram (EEG) was recorded continuously. The addressee's gaze had two very modest effects. First, the participants' reaction times for judgments as acceptable (not for judgments as unacceptable) were faster with addressee gaze at the referent. Second, the participants' EEG suggested that they preferred proximal over distal demonstratives in a single condition: when the referent was both located near the addressee and under the addressee's gaze. Gaze did not affect EEG results in the other conditions. This suggests that joint attention may influence demonstrative use in English, but is not a key factor.

3.5.2 Studies of attention using the Demonstrative Questionnaire and similar tasks

Several contributions to Levinson et al. (2018) describe their object languages as displaying demonstratives which require that the addressee's attention is already on the referent (i.e. that the referent is in joint attention). Unlike the experimental studies cited above, these authors all work from the Demonstrative Questionnaire and a related task-oriented communication protocol (Enfield and Bohnemeyer 2001).

Burenhult (2018) (citing Burenhult 2003), on Jahai, provides the greatest detail about attention requirements in the volume. Jahai has a total of nine demonstratives. Burenhult describes four of the nine as possessing attentional deictic content (of the other five, four convey primarily information about the location of the object in an intrinsic/geocentric frame of reference, and the other conveys only perceptual information). Using data from a task-oriented communication protocol with three participants, Burenhult (2003) argues that three of the attention-sensitive demonstratives are used to establish new joint attention to a referent. The fourth attention-sensitive demonstrative, he claims, is used only to index referents that are already in joint attention. In contrast to the lab-based studies cited above, Burenhult (2003) does **not** support this claim with data about joint gaze. Instead, his evidence for the attention-calling vs. attention-presupposing status of the demonstratives is based on order. When participants indexed the same referent multiple times, they typically used the attention-presupposing demonstrative only on the last mention, and attention-calling demonstratives on all prior mentions (Burenhult 2003:374-375). Neither the attention-presupposing nor the attention-calling demonstratives appeared to be sensitive to the location of the referent in space (Burenhult 2018:375-377).

Other contributors to the Levinson et al. (2018) volume who discuss attention include Bohnemeyer (2018) on Yucatec, Meira (2018) on Tiriyó, and Levinson (2018b) on Yelî Dnye. Bohnemeyer (2018) and Meira (2018) argue that Yucatec (Bohnemeyer) and Tiriyó (Meira) have demonstratives which specifically draw attention to a referent -- the presentatives for Yucatec, and one of the two 'proximal' demonstratives for Tiriyó. Levinson (2018b) makes the opposite kind of claim, writing that the speaker- and addressee-proximal demonstratives of Yelî Dnye presuppose that the deictic origo participant (speaker or addressee) is already attending to the referent. The attention-sensitive Tiriyó and Yelî Dnye demonstratives also have spatial deictic content. It is not clear from Bohnemeyer's discussion of the Yucatec presentatives whether he believes that they have spatial content.

At a more general level, the existence of presentative constructions also represents evidence that some deictics convey information about attention. Many languages have dedicated presentative constructions -- words or syntactic structures used specifically to present the addressee with a referent, like the French presentative *voilà* or English locative inversion (*Here it comes*). Insofar as presentative words and constructions are used to establish joint attention on a referent, and not to index referents that are already in joint attention, they are a paradigm case of attention-sensitive deixis.

3.5.3 Discussion of literature focusing on attention

Psychological studies have supported different theories about the impact of attention on demonstrative use than narrowly linguistic studies.

The psychological studies reviewed above do not generally support that there are demonstratives which have **only** attentional deictic content. The more controlled studies of English and Dutch failed to identify any effect of attention on demonstrative production. Studies of Turkish did support that some demonstrative of that language is sensitive to attention. However, this support is relatively weak, since the studies did not obtain the same results. Küntay and Özyürek

(2006) found that the 'medial' or 'addressee-centered' *şu* established joint attention, while Peeters et al. (2015) found that the 'distal' *o* presupposed joint attention, and observed no effect of joint attention on *şu*.

Observational and descriptive linguistic studies provide somewhat more support that demonstratives with only attentional content may exist. The contributors to Levinson et al. (2018) offer several examples of languages where certain demonstratives either act to draw the addressee's attention, or presuppose existing joint attention. However, the evidence that attention is important in these languages is based exclusively on administering the Demonstrative Questionnaire and similar tasks to very small numbers of participants -- five for Bohnemeyer (2018) and three for all of the other descriptive studies discussing attention. Observational data, as well as controlled studies with a larger number of participants, would strengthen the arguments that demonstratives in these languages have attentional deictic content.

In Chapter 5, I demonstrate that the speaker-proximal demonstrative of Ticuna, normally used only to index referents located within the speaker's peripersonal space, can also be used to call new joint attention to referents located anywhere in space. This property renders the Ticuna speaker-proximal similar to Turkish *şu* (on the analysis of Küntay and Özyürek 2006). On the whole, my findings support the conclusion that demonstratives can have **both** spatial and attentional deictic content, but do not provide evidence for the existence of demonstratives with only attentional deictic content.

3.6 Summary and conclusion

Scholarly literature from the last 100 years has identified three kinds of deictic content in demonstratives: perceptual, spatial, and attentional. Different disciplinary and subdisciplinary traditions focus on different meanings within this set.

It is mainly psychologists and psycholinguists who have been interested in attention, and mainly Americanist language documentation researchers who have been interested in perception. Debates about perceptual and attentional deictic content still focus primarily on whether these meanings exist at all (§3.3.3, §3.5.3), rather than on analyzing them in detail. In the case of perceptual deictic content, this reflects a data problem. Although many descriptions of American languages state that demonstratives have visibility meanings or other perceptual deictic content, they do not generally provide any evidence for this claim in the form of judgments or observations of use. This gap makes it impossible for others to evaluate whether visibility meanings actually exist. For attentional deictic content, what the debate reflects is that the evidence is equivocal. Studies which examine the same language and use similar methods, such as the Küntay and Özyürek (2006) and Peeters et al. (2015) studies of Turkish, have arrived at different conclusions about the impact of attention on demonstrative use.

The debate about spatial deictic content is much further along than the debates over perception and attention. Essentially all researchers agree that exophoric demonstratives have some spatial deictic content. Additionally, all empirical studies reject the view, expressed by authors like Fillmore (1973), Lyons (1977), Anderson and Keenan (1985), and Diessel (1999), that the spa-

tial deictic content of demonstratives concerns only the distance between the speaker and the referent. Instead, empirical work on spatial deixis, whether observational or experimental, always concludes that the spatial deictic content of demonstratives concerns location relative to a perimeter (a binary value), not distance (a continuous value). As a result, the contrasts that emerge among empirical studies are no longer about whether the spatial deictic content turns on distance or on location. Rather, they are about what kinds of perimeters are potentially relevant to demonstrative use, and which are primary: for example, the relative importance of socioculturally established perimeters in comparison to interactionally emergent ones (§3.4.2).

In the following chapters, I make three arguments about the demonstratives of Ticuna which contribute to debates in this literature.

First, in Chapter 4, I engage with the debate over the existence of perceptual deictic content. I show that at least three of the six nominal demonstratives of Ticuna have perceptual deictic content. I argue that this content specifically concerns 'visibility' -- whether the speaker sees the demonstrative referent at the moment of speech -- and not more general sensory meanings, epistemic modal meanings, or identifiability-related meanings. My conclusions support the traditional Americanist view that many demonstratives encode information about vision, and fail to support arguments by Enfield (2003) and Levinson (2004a, 2018a) that visibility meanings can always be reduced to spatial or epistemic modal ones.

Second, in Chapter 5, I consider two sets of demonstratives: speaker-centered DNOM1 *ɲa⁴a²* and addressee-centered DNOM5 *ŋe³ma²*, and their DLOC counterparts. I show that in pragmatically controlled settings such as the Demonstrative Questionnaire, DNOM/DLOC1 indexes referents that are within the peripersonal (reaching) space of the speaker and DNOM/DLOC5 indexes referents within the peripersonal space of the addressee. This broadly supports analyses of demonstratives as conveying location relative to an origo's peripersonal space, such as Coventry et al. (2008). Additionally, I show that a hierarchy operates between DNOM/DLOC1 and DNOM/DLOC5: referents that are in the peripersonal space of both participants can only be indexed with DNOM/DLOC1, not DNOM/DLOC5. Taking up an idea from Bühler (1982 [1934]) about the equivalence of speaker-centered demonstratives to 1SG pronouns, and addressee-centered ones to 2SG pronouns, I argue that the DNOM/DLOC1 > DNOM/DLOC5 hierarchy is is analogous to narrowly syntactic person hierarchies that rank 1SG over 2SG arguments.

Following the discussion of the person hierarchy, and still in Chapter 5, I turn to naturally occurring data on DNOM/DLOC1 and DNOM/DLOC5. This data shows that the anchoring of DNOM/DLOC1 to the speaker and DNOM/DLOC5 to the addressee does not always concern the sheer location of the referent in the origo's peripersonal space. Each of these demonstratives has 'extended uses' where it can be used to index referents that are literally beyond the origo's peripersonal space -- for example, DNOM/DLOC11 can be used to call new joint attention to referents located outside the speaker's peripersonal space, and DNOM5 can be used to index referents that the addressee owns, even if they are beyond the addressee's peripersonal space. These extended uses reveal that the speaker- and addressee-centered demonstratives can convey information about the origo's attention and actions toward the referent in lieu of conveying its location. Even for participant-centered demonstratives, then, space is not enough. To understand demonstrative use in naturally occurring data, we must account for nonspatial relations between the origo

and the referent -- both relatively durable 'sociocultural' relations, like ownership, and relatively transitory 'interactional' ones, like joint attention.

Third and last, in Chapter 6, I turn to two other sets of demonstratives: DNOM2 *ŋe³a²*, DNOM3 *ɟe³a²*, and their DLOC counterparts. Again using data from the Demonstrative Questionnaire, I show that in pragmatically controlled settings, DNOM2 *ŋe³a²* indexes referents within the sociocentric space defined by the positions of speaker and addressee, while DNOM3 *ɟe³a²* indexes referents that are located anywhere outside the speaker's peripersonal space. Returning to the equivalence between demonstratives and local pronouns that I drew in Chapter 5, I claim that this positions DNOM2 *ŋe³a²* as analogous to a 1INCL pronoun, and DNOM3 *ɟe³a²* to an underspecified non-1SG pronoun, ambiguous between second and third person. As in Chapter 5, I then return to naturally occurring data, which again complicates the analysis. For DNOM2 *ŋe³a²*, I show -- following Hanks (1990, 2005) -- that the extension of the sociocentric space is sensitive not only to the sheer positions of the speaker and addressee, but also to the presence of tangible boundaries (like walls) and interactionally emergent boundaries (like the zone of the discourse participants' joint activities) that can reduce or expand its size. DNOM3 *ɟe³a²*, on the other hand, is the most literally egocentric and spatial of the demonstratives. It can be used to index referents located anywhere in the speaker's extrapersonal space, even if they are also objectively in the addressee's peripersonal space or in the sociocentric space.

Chapter 4

Visibility

4.1 Introduction

As I discussed in Chapter 3, there is controversy about whether the demonstratives of any language have perceptual deictic content (meanings that concern how the speaker perceives the demonstrative referent), especially deictic content that relates to vision.

Boas (1911a,b), writing on languages of the northwest coast of North America, was the first to claim that some languages have dedicated 'visible' or 'invisible' demonstratives. Authors writing on demonstratives and deictic determiners in American languages have often followed Boas in describing 'visibility' contrasts. But -- with a few exceptions, like Hanks (1984) and Gillon (2009) -- they have not often provided specific evidence for those contrasts.

Authors writing on languages that are not from the Americas, on the other hand, have generally been skeptical that visibility meanings exist. Enfield (2003) suggests that apparent visibility meanings are epiphenomenal on the spatial deictic content of demonstratives, while Levinson (2004a, 2018a,b) has argued that all apparent visibility requirements arise from epistemic modal meanings, meanings concerning the speaker's ability to identify the referent, or perceptual meanings relating to senses other than vision. Levinson et al. (2018), a recent volume surveying the demonstrative systems of 15 languages (including five American languages), provides support for this position: no language included in the volume was found to have a visibility contrast in demonstratives.

The goal of this chapter is to advance the visibility debate by painting a portrait of a language where **visibility is clearly encoded in demonstratives**. Ticuna has four exophoric nominal demonstratives (DNOMs) that can index people and objects:[1] DNOM1 *ɲa⁴a²*, DNOM2 *ŋe³a²*, DNOM3 *ɟe³a²*, and DNOM5 *ŋe³ma²*. I argue that DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* require that the speaker sees the demonstrative referent at the moment of speech. Conversely, DNOM5 *ŋe³ma²* (in one of its two exophoric uses) requires that the speaker does not see the referent at the moment of speech. While visibility is clearly present in this system, it is not omnipresent. DNOM1 *ɲa⁴a²* lacks any

[1] There is one more exophoric DNOM, DNOM4, which can index only regions of space (see §1.3). I leave DNOM4 aside in this chapter because its limitation to regions makes it impossible to compare with the other DNOMs.

visibility requirements, as do all locative demonstratives and the other exophoric use of DNOM5.

Table 4.1 shows the analysis of the nominal demonstratives that I will defend. Spatial deictic content is included in Table 4.1 for completeness; Chapter 5 and 6 present the evidence for it.

Table 4.1: Nominal demonstratives: meaning analysis proposed in Chapter 4

Demonstrative	Spatial Deictic Content	Perceptual Deictic Content
DNOM1 *ɲa⁴a²*	Within reach for Spkr	∅
DNOM2 *ŋe³a²*	Between Spkr and Addr	[+visible]
DNOM3 *ɟe³a²*	Not within reach for Spkr	[+visible]
DNOM5 *ŋe³ma²*	Two uses:	
	1. Within reach for Addr	∅
	2. ∅	[-visible]

As well as showing that the perceptual deictic content exists, I also argue that it specifically encodes information about vision -- not spatial information, *pace* Enfield (2003), or information about epistemic modality, identifiability, or access via other senses, *pace* Levinson (2018a,b). In this way, this chapter contributes not only to the cross-linguistic understanding of demonstratives, but also to the emerging literature arguing that grammatical morphemes can encode information relating to specific senses of the human body (e.g. Floyd et al. 2018).

I develop the chapter as follows. §4.2 shows that DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* require that the speaker sees the demonstrative referent at the moment of speech. §4.3 shows that DNOM5 *ŋe³ma²*, outside its addressee-centered use, requires that the speaker does **not** see the referent at the moment of speech. §4.4 demonstrates that the perceptual content of DNOMs 2, 3, and 5 concerns the sense of vision. §4.5 summarizes the chapter, relates its findings to literature about demonstratives and about perceptual language, and looks forward to Chapters 5 and 6.

4.2 DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* require that the speaker sees the referent

In this section, I argue that DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* require that the speaker sees the demonstrative referent at the moment of speech. I draw evidence from both the Demonstrative Questionnaire and naturally occurring conversations. Data from the Demonstrative Questionnaire appears in §4.2.1 and data from naturally occurring conversations appears in §4.2.2.

Two pieces of background information are important to this section. First, DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* have spatial requirements -- discussed in detail in Chapter 6 -- in addition to their perceptual requirements. Loosely, the spatial deictic content of DNOM2 *ŋe³a²* conveys that the demonstrative referent is within the space occupied by the interaction (the sociocentric space). It normally appears in contexts where the referent is located between the speaker and the addressee. The spatial deictic content of DNOM3 *ɟe³a²* conveys that the referent is not within the speaker's peripersonal space (i.e. that they cannot reach it). The second piece of background relevant

here is that the perceptual requirements of root DNOM2 and root DNOM3 disappear when those demonstratives bear the clitic *=ã⁴ma⁴* (cf. §4.4.3.3). Therefore, throughout this section I will treat DNOMs with *=ã⁴ma⁴* as a separate category from bare DNOMs and DNOMs with other clitics (e.g. case clitics).

4.2.1 Evidence from the Demonstrative Questionnaire

Results of the Demonstrative Questionnaire, introduced in Chapter 2, clearly show that DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²* require the speaker to see the referent at the moment of speech. For the sake of exposition, I analyze these results in comparison with a null hypothesis that the items have spatial deictic content (as shown in Table 4.1) but no perceptual deictic content. I refer to this view as the 'exclusively spatial hypothesis.'

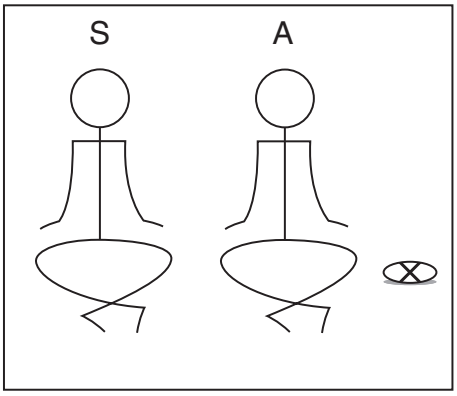
4.2.1.1 DNOMs 2 and 3 are unacceptable where the referent is invisible and not within the speaker's peripersonal space

The Demonstrative Questionnaire contains three scenes where the referent is not visible to the speaker and is not within their peripersonal space (i.e. not close enough for them to reach).[2] These are scenes 15, 18, and 25.[3]

[2]It also contains two scenes where the referent is not visible to the speaker, but is within her peripersonal space; I consider these in the next subsection.

[3]Scene 10 is also treated as an invisible scene in the Demonstrative Questionnaire. In this scene, shown in (1), the speaker and addressee are seated next to each other, side-by-side. The speaker points to a referent located on the far side of the addressee from her. According to the instructions, the referent is visible to and within reach for the addressee, but is not visible to the speaker because the body of the addressee blocks it from their vision.

(1) Demonstrative Questionnaire Scene 10

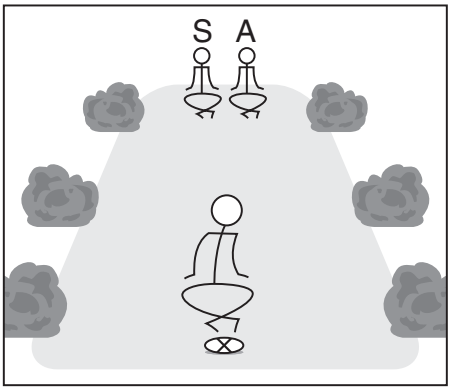


In my experience, it was impossible to set up this scene such that the speaker could not see the referent at all (though that might have been possible with a very small referent). Speakers were consistently able to see the referent by leaning forward or looking across me. As a consequence, I treat scene 10 as a visible scene, and do not report or further discuss the data from it as part of the visibility analysis.

Since the referents in scenes 15, 18, and 25 are outside of the speaker's peripersonal space, an exclusively spatial analysis predicts that at least one of DNOM2 and DNOM3 will be acceptable in each scene. This prediction is false. DNOMs 2 and 3 were not consistently volunteered or accepted in the invisible scenes. Instead, the only root DNOM consistently produced and accepted in the invisible scenes was DNOM5 *ŋe³ma²*.

In scene 15, shown in (3), the speaker and addressee are at one end of a cleared space, and the referent is at the other end. It is blocked from both participants' vision. In my trials of the Demonstrative Questionnaire, I typically blocked the referent from vision by placing it behind a plant or under another object. This was effective at making the referent invisible. In this scene, six of the 10 participants volunteered DNOM5, showing moderate agreement (as defined in §2.1.2). Two participants volunteered DNOM2 with the clitic *=ã⁴ma⁴*, two volunteered DNOM3 with the clitic *=ã⁴ma⁴*, and one volunteered DNOM3 with no clitic. One participant did not volunteer a nominal demonstrative at all. (The total number of responses adds to 11 rather than nine because two participants volunteered more than one form.)

(3) Demonstrative Questionnaire Scene 15



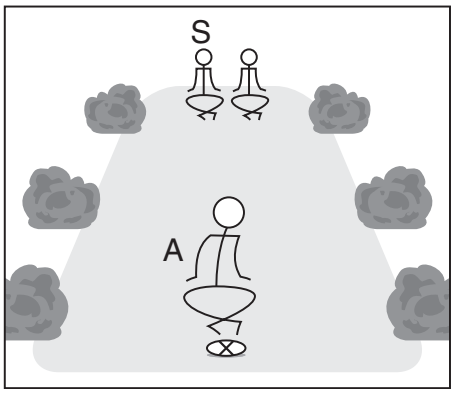
ŋe³ma² *na⁴³ʔpa⁴ɨ̃²* *rɨ¹, ku³¹rɨ³* *ni⁴¹ʔĩ⁴?*

ŋe³ma²	na⁴³	+ʔpa⁴ɨ̃²	rɨ¹	ku³¹rɨ³	ni⁴¹= ĩ⁴
DNOM5(IV)	DEF.POSS	+bucket(IV)	TOP	2SG.AL.POSS	3.I= COP(I)

'That (DNOM5) bucket, is it yours?'
(SSG: 2017.2.186)

In scene 18, shown in (4), the speaker is at one end of a cleared space and the addressee is at the other, facing away from the speaker. The referent is in front of the addressee, making it visible to the addressee but invisible to the speaker. Nine participants volunteered DNOM5 in this scene, showing high agreement. One participant volunteered DNOM3 with no clitic (the same participant who used DNOM3 in scene 15).

(4) Demonstrative Questionnaire Scene 18



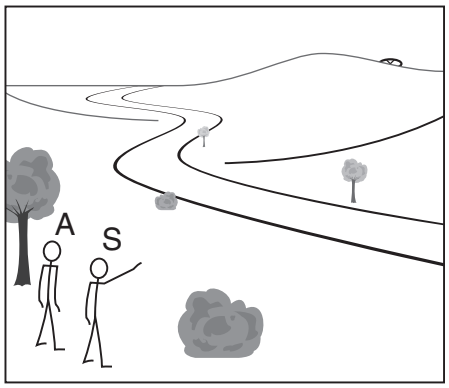
ku³¹rɨ³ ni⁴¹ʔĩ⁴ i⁴ *ŋe³ma²* *pe⁴ʔtʃi¹?*

ku³¹rɨ³ ni⁴¹= ĩ⁴ i⁴ ŋe³ma² pe⁴ʔtʃi¹
2SG.AL.POSS 3.I= COP(I) DET(IV) DNOM5(IV) basket(IV)

'Is that (DNOM5) basket yours?'
(SSG: 2017.1.183)

In scene 25, shown in (5), the speaker and addressee are standing together at a lookout point. The speaker points at an invisible object located beyond the horizon, more than one kilometer away. There are no points that afford a view over this distance in the field region, since it (being part of the Amazon River floodplain) does not have any hills. Therefore, I conducted this scene in participants' front yards, asking them to point out well-known but invisible locations at least one kilometer away. Of the 10 participants, eight volunteered DNOM5 in this scene, showing high agreement. One volunteered DNOM3 with no clitics, and one volunteered DNOM3 with the enclitic *=ʔɨ⁵tʃi²* 'really.'

(5) Demonstrative Questionnaire Scene 25



ma³ri³ ni³¹ʔĩ³ ku¹dau²ʔĩ⁴ a¹ *ɟi²ma²* *ĩ³¹a¹ne¹ ɟa¹ Galilea?*

ma³ri³	ni³¹	=ʔĩ³	ku¹=	dau²	=ʔĩ⁴	a¹	ɟi²ma²	ĩ³¹a¹ne¹	ɟa¹	Galilea
PERF	3	=ACC	2SG.A.SC=	see(A)	=SUB	DET(III)	DNOM5(III)	town(III)	DET(III)	G

'Have you been to that (DNOM5) town, Galilea?'
(ABS: 2017.2.32)

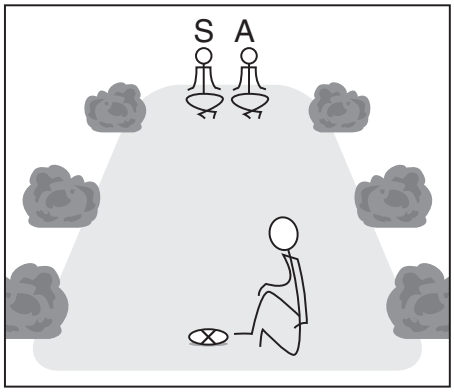
DNOM5 *ŋe³ma²* is clearly the most natural DNOM for all three of the invisible scenes. In each of the scenes, between six and nine speakers volunteered DNOM5, and every speaker who did not volunteer the item judged it acceptable (except for two participants in scene 15).

Conversely, root DNOM2 *ŋe³a²* appears to be unacceptable in all of the invisible scenes. It was never volunteered in any of the three scenes, and it was never judged acceptable by more than half of the participants. DNOM3 *ɟe³a²* is also degraded, though it is better than DNOM2. Across the 10 participants, root DNOM3 was volunteered only three times in all three invisible scenes combined. It was judged acceptable by six participants in scene 18, but was not judged acceptable by more than five of 10 participants in either of scenes 15 or 25.

Knowing that root DNOM2 and root DNOM3 are degraded or unacceptable in the invisible scenes, we next need to account for their unacceptability. To maintain the exclusively spatial hypothesis, we must claim that root DNOMs 2 and 3 are unacceptable in scenes 15, 18, and 25 because of their spatial deictic content.

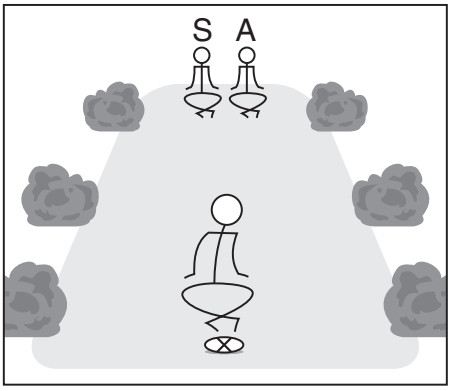
This claim is untenable. The reason is that DNOMs 2 and 3 are acceptable in scenes where the referent is in the same location as in the invisible scenes, but is visible. As an example, scenes 13 and 15 of the Demonstrative Questionnaire provide especially clear data about this contrast. Scene 13, shown in (6), is spatially identical to scene 15, shown in (7). In both scenes, speaker and addressee stand at one end of a large cleared space, and the speaker indexes a referent located at the other end. As shown in the diagrams, the referent is visible to the speaker in scene 13 and not visible to the speaker in scene 15.

(6) Demonstrative Questionnaire Scene 13



Referent is visible, and DNOM3 is acceptable: 5/10 participants volunteer, 5/10 accept.

(7) Demonstrative Questionnaire Scene 15



Referent is invisible, and DNOM3 is degraded: 1/10 participants volunteer, 4/10 accept, 5/10 reject.

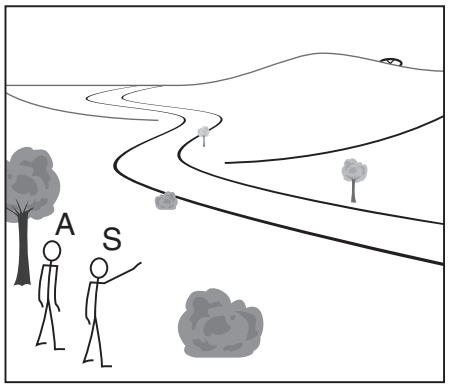
In visible scene 13, five of 10 participants volunteered root DNOM3, and the other five all accepted it. Thus, all 10 participants either volunteered or accepted the form, showing that it is acceptable in this spatial configuration when the referent is visible. In invisible scene 15, by contrast, only one of 10 participants volunteered DNOM3. Of the other nine participants, only four accepted it, a proportion that approaches chance. This pattern indicates that DNOM3 is likely unacceptable in this configuration when the referent is invisible. In scenes that present a minimal contrast for the visibility of the referent, then, DNOM3 (and DNOM2) is acceptable just in case the referent is visible.

Minimal visibility contrasts, like the one in (6) and (7), make the exclusively spatial hypothesis untenable. Instead, the best explanation of the Demonstrative Questionnaire results is that DNOMs 2 and 3 are unacceptable in contexts like scene 15 because they require that the speaker sees the referent.

Participants' metalinguistic comments during the Demonstrative Questionnaire task provide strong support for this analysis of DNOMs 2 and 3. On scene 25, where the speaker points to an

invisible landmark beyond the horizon, three participants -- DGG, ECP, and KSC -- independently volunteered comments that DNOM3 is unacceptable because the speaker does not see the referent. KSC's comment was especially insightful. She volunteered (8), with DNOM5, in response to the scene. When I asked if the same sentence was acceptable with DNOM3, she rejected it. Her comments on the rejected utterance, delivered in Spanish, are given in the original (verbatim from the recording) and my English translation in (9).

(8) Context: Demonstrative Questionnaire Scene 25



ma³ri³ ni³¹ʔĩ³ ku¹da²ʔũ⁴ a⁴ ✓*ŋe³ma²* / #*ɟe³a²* *ĩ³¹a¹ne¹ a⁴ Galilea?*

ma³ri³	ni³¹	=ʔĩ³	ku¹=	dau²	=ʔĩ⁴	a⁴	✓ŋe³ma²	/	#ɟe³a²	ĩ³¹a¹ne¹
PERF	3	=ACC	2SG.A.SC=	see(A)	=SUB	DET(IV)	✓DNOM5(IV)	/	#DNOM3(IV)	town(IV)

a⁴ Galilea
DET(IV) G

'Have you been to | that (✓DNOM5 / #DNOM3) | town, Galilea?'
(KSC: 2018.1.44)

(9) Comment on (8) with *ɟe³a²* DNOM3
KSC: ɟe³a²ʔ, es cuando...por ejemplo tu es casi a llegar en ese pueblo, allí recién te usas.
'*ɟe³a²ʔ* (DNOM3), it's when...for example, you're about to arrive at that town, there right then, you can use it.'
AHS: No se puede decir *ɟe³a² ĩ³¹a¹ne¹*?
'You can't say *ɟe³a² ĩ³¹a¹ne¹* (DNOM3(IV) town(IV))?'
KSC: No, porque no, no lo estás viendo.
'No, because no, you're not seeing it.'

In (9), KSC appears to imagine a scenario where the speaker and addressee are traveling toward the referent. When the referent comes into sight as they approach, the speaker uses DNOM3 to index the referent -- still relatively distant from them, but now visible. That the use of DNOM3 induces KSC to imagine this scenario suggests not only that DNOM3 is associated with visual access, but also that this association is psychologically salient to speakers.

To summarize the discussion in this section, root DNOM2 and DNOM3 are almost never vol-

unteered in any of the three scenes of the Demonstrative Questionnaire where the referent is invisible and located beyond the speaker's peripersonal space. They also are not consistently accepted in these scenes. By contrast, the same items are volunteered and accepted in minimally different scenes where the speaker sees the referent, as shown in (6) and (7). We therefore cannot attribute the unacceptability of DNOMs 2 and 3 in the invisible scenes to spatial deictic content.

This is sufficient evidence to reject the exclusively spatial hypothesis for DNOMs 2 and 3. After rejecting this hypothesis, the best remaining explanation for the behavior of DNOMs 2 and 3 in the invisible scenes is that the items require that the speaker sees the referent. I say 'require' rather than 'encode' here in order to leave open the question of whether DNOMs 2 and 3 have encoded perceptual deictic content, or whether their visibility requirement instead arises from competition with DNOM5. I address the question of encoding later in the chapter, at §4.4.3.

4.2.1.2 DNOMs 2 and 3 are unacceptable where the referent is invisible and within the speaker's peripersonal space

Besides the three scenes where the demonstrative referent is invisible and located outside the speaker's peripersonal space, the Demonstrative Questionnaire also includes two scenes where the referent is invisible and located **inside** the speaker's peripersonal space. These are scene 1, where the speaker points at one of her own teeth, and scene 11, where the speaker indexes a referent located immediately behind her. DNOMs 2 and 3 were effectively never volunteered in these scenes (see the tables in Appendix A for precise figures). They also were not consistently accepted in either scene. In scene 1, seven of 10 participants rejected DNOM2 and all 10 rejected DNOM3; in scene 11, five of 10 participants rejected DNOM2, and five of 10 likewise rejected DNOM3. However, scenes 1 and 11 violate the spatial requirements of DNOMs 2 and 3 -- which cannot be used for referents located within the speaker's peripersonal space -- as well as their perceptual requirements. As a consequence, these scenes do not represent evidence for or against the perceptual deictic content.

4.2.2 Evidence from conversations

Pragmatic analysis must be accountable to data from naturally occurring language use (§2.1.3). Naturally occurring data is especially important to analyses of deixis, since speakers' metalinguistic intuitions about demonstratives are sometimes inconsistent with their actual use (Hanks 2009) and even with their online comprehension as measured by EEG (Stevens and Zhang 2013).

To test the claim that root DNOMs 2 and 3 require visibility against naturally occurring data, I searched the corpus of maximally informal conversation (described in §2.1.3) for all instances of DNOMs 2 and 3. I excluded data other than maximally informal conversation in order to maximize comparability with corpora of conversation in other languages, such as the corpora described in Stivers et al. (2010) and San Roque et al. (2015).

The corpus search identified 22 tokens of DNOM2 and 37 tokens of DNOM3 in the corpus of maximally informal conversation. Both DNOMs appeared at least once with the clitic *=ã⁴ma⁴*, which modifies the deictic content of nominal demonstratives. Table 4.2 reports the total number

of DNOMs with no clitics or with clitics that do not plausibly modify deictic content (e.g. case and number enclitics) vs. with =$\tilde{a}^4ma^4$ observed in the search.

Table 4.2: Token counts of DNOM2 and DNOM3 in the corpus of maximally informal conversation

DNOM	Root tokens + Tokens without =$\tilde{a}^4ma^4$	Tokens with =$\tilde{a}^4ma^4$
DNOM2	21	1
DNOM3	30	7

After identifying all of the tokens of DNOMs 2 and 3, I identified and excluded as uninformative (a) all tokens produced by children under the age of five and (b) all tokens produced in direct quotations. Tokens produced by young children were excluded because child language research in English (Clark and Sengul 1978) and Turkish (Küntay and Özyürek 2006) has found that children do not attain adult-like use of demonstratives until at least the age of five. Child exclusion removed three tokens of DNOM2 and two tokens of DNOM3. Tokens produced in direct quotations were excluded because the values of deictics in direct quotations are not necessarily calculated from the immediate speech situation. Quotation exclusion removed three tokens of DNOM3 (and no tokens of DNOM2). After exclusions, 19 tokens of DNOM 2 (including one token with =$\tilde{a}^4ma^4$) and 32 tokens of DNOM3 (including seven tokens with =$\tilde{a}^4ma^4$) remained, for a total of 51.

I then coded the remaining 51 tokens of DNOMs 2 and 3 for whether the participant who spoke the DNOM, given their location and behavior, could reasonably see the referent at the moment she produced the DNOM. Even if I could not see the referent in the frame, if the participant who spoke the DNOM behaved in a way suggesting that they could see it -- for example, gazing and pointing in the apparent direction of the referent or commenting on the referent's visual appearance -- I coded the token as involving a visible referent.[4] If I could not identify the referent at all, or could not identify its location, I coded the token as unclear. I did not attempt to code tokens where the speaker was off camera, unless it was possible to deduce their location from the video or audio signal (e.g. if the speaker was standing immediately next to the camera).

Table 4.3 presents the results of the visibility coding of the tokens of DNOMs 2 and 3. The coding results are broadly consistent with the Demonstrative Questionnaire data discussed above.

To understand the import of the data in Table 4.3, recall from the previous section that -- in the Demonstrative Questionnaire -- **root** forms of DNOM2 and DNOM3 were consistently volunteered and accepted **only** to index visible referents. If conversational and Demonstrative Questionnaire data are identical, we therefore expect all codable uses of root DNOM2 and DNOM3 to index a referent which the speaker sees.

Looking to the raw data in Table 4.3, we see that 12 of the 13 codable uses of root DNOM2, and 14 of the 17 codable uses of DNOM3, index a visible referent. However, one of the 13 codable tokens of DNOM2, and 3 of the 17 codable tokens of DNOM3, index a referent that is not visible. These tokens initially appear to contradict the claim that root DNOM2 and DNOM3 encode visibility.

[4]To reduce the risk of spuriously coding referents as visible, I wrote a 1- to 2-sentence summary of the evidence that the speaker could (or could not) see the referent in the table of coded examples.

Table 4.3: Tokens of DNOMs 2 and 3 in the corpus of maximally informal conversation, by visibility of referent

Category	Spkr sees Ref	Spkr does not see Ref	Unclear	Uncodable	Total
Root DNOM2 + DNOM2 without *=ã⁴ma⁴*	12	1	1	4	18
DNOM2=*ã⁴ma⁴*	1	0	0	0	1
Root DNOM3 + DNOM3 without *=ã⁴ma⁴*	14	3	4	4	25
DNOM3=*ã⁴ma⁴*	2	5	0	0	7

Closer inspection of the 'invisible' tokens of DNOM2 and DNOM3, however, show that all involve situations of deferred reference. Recall from §3.2.4 that deferred reference occurs when a speaker indexes one entity (the pivot) in order to refer to a second entity that is in a counterpart relation with it (the deferred referent). The deictic content of the demonstrative picks up on the relation between speaker and pivot; all other content in the reference tracks the properties of the deferred referent.

All four of the tokens of root DNOM2 and DNOM3 with invisible referents appear in contexts of deferred reference. As the theory of deferred reference laid out in §3.2.4 predicts, in each of these tokens, the deferred (i.e. actual) referent is invisible, but the **pivot** referent is visible. Additionally, across all four examples, the pivot is in the same counterpart relation with the deferred referent: it is the place where the deferred referent is typically located.

To see what deferred reference to an invisible referent via a visible pivot looks like, consider the example in (10). The participants in this example are JRP and LFG, a young married couple, and LFG's coresident 15-year-old brother, BFG. Prior to the excerpt, LFG is playing with her and JRP's infant daughter while JRP and another coresident relax nearby. The excerpt begins when BFG walks by the outdoor area where the others are seated.

In line 1 of (10), JRP calls BFG and asks him, in a curt voice, 'Who went off in that (DNOM3) boat?.' In line 2, LFG repeats the question to BFG without the demonstrative. She waits for one second for him to reply, and when he does not, she issues an interjection pursuing a response in line 3. BFG replies with an interjection expressing total lack of knowledge or interest in line 4. After a few unrelated turns, LFG continues pursuing the question in line 6. In her turn in line 6, she refers to the boat with DNOM3, just as JRP did in line 1. Then, in line 7, LFG issues a turn which reveals (to the analyst) what has happened to the boat. It is missing, and she and JRP have been interrogating BFG because they want him to go look for it.

(10) 20180707 3:57

1. (JRP:) [loud] *oi³¹, ɟe³a²* *bo³te¹, te¹ʔe⁵ na⁴³gu² ti⁴ʔũ⁴³?*
   oi³¹ ɟe³a² bo³te¹ te¹ʔe⁵ na⁴³ =gu² ti⁴= ũ⁴³
   INTJ:pursuit DNOM3(IV) boat(IV) who? 3 =LOC 3(I).I= flee:SgS(I)
   'Hey, that (DNOM3) boat, who went off in it?'

2. LFG: *te¹ʔe⁵ na⁴³gu² ti⁴³ʔũ⁴³ a¹ bo³te¹?*
te¹ʔe⁵ na⁴³ =gu² ti⁴³= ũ⁴³ a¹ bo³te¹
who? 3 =LOC 3(I).I= flee:SgS(I) DET(III) boat(III)
'Who went off in the boat?'

3. LFG: (1.0) *kɨ¹ʔɨ³?*
kɨ¹ʔɨ³
INTJ:astonished
'Well????'

4. BFG: *a³¹*
a³¹
INTJ:disinterest
'Dunno.'

5. (11 turns omitted)

6. LFG: *ɟe³a²* *bo³te¹gu²ʔ↘*
ɟe³a² bo³te¹ =gu²
DNOM3(IV) boat(IV) =LOC
'(They went) in that (DNOM3) boat.'

7. LFG: [scolding voice] *ku¹ma¹ ta⁴ta²ã⁴ ɟi²ma² bo³te¹ na³¹ʔkạ¹ ku¹a³dau²ʔɨ̃⁴ ta⁴e³ga⁴ʔ*
ku¹ma¹ ta⁴ =ta²ã⁴ ɟi²ma² bo³te¹ na⁴³ =kạ¹ ku¹= a³= dau²
2SG FUT =SCALAR.FOC DNOM5(III) boat(III) 3 =PURP 2SG.A.SC= AM= see(A)
=ʔɨ̃⁴ ta⁴ =e³ga⁴
=SUB FUT =INFO
'YOU'LL have to go and look for the boat, as you should know!'

As LFG's turn in line 7 suggests, there is no boat anywhere in the surround in (10). None is visible on the camera, and none was present in the participants' yard (where they were filmed) when I appeared to set up the video camera. Moreover, from line 7 on, the participants' talk repeatedly makes clear that the boat is gone. But the participants do know where the boat **was** before it disappeared. LFG, in particular, consistently gazes toward a location at the mid left of the frame as she tells BFG (in line 7 and later) to go find the boat and return it to its appropriate place. This suggests that the **previous** location of the boat is visible to her.

What the tokens of DNOM3 in (10) represent, then, is deferred reference to an invisible entity via a visible pivot. The pivot of JRP and LFG's tokens of DNOM3 is visible -- the location at the left of the frame where the boat was (until it went missing). The deferred referent is the boat, which is an invisible, unknown location at the moment of speech. The perceptual and spatial

deictic content of the DNOM picks up on the participants' relation to the visible pivot (the boat's old location), not the invisible deferred referent (the boat), as is usual in deferred reference (cf. §3.2.4). The visibility of the pivot thus licenses the use of the visible demonstrative.

All four of the tokens of root DNOM2 and DNOM3 used to index invisible referents -- the two in (10) and two others -- represent this form of deferred reference to an invisible entity via a visible pivot. All of the other tokens of DNOM2 and DNOM3 used to index invisible referents bear the clitic *=ã⁴ma⁴*. This enclitic neutralizes the visibility requirements of nominal demonstratives, as I discuss at more length in §4.4.3.3. Therefore, the tokens of DNOM2 and DNOM3 with *=ã⁴ma⁴* do not bear on the claim that DNOM2 and DNOM3 require a visible referent. Under this analysis, the conversational data on DNOM2 and DNOM3 is fully consistent with the data from the Demonstrative Questionnaire.

4.3 The invisible use of DNOM5 *ŋe³ma²* requires that the speaker does not see the referent

DNOM5 *ŋe³ma²* is unlike all other nominal demonstratives of Ticuna in two ways.

First, DNOM5 has a larger range of uses than any other nominal demonstrative. While the other demonstratives are only exophoric (DNOMs 1, 2, 3, and 4) or only non-exophoric (DNOM6), DNOM5 has both exophoric and non-exophoric uses.

Second, in exophoric reference, DNOM5 has two prima facie unrelated uses. One exophoric use of DNOM5 indexes a referent that is located in the addressee's reaching space. This is the 'addressee-centered' use. The other exophoric use of DNOM5 indexes a referent that the speaker does not see. This is the 'invisible' use.

I argue that in the invisible use, DNOM5 has only perceptual deictic content: it can be used for any referent that the speaker does not see. This analysis comprehends three separate sub-claims: (a) that invisible DNOM5 has no spatial deictic content, (b) that the item does have perceptual deictic content, and (c) that the perceptual deictic content specifically encodes information about vision, rather than another evidential or epistemic modal value.

In this section, I argue for the first and second of the sub-claims: that invisible DNOM5 has no spatial deictic content, and that it does have perceptual deictic content. §4.3.1.1 demonstrates, based on data from the Demonstrative Questionnaire, that the item does not have spatial deictic content. §4.3.1.2 then shows, again with data from the Demonstrative Questionnaire, that it does have perceptual deictic content. I turn to the third and last sub-claim, that the perceptual deictic content concerns vision, in the next section (§4.4).

4.3.1 Evidence from the Demonstrative Questionnaire

The claim that invisible DNOM5 has no spatial deictic content, and does have perceptual deictic content, makes two predictions. First, if DNOM5 lacks spatial deictic content, then it should be acceptable to index referents located anywhere in space. I show in §4.3.1.1 that this prediction is correct. Second, suppose that DNOM5, as well as lacking any spatial deictic content, also lacks

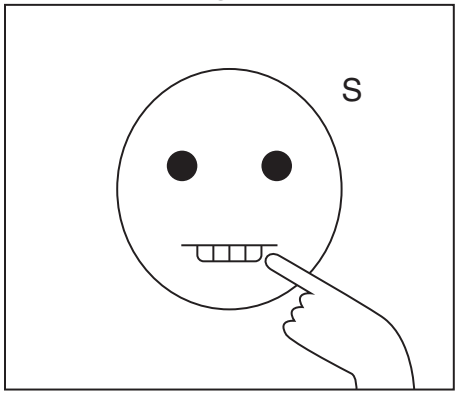
perceptual deictic content. On this hypothesis, DNOM5 has no deictic content whatsoever, like a pronoun or (in the framework adopted by Enfield 2003) the semantically primitive demonstrative meaning DEM. Modulo competition with demonstratives that do have deictic content, DNOM5 should therefore be acceptable in definite reference to **any** person or object (no matter its visibility or location). I show that this prediction is false, and that DNOM5 is restricted specifically to indexing invisible referents, in §4.3.1.2.

4.3.1.1 Invisible DNOM5 has no spatial deictic content

Provided that the speaker does not see the demonstrative referent, DNOM5 can be used to index a referent located anywhere in space. It can point to referents located on the speaker's body or within their peripersonal space. Equally, it can be used to index referents located past the horizon, far beyond the speaker's peripersonal space.

First, consider referents maximally close to the speaker -- on their body. Because of the location of the eyes relative to other body parts, there are some body parts which it is impossible for a person to see without assistance, such as their own ears and teeth. In reference to invisible body parts, DNOM1 is always the first item volunteered, but **DNOM5 is also always accepted**. For example, in scene 1 of the Demonstrative Questionnaire, the speaker points out one of her own teeth to the addressee. 10 of 10 participants volunteered DNOM1 in this scene, but nine of nine (who expressed a judgment) accepted DNOM5 (11).

(11) Demonstrative Questionnaire Scene 1



✓*da*^{31}*a*^{1} / ✓*ɟi*^{2}*ma*^{2} *tʃo*^{1}*pɨ*^{1}*ta*^{1} *na*^{4}*ʎu̯*^{1}.

✓da^{31}a^{1}	/	✓ɟi^{2}ma^{2}	tʃau^{1}	+pɨ^{1}ta^{1}	na^{4}= ʎu̯^{1}
✓DNOM1(III)	/	✓DNOM5(III)	1SG	+tooth(III)	3.A= hurt(A)

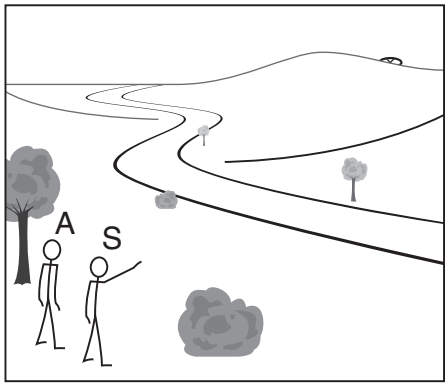
'This (✓DNOM1, ✓DNOM5) tooth of mine hurts.'
(LWG: 2017.1.171)

As well as showing that DNOM5 can index referents located maximally close to the speaker, the acceptability of DNOM5 in (11) indicates that the item cannot be analyzed as conveying either

general indirect evidentiality or some very general form of spatial deictic content, such as the 'not here' spatial deictic content proposed for the Lao distal demonstrative by Enfield (2003). DNOM5 cannot be an indirect evidential because people have direct sensory access to their own body parts, including the teeth. Likewise, it cannot have Enfield's 'not here' content, since it is capable of indexing the speaker's own body, which represents the core of the here-space.

Second, consider referents which are maximally far from the speaker, located beyond the horizon. DNOM5 is acceptable in speaking of these referents too. An example comes from scene 25 of the Demonstrative Questionnaire. In this scene, previously discussed in (5) and (8), the speaker and addressee are together at a lookout point. The speaker points to an invisible referent located kilometers away, beyond the horizon (12). Invisible DNOM5 is the only natural demonstrative in this context. It is volunteered by eight of 10 participants (the other two volunteered forms of DNOM3, but accepted DNOM5).

(12) Demonstrative Questionnaire Scene 25



ma³ɾɨ³ nɨ³¹ʔɨ̃³ ku¹dau²ʔɨ̃⁴ a¹ ⌈*ɟi²ma²*⌉ *ĩ³¹a¹ne¹ ɟa¹ Galilea?*

ma³ɾɨ³	nɨ³¹	=ʔɨ̃³	ku¹=	dau²	=ʔɨ̃⁴	a¹	⌈ɟi²ma²⌉	ĩ³¹a¹ne¹	ɟa¹	Galilea
PERF	3	=ACC	2SG.A.SC=	see(A)	=SUB	DET(III)	⌈DNOM5(III)⌉	town(III)	DET(III)	G

'Have you been to ⌈that (DNOM5)⌉ town, Galilea?'
(ABS: 2017.2.32)

In sum, DNOM5 can index referents which are maximally close to the speaker -- parts of their own body, as in scene 1 -- and can also index referents which are maximally far from them -- located beyond the horizon, as in scene 25. This indicates that DNOM5, in contrast to the other exophoric DNOMs, is completely insensitive to the location of the referent in space. It lacks any spatial deictic content.

The claim that DNOM5 does not have spatial deictic content raises another question: Does DNOM5 have any deictic content? Under a theory that sees demonstratives as primarily spatial, the absence of spatial content might lead analysts to assume that DNOM5 was a completely underspecified demonstrative with no deictic content whatsoever. That assumption, however, proves false. DNOM5 **does** have perceptual deictic content, even though it lacks spatial content.

4.3.1.2 Invisible DNOM5 does have perceptual deictic content

The statement above that the invisible use of DNOM5 has no spatial deictic content could be taken as meaning that it is not an exophoric deictic. In particular, since DNOM5 also has non-exophoric uses (Chapter 7), many theories of demonstratives would suggest that the item is not deictic at all. A formal semantic theory might analyze DNOM5 as a familiar definite that is underspecified for weak vs. strong familiarity, much like a pronoun (Roberts 2003). Or in a cognitive-functional theory, it could be said that DNOM5 encodes the semantically primitive demonstrative meaning DEM, while other nominal demonstratives encode DEM modified by other spatial and perceptual meanings (cf. Enfield 2003). I label these analyses collectively as 'vague' analyses of DNOM5 (intending 'vague' in the technical sense, not in the sense 'imprecise').

Vague analyses of DNOM5 have important strengths. They account for the fact that DNOM5 -- alone among the demonstratives of Ticuna -- has both exophoric and non-exophoric uses. (They also accomplish this without proposing separate lexical items for each use, while my final analysis in Chapter 7 involves the claim that surface DNOM5 represents three homophonous lexical items.) Additionally, vague analyses comport with occasional comments, made by Ticuna people who are especially good Spanish speakers, that DNOM5 is more like the definite articles of Spanish than it is like the demonstratives of Spanish.

Despite these advantages, I reject the vague analyses of invisible DNOM5 outlined above. Instead, I propose that invisible DNOM5 is an exophoric deictic which has perceptual deictic content -- requiring that the speaker does not see the referent -- but lacks spatial content. Addressee-centered DNOM5, discussed in detail in Chapter 5, is a separate lexical item from invisible DNOM5. Non-exophoric DNOM5, explored in Chapter 7, likewise represents a separate lexical item from both the two exophoric uses.

I choose this analysis for two reasons. First, vague analyses of DNOM5 predict that it should be acceptable for visible as well as invisible referents in all spatial arrays. The Demonstrative Questionnaire data shows that this prediction is false. Second, since vague analyses of DNOM5 treat the exophoric and endophoric uses of the DNOM as representing one lexical item, they predict that exophoric and endophoric uses should have the same syntactic distribution. Restrictions against the use of anaphoric DNOM5 in presentative constructions falsify this prediction.

DNOM5 is not always acceptable in exophoric use

Suppose, per a vague analysis, that DNOM5 has no deictic content at all. As a consequence, it should broadly be acceptable, in exophoric use, to index any referent -- no matter its location in space or perceptual accessibility. Due to Gricean considerations of quantity, DNOM5 should also experience pragmatic competition with the demonstratives that do have deictic content, DNOMs 1, 2, and 3. Demonstratives with deictic content are more informative than demonstratives with no deictic content (because they provide more information about the referent). Therefore, in contexts that meet the requirements of at least one demonstrative with deictic content, quantity should favor the demonstrative with deictic content over DNOM5.

From these generalizations, we can draw two predictions about the behavior of DNOM5 in the Demonstrative Questionnaire data. First, the claim that DNOM5 has no deictic content predicts that it should have similar acceptability across all scenes of the Demonstrative Questionnaire. That is, the variance in the acceptability of DNOM5 between scenes should be overall low; DNOM5 should be equally good (or bad) in every scene. Second, the competition claim above predicts that, if DNOM5 is ever unacceptable, its unacceptability should arise only from competition with more informative DNOMs. Concretely, this means that all variance in the acceptability of DNOM5 should be explained by variance in the acceptability of other demonstratives. DNOM5 should be unacceptable only in scenes where at least one other DNOM is highly acceptable. Conversely, the item should be most acceptable in scenes where no other DNOM is highly acceptable.

Both of these predictions are false. We can easily falsify the first prediction, that the variance of DNOM5 across the questionnaire should be low, by considering the data for the scenes where DNOM5 performs best and worst in the Demonstrative Questionnaire. (13) presents the data on DNOM5 from the five scenes in the questionnaire where it was most often volunteered, followed by the data from the four scenes where it was most often rejected. Data from the scenes where DNOM5 is most volunteered (i.e. most acceptable) appears in the top half of (13); data from the scenes where it is most rejected (i.e. least acceptable) appears in the bottom half of the table.

(13) DNOM5 *ŋe³ma²* in the Demonstrative Questionnaire

Scene	Visible to Spkr	In reach of Addr	Status of DNOM5
DNOM5 Most Volunteered			
5	+	+	9/10 vol, 1/10 ND
10	+ (see note 1)	+	6/10 vol, 4/10 accept
16	+	+	9/10 vol, 1/10 accept
18	-	+	9/10 vol, 1/10 accept
25	+	-	8/10 vol, 2/10 accept
DNOM5 Most Rejected			
8	+	+	0/10 vol, 3/10 accept, 6/10 reject, 1/10 ND
14	+	-	0/10 vol, 4/10 accept, 6/10 reject
19	+	-	0/10 vol, 2/10 accept, 7/10 reject, 1/10 ND
22	+	-	0/10 vol, 4/10 accept, 6/10 reject

The data in (13) shows that the variance in acceptability of DNOM5 is fairly large. There are four scenes (5, 16, 18, and 25, above the line) where participants display high agreement on DNOM5 in their volunteered forms. Correspondingly, there are four scenes (those below the line) where no participant volunteered DNOM5, and at least six participants rejected it. Qualitatively, this is similar to the variance found in the acceptability of putatively 'more informative' DNOMs. Take DNOM3 as an example: there are only two scenes where participants displayed high agreement on the item, and four where at least six participants rejected it. This indicates that the variance in acceptability of DNOM5 is **not** lower than the variance in acceptability of other demonstratives, as would be expected under a vague analysis.

The second prediction of the vagueness analysis outlined above was that variance in the ac-

ceptability of DNOM5 should be explained entirely by variance in the acceptability of other (putatively 'more informative') DNOMs. Specifically, DNOM5 should be most acceptable in scenes where no other demonstrative is acceptable, and least acceptable in scenes where other demonstratives are highly acceptable. Like the prediction of low variance, this prediction is also false. There are scenes where both DNOM5 and one or more other demonstratives are acceptable, and there are also scenes where DNOM5 is unacceptable, even though no other demonstrative is strongly preferred.

To see that DNOM5 can be acceptable even where other demonstratives are also highly acceptable, consider the data from scene 5. Recall that in this scene, speaker and addressee are side-by-side when the speaker indexes a referent located on the addressee's body (without a manual point). In the scene, nine of 10 participants volunteered DNOM5 (the other participant did not provide a judgment on the item). However, DNOM1 was also accepted by the majority of participants (seven of 10) and so was DNOM2 (seven of 10). DNOM3 was volunteered by two participants, one of whom also volunteered DNOM5, and accepted by six of the remaining eight. Thus, DNOM5 is clearly acceptable in this scene **even though** DNOMs 1, 2, and 3 are also acceptable, contradicting the prediction that its acceptability should be inversely related to the acceptability of other demonstratives.

Conversely, as evidence that DNOM5 can be unacceptable even where no other demonstrative is strongly preferred, look to the data from scene 14. In this scene, speaker and addressee are located side-by-side at one end of a large cleared space; the referent is in the center of the space, visible to both participants. This scene elicited extremely similar data for each of DNOMs 1, 2, and 3. Three participants volunteered and five accepted DNOM1; four participants volunteered and one accepted DNOM2; and four participants volunteered and six accepted DNOM3. However, no participant volunteered, and six of 10 participants rejected, DNOM5. This is exactly the opposite of the pattern that is predicted by a vague analysis of DNOM5. If the item were vague, it would be **more** acceptable in a context like scene 14, where no other demonstrative is strongly preferred, not less.

Finally, note what **does** explain the variance in the acceptability of DNOM5: the visibility of the referent to the speaker, and the location of the referent relative to the addressee. These variables are represented in the center two columns of (13) for each of the scenes where DNOM5 is most (top) and least (bottom) acceptable. In the scenes where DNOM5 displays high agreement (shown at the top of 13), the referent is always invisible to the speaker, inside the reaching space of the addressee, or both. Conversely, in the scenes where DNOM5 is most often rejected, it is always visible to the speaker and outside the reaching space of the addressee (except for scene 8, discussed in detail in §5.3.3). Vague analyses do not explain why the acceptability of DNOM5 would track visibility and location relative to the addressee. By contrast, my analysis of the demonstrative, as representing two homophonous lexical items (one addressee-centered, one invisible), easily accounts for this pattern.

Exophoric and anaphoric DNOM5 are different lexical items

Vague analyses of DNOM5, and of demonstratives with both exophoric and endophoric uses in general, see the exophoric and endophoric uses as representing one lexical item. These analyses therefore predict that exophoric and endophoric DNOM5 should have the same syntactic distribution.

This prediction is also wrong. Exophoric DNOM5 has a different syntactic distribution from endophoric DNOM5. Exophoric DNOM5 is allowed as the predicate of a presentative construction, like all of the other exophoric DNOMs, while endophoric DNOM5 cannot be the predicate of a presentative.

To appreciate this difference, first consider (14). These examples represent the language's presentative construction. In this construction, a nominal demonstrative is fronted to the left edge of the clause. It agrees in noun class with the noun denoting the presented referent. Following the nominal demonstrative, the copula (which is also a focus marker) optionally appears. If the copula appears, as in (14), it agrees in noun class with the presented referent. Finally, a noun phrase denoting the presented referent appears. There are no restrictions against what can appear in the noun phrase denoting the referent. Like any other noun phrase, it can contain quantifiers, possessors, relative clauses, and so on in addition to the head noun. In (14), for example, the noun phrase denoting the referent contains a possessor and an anaphoric demonstrative (anaphoric to the mention of money in the discourse context), as well as the overt head noun. I treat the fronted demonstrative as the predicate in the presentative construction, and the noun phrase following the copula as the sole argument of the predicate. This analysis is based on the syntactic similarity of the presentative construction to the language's predicate focus construction.

(14) Context: I lent you some money recently. I come back to your house and ask where the money is. You reply,

a. *da³¹ʔe²* *ti⁴¹ʔĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹.* ✓DNOM1

da³¹ʔe² ti⁴¹= ĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹

DNOM1(I) 3(I).I= COP(I) DET(I) DNOM5(I) 2SG.AL.POSS money(I)

'Here it is (DNOM1), that money of yours.'

b. *ɟi³¹ʔe²* *ti⁴¹ʔĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹.* ✓DNOM2

ɟi³¹ʔe² ti⁴¹= ĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹

DNOM2(I) 3(I).I= COP(I) DET(I) DNOM5(I) 2SG.AL.POSS money(I)

'There it is (DNOM2), that money of yours.'

c. *gu³¹ʔe²* *ti⁴¹ʔĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹.* ✓DNOM3

gu³¹ʔe² ti⁴¹= ĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹

DNOM3(I) 3(I).I= COP(I) DET(I) DNOM5(I) 2SG.AL.POSS money(I)

'There it is (DNOM3), that money of yours.'

(LWG: 2017.3.166)

Like DNOMs 1, 2, and 3, DNOM5 is also acceptable as the predicate of a presentative construction **in its exophoric uses**. (15) shows this for the invisible use, and (16) for the addressee-centered use.

(15) Context: We are seated inside your house, waiting for our friend Carlos to arrive. We cannot see the road from where we are, but when we hear the sound of Carlos' motorcycle, you say,
ɟi²ma⁴ ni⁴¹ʔĩ⁴ ɟa⁴ ɟi²ma⁴ Ka³ru¹. ✓DNOM5: Invisible

ɟi²ma⁴	ni⁴¹= ĩ⁴	ɟa⁴	ɟi²ma⁴	Ka³ru¹
DNOM5(II)	3.I= COP(I)	DET(II)	DNOM5(II)	K

'Here comes (DNOM5: invisible) that Carlos (listen up!).'
(DGG: 2017.3.177)

(16) Context: You and I are seated at a table and I ask you where my fire fan is. It is lying on the table near me, visible to you. You say,
ɟi²ma⁴ ni⁴¹ʔĩ⁴ a⁴ ɟi²ma⁴ ta³ru⁵. ✓DNOM5: Addressee-Centered

ɟi²ma⁴	ni⁴¹= ĩ⁴	a⁴	ɟi²ma⁴	ta³ru⁵
DNOM5(II)	3.I= COP(I)	DET(II)	DNOM5(II)	fan(II)

'There it is (DNOM5: near you), that fire fan.'
(ABS: 2017.3.173)

The anaphoric use of DNOM5, by contrast, is not acceptable as the predicate of a presentative construction (17).

(17) Context: (Same as 14) I lent you some money recently. I come back to your house and ask where the money is. You reply by saying (a) and then (b).

a. *ma³rɨ⁴ banco=gu² ku³¹ʔĩ⁵ tɨ³¹ʔĩ³ tʃa³ʔɨ⁴³.*
ma³rɨ⁴ banco =gu² ku³¹ =ʔĩ⁵ tɨ³¹ =ʔĩ³ tʃa³= ɨ⁴³
PERF Sp:bank =LOC 2SG =IBEN 3(I) =ACC 1SG.A= put:InamSgO(A)
'I already put it in the bank for you.'

b. *#ɟi³¹ʔe²ma⁴ ti⁴¹ʔĩ⁴ ɟa⁴ ɟi³¹ʔe²ma⁴ ku³¹rɨ³ di³ẽ³ru¹.* #DNOM5: Anaphoric

#ɟi³¹ʔe²ma⁴	ti⁴¹= ĩ⁴	ɟa⁴	ɟi³¹ʔe²ma⁴	ku³¹rɨ³	di³ẽ³ru¹
#DNOM5(I)	3(I).I= COP(I)	DET(I)	DNOM5(I)	2SG.AL.POSS	money(I)

(Attempted reading: So there it is (#DNOM5: anaphoric), that money of yours.)
(LWG: 2017.3.166)

The acceptability of anaphoric DNOM5 in the argument noun phrase in (14)-(16) shows that the unacceptability of (17) does **not** reflect an across-the-board ban on anaphoric demonstratives in presentative sentences. Anaphoric DNOM5 is allowed in the argument noun phrase of a

presentative; it is only banned as the predicate. This contrast in acceptability as a predicate -- exophoric DNOM5 is acceptable (15, 16), anaphoric DNOM5 is not (17) -- shows that the anaphoric and exophoric uses of DNOM5 have different syntactic distributions. Further evidence of syntactic contrasts between DNOM5 and DNOM6 appears in Chapter 7, where I show that anaphoric DNOM5 alternates with DNOM6 in clauses with remote past temporal reference, while exophoric DNOM5 does not alternate.

Since anaphoric and exophoric DNOM5 have different syntactic distributions, they cannot be analyzed as the same lexical item. This contradicts vagueness analyses of DNOM5. Those analyses treat the exophoric and anaphoric uses of the item as reflecting a single, underspecified meaning, and therefore predict that the exophoric and anaphoric uses should have the same syntactic distribution (like, for example, the exophoric and anaphoric uses of *that* in English).

4.3.1.3 Interim summary

This section has made the case for an analysis of invisible DNOM5 as representing an exophoric deictic with perceptual deictic content, but without spatial deictic content.

Because invisible DNOM5 has no spatial deictic content, it can index referents located anywhere in space. The referent of invisible DNOM5 can be as close to the speaker as her own teeth, or as far as an invisible place located beyond the horizon (§4.3.1.1).

If we take for granted that spatial deictic content is the only kind of deictic content that exists, then the spatial flexibility of DNOM5 looks like evidence that the item has no deictic content at all. That is, under a space-only hypothesis, DNOM5 would be seen as conveying only familiarity (Roberts 2003) or only the unanalyzable deictic meaning DEM (Enfield 2003). However, a vague analysis of the item, whether in terms of familiarity or of DEM, makes two incorrect predictions. It predicts that DNOM5, modulo competition with demonstratives that do have deictic content, should always be acceptable in exophoric reference. This is false: as I show in §4.3.1.2, the item is in fact **not** always acceptable in exophoric reference, and its unacceptability or acceptability is not controlled by competition with other demonstratives. The vague analysis also treats anaphoric and exophoric DNOM5 as reflecting the same lexical item, predicting that anaphoric and exophoric uses should have the same distribution. As I demonstrate in §4.3.1.2 (and at more length in Chapter 7), this prediction is also wrong: exophoric and anaphoric uses of DNOM5 pattern apart syntactically.

These flaws lead me to reject a vague analysis of DNOM5 in favor of an analysis of the multiple uses of the item as reflecting multiple different lexical items. Here I am concerned with the invisible use, which I claim to represent a distinct lexical item from the addressee-centered exophoric use (since they could represent the same item only on a vague analysis). Based on the Demonstrative Questionnaire, the invisible use of DNOM5 appears to require only that the speaker does not see the referent at the moment of speech.

4.4 The perceptual deictic content of DNOMs concerns vision

In the preceding sections, I have argued that DNOMs 2 and 3 require that the speaker sees the demonstrative referent at the moment of speech. DNOM5 requires the opposite, that the speaker does not see the referent at the moment of speech. These claims are based on data from the Demonstrative Questionnaire and are also consistent with the use of the items in everyday conversation, modulo acts of deferred reference.

Almost all of the data so far, however, has concerned situations where the speaker either sees the referent or does not perceive the referent via any sense. Contexts where the speaker directly perceives the referent via a sense other than vision are missing. These contexts are important because only they can show whether the perceptual deictic content of the DNOMs relates specifically to vision, or to perception with any one of the senses.

In this section, I first demonstrate that the perceptual deictic content of DNOMs 2, 3, and 5 relates specifically to the sense of vision. DNOMs 2 and 3 require that the speaker perceives the referent via literal vision at the moment of speech (§4.4.1). They are not acceptable for referents that the speaker perceives via hearing, smell, taste, haptic touch, or proprioception (awareness of one's own body). They are likewise not acceptable for referents that the speaker saw only before the moment of speech, or that the speaker could see only in possible worlds other than the actual world.

Conversely, DNOM5 requires only that the speaker does not literally see the referent at the moment of speech (§4.4.2). It is acceptable for referents that are perceived via the other senses, provided that the speaker does not simultaneously see them. It is also acceptable for referents that the speaker cannot perceive via any sense, as we saw in contexts like (12) above.

After illustrating that the perceptual deictic content concerns vision and not any more general sensory or epistemic meaning, I turn to the question of whether the perceptual requirements of the DNOMs arise from encoded meanings present in all of the items, or from competition between more and less marked forms. I argue that the requirements are best analyzed as representing a binary feature [visible] which is encoded in all of DNOMs 2, 3, and 5 (§4.4.3).

4.4.1 DNOMs 2 and 3 encode information about vision

I showed in §4.2 that DNOMs 2 and 3 are not acceptable in contexts like (5), where the speaker does not see the referent and also does not access it via any other sense. Here, I demonstrate that they are also unacceptable in contexts where **the speaker perceives the referent via a sense other than vision**. Since unacceptability can only be shown through negative data, all of the examples in this section come from acceptability judgment tasks in semantic elicitation. I begin with access via hearing, then move to access via smell, and finally discuss access via the other non-vision senses of taste, haptic touch, and proprioception.

4.4.1.1 Hearing is not sufficient for DNOMs 2 and 3

DNOMs 2 and 3 are not acceptable ways to index a referent that the speaker perceives only via hearing (18).

(18) Context: We hear a recorded song playing at the neighbor's place. We cannot see the radio that is playing the song. You tell me you like the song.
#ŋe³a² / #ɟe³a² wi³ɟa³e³ i⁵ ŋe⁵ma² nɨ³¹ʔĩ³ tʃa¹ʔĩ³nɨ²ʔĩ⁴ rɨ¹ tʃo³¹rɨ³ me⁴³ ni⁴¹ʔĩ⁴.

#ŋe³a²	/	#ɟe³a²	wi³ɟa³e³	i⁵	ŋe⁵ma²	nɨ³¹	=ʔĩ³	tʃa¹=
#DNOM2(IV)	/	#DNOM3(IV)	song(IV)	DET(IV)	DLOC5:ALL 3		=ACC	1SG.A.SC=

ĩ³nɨ²	=ʔĩ⁴	rɨ¹	tʃo³¹rɨ³	me⁴³	ni⁴¹= ĩ⁴
hear(A)	=NMLZ(IV)	TOP	1SG.AL.POSS	good	3.I= COP(I)

(Attempted reading: That (#DNOM2 / #DNOM3) song that I hear there, I like it.)
(LWG 2017.2.86)
Judgments:
5/5 consultants rejected DNOM2 *ŋe³a²* in context
4/5 consultants rejected DNOM3 *ɟe³a²* in context; 1/5 accepted

In rejecting DNOMs 2 and 3 in (18), several consultants made comments or produced other behavior indicating that these forms are acceptable if the speaker sees some object that is associated with the song. For example, LWG commented on (18) that DNOM3 *ɟe³a²* would be acceptable if the speaker, while listening to the song, was pointing to a blackboard across the room with the lyrics to the song written on it.

KSC produced a very similar non-linguistic response to a reference to a sound with DNOM3 *ɟe³a²*. As we were working in her house on June 14, 2018, her neighbor (whose house does not have walls on one side) began playing very loud music on a stereo. KSC was seated with her back to the window that looked onto the neighbor's house; I could see into the room where the music was playing, but she could not. Since we happened to be working on perception verbs, I asked KSC to tell me that she didn't like the music. She volunteered (19) with DNOM1 *ɲa⁴a²* indexing the music (we will see more data about the role of DNOM1 in indexing referents perceived via non-vision senses below). When I asked her if she could say the same sentence with DNOM3 *ɟe³a²*, she turned around and looked out the window into the neighbor's house, confirming that she could see the stereo -- and only then agreed that DNOM3 was acceptable.

(19) *✓ɲa⁴a² / ʔɟe³a² musica rɨ¹, ta⁴ma³ tʃo³¹rɨ³ me⁴³ ni⁴¹ʔĩ⁴.*

✓ɲa⁴a²	/	ʔɟe³a²	musica	rɨ¹	ta⁴ma³	tʃo³¹rɨ³	me⁴³	ni⁴¹= ĩ⁴
✓DNOM1(IV)	/	ʔDNOM3(IV)	Sp:music(IV)	TOP	NEG	1SG.AL.POSS	good	3.I= COP(I)

'This (✓DNOM1 / ʔDNOM3) music, I don't like it.'
(KSC: 2018.1.92)

LWG and KSC's reactions to attempted uses of DNOMs 2 and 3 in reference to sounds -- the blackboard comment and the over-the-shoulder look at the stereo -- show that these items are acceptable in reference to objects known via hearing **only in contexts of deferred reference** (cf. §3.2.4 and §4.2.2). In LWG's comment, the speaker is attending to one entity, the lyrics written on the blackboard, while referring to another entity that is in a counterpart relation with it, the song. Since the pivot (the blackboard) is visible, the visible form is licit, even though the deferred referent (the song) is not visible (the inverse of the deferred reference example in 10). KSC's check of her ability to see the stereo reflects exactly the same set of relations. Though she could only hear the song, she saw an object in a counterpart relation with it -- the stereo -- making the visible form acceptable.

Situations of reference to sounds where no visible pivot is available, like the context in (18), lead to consistent rejections of DNOMs 2 and 3.

4.4.1.2 Smell is not sufficient for DNOMs 2 and 3

DNOMs 2 and 3 are also not acceptable ways to index a referent that the speaker perceives only via smell (20 - 22).

(20) Context: You notice that I am wearing some perfume. It smells good. You cannot see any liquid or solid perfume or anything associated with the perfume, such as the bottle.
#ŋe³a² / #ɟe³a² pu³ma³ra¹ i¹ɟi¹ʔi⁵tʃi²ʔĩ⁴ rɨ¹ na⁴me⁴³ʔe⁵tʃi².

#ŋe³a²	/	#ɟe³a²	pu³ma³ra¹	i¹=	ɟi¹ʔ	=ʔɨ⁵tʃi² =ʔĩ⁴
#DNOM2(IV)	/	#DNOM3(IV)	perfume(IV)	3.I.SC=	issue.good.smell(I)	=really =NMLZ(IV)

rɨ¹	na⁴= me⁴³	=ʔɨ⁵tʃi²
TOP	3.A= good(A)	=really

(Attempted reading: That (#DNOM2 / #DNOM3) perfume that is fragrant, it smells good.)
(DGG 2017.2.82)
Judgments:
5/5 consultants rejected DNOM2 *ŋe³a²* in context
5/5 consultants rejected DNOM3 *ɟe³a²* in context

(21) Context: You and I notice a bad smell on the breeze. You tell me it is the smell of gasoline. We cannot see any gasoline stains or container of gasoline.
#ŋe³a² / #ɟe³a² pa³¹a¹ne³ʔɨ̃⁴ rɨ¹ gasolina=e¹ma³ ni⁴¹ʔi̱⁴.

#ŋe³a²	/ #ɟe³a²	Ø=	pa⁴³	=a¹ne¹	=ʔɨ̃⁴	rɨ¹
#DNOM2(IV)	/ #DNOM3(IV)	3.A.SC=	issue.smell(A)	=AREAL.SBJ	=NMLZ(IV)	TOP

gasolina +e¹ma³ ni⁴¹= i̱⁴
Sp:gasoline +vapor 3.I= COP(I)

(Attempted reading: That (#DNOM2 / #DNOM3) smell, it's gasoline vapors.)
(DGG 2017.2.82)
Judgments:
4/4 consultants rejected DNOM2 *ŋe³a²* in context
3/4 consultants rejected DNOM3 *ɟe³a²* in context; 1/4 accepted

(22) Context: My house is next to a bakery. Every day while I am in the courtyard of my house (where I cannot see the bakery), I smell the bread baking and say,
#ŋe³a² / #ɟe³a² no⁵¹rɨ³ pa³¹a¹ne³ʔɨ̃⁴ rɨ¹ na⁴tʃi̱¹ʔi⁵tʃi².

#ŋe³a²	/ #ɟe³a²	no⁵¹rɨ³	Ø=	pa⁴³	=a¹ne¹	=ʔɨ̃⁴	rɨ¹
#DNOM2(IV)	/ #DNOM3(IV)	3.AL.POSS	3.A.SC=	issue.smell(A)	=AREAL.SBJ	=NMLZ(IV)	TOP

na⁴= tʃi̱¹ =ʔɨ⁵tʃi²
3.A= delicious(A) =really

(Attempted reading: That (#DNOM2 / #DNOM3) smell of theirs, it's delicious.)
(LWG 2017.3.96)
Judgments:
2/2 consultants rejected DNOM2 *ŋe³a²* in context
2/2 consultants rejected DNOM3 *ɟe³a²* in context

In rejecting DNOMs 2 and 3 in reference to the smells in (20 - 22), the consultants often commented that the demonstratives **would** be acceptable in these sentences if the speaker saw an object associated with the smell at the same time as they commented on the smell. For example, in (20), DGG commented that DNOM3 *ɟe³a²* would be acceptable if the speaker was pointing to a bottle that contained the perfume, and in (21) he commented that DNOM2 *ŋe³a²* would be acceptable if the speaker pointed to a container that had contained the gasoline. Likewise, in (22), YCG commented that DNOM3 *ɟe³a²* would be acceptable if the speaker was pointing to the bread at the same time as they referred to its smell.

Like the comments on (18), these comments are examples of deferred reference. They do not lead us to any conclusions about the deictic content of DNOMs 2 and 3, since the spatial and perceptual deictic values pick up on the relation between the speaker and the visible pivot, not between the speaker and the invisible (deferred) referent.

4.4.1.3 Other non-vision senses are not sufficient for DNOMs 2 and 3

Beyond smell and hearing, referents accessed only via taste, haptic touch (touch as a means of exploring objects), or proprioception (awareness of one's own body) are also never indexed with DNOMs 2 and 3. Instead, referents known via these senses are indexed with DNOM1 and DNOM5 (§4.4.2).

However, space is a confound in dealing with the senses of taste, haptic touch, and proprioception. To perceive something via taste or touch requires it to be in contact with your body, and to perceive it via proprioception requires it to be a part of your body. This (non-linguistic) requirement conflicts with the spatial deictic content of DNOMs 2 and 3. Objects in contact with the speaker's body, as well as body parts, cannot be indexed with DNOMs 2 or 3 even if they are visible. Therefore, rejections of DNOMs 2 and 3 in reference to objects known via taste, haptic touch, or proprioception do not provide evidence about the items' perceptual deictic content.

4.4.1.4 Vision in past, future, or counterfactual situations is not sufficient for DNOMs 2 and 3

Knowing that DNOMs 2 and 3 require that the speaker sees the referent, we next need to ask about the temporal properties of that requirement: Do the items require only that the speaker has seen (or expects to see) the referent at some time, or does the speaker need to see the referent at the moment of speech?

The answer is that, modulo acts of deferred reference, the vision requirement relates only to **the moment of speech**. This distinguishes the requirement from all other noun phrase implications (e.g. the nominal property implication of nouns in argument noun phrases, the possession implication of possessive noun phrases, and so on) in Ticuna. Besides the deictic requirements of demonstratives, all other noun phrase implications in Ticuna have free temporal interpretation, exactly as in English. This means that noun phrase implications can be evaluated either at the moment of speech or at other contextually given times, such as the topic time of the sentence that contains the noun phrase. For example, if I am talking about my childhood, I can describe the house where I lived as a child as *ʧo¹=pa⁴ta³* (1SG=house) 'my house,' even though I no longer live there.

If the vision requirement of DNOMs 2 and 3 had free temporal interpretation, then speakers would be able to use visible demonstratives to index a referent that they had seen at some time in the past, even if they did not see the referent at the moment of speech. This prediction is false. For the visible demonstratives to be felicitous, the speaker must see the referent of the demonstrative at the moment of speech. It is not sufficient that the speaker sees the referent before the moment of speech, even immediately before (23, 24).

(23) Context (my actual actions in elicitation): You and I are at opposite ends of a sidewalk. There is a basket in the middle of the sidewalk, equidistant between us (Demonstrative Questionnaire Scene 17). You clearly see the basket; then I go to the basket, pick it up, and take it with me to the end of the sidewalk. I face away from you and put the basket in front of me, so you can no longer see it (Demonstrative Questionnaire Scene 18).
ku³¹rɨ³ ni⁴¹ʔĩ⁴ ɟa¹ *#ɟi²a² / #gu²a²* *pe⁴ʔtʃi¹?*

ku³¹rɨ³	ni⁴¹= ĩ⁴	ɟa¹	#ɟi²a²	/	#gu²a²	pe⁴ʔtʃi¹
2SG.AL.POSS	3.I= COP(I)	DET(III)	#DNOM2(III)	/	#DNOM3(III)	basket(III)

(Attempted reading: Is that (#DNOM2 / #DNOM3) basket yours?)
(ECP: 2017.1.183)

(24) Context (my actual actions in elicitation): I show you a bag of marbles. You clearly see the marbles in the bag; then I close the bag and place it on the other side of the table from you.
#gu³¹ʔe² *pe⁴³tɨ³ka³ Bi³tu⁵a¹rɨ³ ti⁴¹ʔĩ⁴.*

#gu³¹ʔe²	pe⁴³tɨ³ka³	Bi³tu⁵	=a¹rɨ³	ti⁴¹= ĩ⁴
#DNOM3(I)	marble(I)	Victoria	=AL.POSS	3(I).I= COP(I)

(Attempted reading: That (#DNOM3) marble is Victoria's.)
(DGG: 2017.3.177)

(23) and (24) show that visual access to the referent **before** the moment of speech is not sufficient to make DNOMs 2 and 3 acceptable.

Potential visual access to the referent -- access that the speaker expects to have in the future, or would have if circumstances were different (i.e. in counterfactual situations) -- is also insufficient to make DNOMs 2 and 3 acceptable. As with temporal interpretation, this property sets the vision requirement of DNOMs 2 and 3 apart from all other implications of noun phrases in Ticuna. Just as in English, noun phrase implications in the language can be interpreted either in the actual world or in other contextually given possible worlds. For example, if I am discussing what will happen if someone gets married, I can refer to her potential husband as *na⁴=te⁴* (3=husband) 'her husband,' even if the referent does not meet that description in the actual world.

If the vision requirement of DNOMs 2 and 3 likewise had free modal interpretation, speakers would be able to use visible demonstratives to index a referent which they could see at the moment of speech in an alternative possible world, even if they did not see the referent in the actual world. This prediction is likewise false. For the visible demonstratives to be felicitous, the speaker must see the referent at the moment of speech **in the actual world**. It is not sufficient that the speaker sees the referent in another possible world, even one that is infinitesimally different from the actual world (25).

(25) Context: There is a box containing some marbles across the table from you. You cannot see the marbles because the box is closed. You say,
ŋẽ⁴ʔgu²ma³ caja tʃi⁴ ʍa⁴ʔna¹gu², rɨ¹ #gu³¹ʔe² / #ɟi³¹ʔe² pe³tɨ³ka¹ʔɨ̃³ tʃa³dau².

ŋẽ⁴ʔgu²ma³ caja tʃi⁴ Ø= wa⁴ -ʔna¹ =gu², rɨ¹ #gu³¹ʔe² / #ɟi³¹ʔe²
CONN Sp:box CNTF 3.R.SC= open(R) -DIR:open =SUB TOP #DNOM3(I) / #DNOM2(I)

pe³tɨ³ka¹ =ʔɨ̃³ tʃa³= dau²
marble(I) =ACC 1SG.A= see(A)

(Attempted reading: If the box were open, I would see those (#DNOM2 / #DNOM3) marbles.)
(LWG: 2017.3.154; SSG, YCG, DGG)

A counterpart to (23) and (24), (25) shows that **potential** visual access to a referent is insufficient to make DNOMs 2 and 3 acceptable. Only **actual** vision at the moment of speech allows these DNOMs.

4.4.1.5 Interim summary: Only vision matters for DNOMs 2 and 3

DNOMs 2 and 3 cannot be used in reference to objects directly perceived via senses other than vision. For referents perceived via touch and proprioception, this restriction can be attributed to the items' spatial deictic content. But for referents known via smell and hearing, only a perceptual explanation for the restriction against DNOMs 2 and 3 is possible.

The unacceptability of DNOMs 2 and 3 in contexts of access via smell and hearing cannot be due to morphosyntactic factors, spatial deictic content, epistemic modal content, or a general direct/indirect evidential contrast. The anomaly is not morphosyntactic because sentences of the same morphosyntactic form as (18) - (22) are acceptable in deferred reference contexts. It is not spatial because, in all of these examples, the referent is outside the immediate personal space of the speaker, and could therefore be referred to with at least DNOM3 *ɟe³a²* if it were visible (cf. Chapter 6). It is not epistemic modal, because the speaker clearly perceives and actually identifies the referent in all of the contexts in (18) - (22). And finally, the anomaly cannot arise from a general contrast between direct and indirect evidentiality. This is because, in all of these examples, the speaker directly accesses the referent via smell or hearing (and that is in fact the only way that the referents of (18), (21), and (22) -- being smells and sounds -- could be accessed).

(26) summarizes the evidence for the perceptual requirements of DNOMs 2 and 3 in table form.

(26) Perceptual requirements of DNOMs 2 and 3

Perceptual context	DNOM2	DNOM3
Speaker sees referent at moment of speech in actual world	✓	✓
Speaker (only) hears referent	# (18)	# (18)
Speaker (only) smells referent	# (20) - (21)	# (20) - (21)
Speaker does not perceive referent via any sense	# (3) - (5)	# (3) - (5)
Speaker sees referent (only) before/after moment of speech or in counterfactual world	# (23) - (25)	# (23) - (25)

I have provided this level of detail about the perceptual contexts where DNOMs 2 and 3 are acceptable in order to show that their perceptual content concerns **the sense of vision**, not some other spatial, epistemic modal, or sensory evidential meaning. Within the set of possible vision-related meanings, I lack the data to assess whether the perceptual content specifically requires that the speaker perceives the referent via focal vision (in contrast to peripheral vision). However, my claim that the perceptual content concerns vision (in contrast to other sensory modes of access) predicts that DNOMs 2 and 3 should be acceptable for referents perceived via either focal or peripheral vision.

I also want to emphasize that the perceptual content of DNOMs 2 and 3 is **not** directly comparable to the content of perception predicates like the English adjective *visible*, the English verb *see*, or the Ticuna verb *dau²* 'see.' Since words like *visible*, *see*, and *dau²* can act as predicates, they can contribute to truth conditions, while the perceptual content of DNOMs 2 and 3 never does. Similarly, when open-class perception predicates modify nouns (in phrases like *the visible marble* or *the marble that I'm seeing*), they are subject to the same temporal and modal interpretation as other predicates in the same syntactic position. When DNOMs 2 and 3 modify nouns, on the other hand, their temporal and modal interpretation pattern away from that of all other noun phrase constituents. This reflects that the temporal and modal interpretation of the vision requirement of DNOMs 2 and 3 is, like the rest of the content of those items, indexical -- tied specifically to the moment of speech and the actual world. Other noun phrase content, by contrast, is descriptive, not indexical.

4.4.2 DNOM5 encodes information about the absence of vision

I showed in §4.3 that DNOM5 *ŋe³ma²* is the preferred demonstrative when the speaker does not perceive the referent via any sese. In this section, I will show that DNOM5 is also always acceptable when the speaker **does not see the referent, but does perceive it via a non-vision sense**. The examples in this section will further illustrate that DNOM1 *ɲa⁴a²* is also acceptable, and may sometimes be more natural than DNOM5, for referents directly perceived via senses other than vision. As in the preceding section, I begin with access via hearing, then via smell, then via other senses.

4.4.2.1 Hearing only is acceptable with DNOM5

Recall from (18) that DNOMs 2 and 3 are not acceptable ways to index a referent perceived only by hearing. DNOM5 *ŋe³ma²*, on the other hand, is acceptable for referents accessed only by hearing (27). DNOM1 *ɲa⁴a²* is also acceptable, but was not as widely volunteered or accepted as DNOM5 in (27).

(27) Context (same as 18): We hear a recorded song playing at the neighbor's place. We cannot see the radio that is playing the song. You tell me you like the song.
✓*ŋe³ma²* / ✓/*ʔɲa⁴a²* *wi³ɟa³e³ i⁵ ŋe⁵ma² nɨ³¹ʔĩ³ tʃa¹ʔĩ³nɨ²ʔĩ⁴ rɨ¹ tʃo³¹rɨ³ me⁴³ ni⁴¹ʔĩ⁴.*

✓ŋe³ma²	/	✓/ʔɲa⁴a²	wi³ɟa³e³	i⁵	ŋe⁵ma²	nɨ³¹	=ʔĩ³	tʃa¹=
✓DNOM5(IV)	/	✓/ʔDNOM1(IV)	song(IV)	DET(IV)	DLOC5:ALL	3	=ACC	1SG.A=

ĩ³nɨ²	=ʔĩ⁴	rɨ¹	tʃo³¹rɨ³	me⁴³	ni⁴¹= ĩ⁴
hear(A)	=NMLZ(IV)	TOP	1SG.AL.POSS	good(noun)	3.I= COP(I)

'That (✓DNOM5, ✓/?DNOM1) song that I hear there, I like it.'
(LWG 2017.2.86)
Judgments:
3/5 consultants volunteered DNOM5 *ŋe³ma²* in context; 2/5 accepted
2/5 consultants volunteered DNOM1 *ɲa⁴a²* in context; 2/5 rejected; 1/5 accepted

The conversational corpus does not contain any demonstrative references to entities perceived only via hearing. As a consequence, though (27) shows that both DNOM1 and DNOM5 are acceptable in reference to entities perceived only by hearing, it is impossible to say which is more common. Anecdotally, I tested the acceptability of DNOM3 *ɟe³a²* for referents perceived via hearing by saying it several times in actually occurring situations similar to (27). I was always corrected to DNOM5 *ŋe³ma²*, never to DNOM1 *ɲa⁴a²*.

4.4.2.2 Smell only is acceptable with DNOM5

We saw in the previous subsection that DNOMs 2 and 3 are not acceptable for referents perceived only via smell (20-22). DNOM5 *ŋe³ma²*, on the other hand, is acceptable for referents perceived via smell, including in the same contexts where DNOMs 2 and 3 were rejected (28-30). DNOM1 *ɲa⁴a²* was also often accepted in these contexts.

(28) Context (same as 20): You notice that I am wearing some perfume. It smells good. You cannot see any liquid or solid perfume or anything associated with the perfume, such as the bottle.
✓*ŋe³ma²* / ✓/*ʔɲa⁴a²* *pu³ma³ra¹ i⁵ɟi¹ʔi⁵tʃi²ʔĩ⁴ rɨ¹ na⁴me⁴³ʔe⁵tʃi².*

✓ŋe³ma²	/	✓/ʔɲa⁴a²	pu³ma³ra¹	i⁵=	ɟi¹ʔ
✓DNOM5(IV)	/	✓/ʔDNOM1(IV)	perfume(IV)	3.I.SC=	issue.good.smell(I)

=ʔɨ⁵tʃi²	=ʔĩ⁴	rɨ¹	na⁴=	me⁴³
=really	=NMLZ(IV)	TOP	3.A=	good(A)

'That (✓DNOM5 / ✓/ʔDNOM1) perfume that is fragrant, it smells (lit. is) good.'
(DGG 2017.2.82)
Judgments:
5/5 consultants volunteered DNOM5 *ŋe³ma²* in context
3/5 consultants accepted DNOM1 *ɲa⁴a²* in context; 1 marginally accepted; 1 rejected

(29) Context (same as 21): You and I notice a bad smell on the breeze. You tell me it is the smell of gasoline. We cannot see any actual gasoline stain or container of gasoline.
✓*ŋe³ma²* / *ʔɲa⁴a²* *pa³¹a¹ne³ʔĩ⁴ rɨ¹ gasolina=e¹ma³ ni⁴¹ʔĩ⁴.*

✓ŋe³ma²	/	ʔɲa⁴a²	Ø=	pa⁴³	=a¹ne¹
✓DNOM5(IV)	/	ʔDNOM1(IV)	3.A.SC=	issue.smell(A)	=AREAL.SBJ

=ʔĩ⁴	rɨ¹	gasolina	+e¹ma³	ni⁴¹= ĩ⁴
=NMLZ(IV)	TOP	Sp:gasoline	+vapor	3.I= COP(I)

'That (✓DNOM5 / ʔDNOM1) smell, it's gasoline vapors.'
(DGG 2017.2.82)
Judgments:
4/4 consultants volunteered DNOM5 *ŋe³ma²* in context
2/4 consultants accepted DNOM1 *ɲa⁴a²* in context; both made gestures suggesting they were imagining pointing to liquid gas or to a place where gas had spilled (i.e. deferred reference). 2/4 rejected DNOM1 *ɲa⁴a²*.

(30) Context (same as 22): My house is next to a bakery. Every day while I am in the courtyard of my house (where I cannot see the bakery), I smell the bread baking and say,
✓*ŋe³ma²* / *ʔɲa⁴a²* *no⁵¹rɨ³ pa³¹a¹ne³ʔɨ̃⁴ rɨ¹ na⁴tʃi̱¹ʔi⁵tʃi².*

✓ŋe³ma²	/ ʔɲa⁴a²	no⁵¹rɨ³	Ø=	pa⁴³	=a¹ne¹	=ʔɨ̃⁴
✓DNOM5(IV)	/ ?DNOM1(IV)	3.AL.POSS	3.A.SC=	issue.smell(A)	=AREAL.SBJ	=NMLZ(IV)

rɨ¹	na⁴=	tʃi̱¹	=ʔɨ⁵tʃi²
TOP	3.A=	delicious(A)	=really

'That (✓DNOM5 / ?DNOM1) smell of theirs, it's delicious.'
(LWG 2017.3.96)
Judgments:
2/2 consultants volunteered DNOM5 *ŋe³ma²* in context
1/2 consultants accepted DNOM1 *ɲa⁴a²* in context; 1/2 rejected

There is one sequence involving demonstrative reference to an entity known only via smell in the conversational corpus. Despite the preference for DNOM5 *ŋe³ma²* in reference to smells in the elicited data in (28-30), both the initial reference in this sequence and both of the two subsequent demonstrative references are with DNOM1 *ɲa⁴a²*.

The single demonstrative smell reference from the conversational corpus appears, with some relevant context, in (31). Figure 4.1 shows the participants in this example. There are three participants: LVI is the woman at the left edge of the frame carrying the baby, TGC Sr. is the man at center, and TGC Jr. is the man at right. TGC Sr. is LVI and TGC Jr.'s father. The three people are in the back yard of the house where TGC Jr. and Sr. live; LVI is dropping in on her way back from town to her home nearby.

Prior to the excerpt in (31), there is no discussion of any smell. Instead, TGC Jr. and Sr. are engaged in unrelated talk about their task (processing arrow cane in the fire in the center of the frame). Then LVI, who has just wandered into the scene, produces the turn in line 1. In this turn, she refers to a smell in the environment using DNOM1 *ɲa⁴a²*. In line 3, TGC Jr. responds to her with a turn that is designed as a content question. His turn refers to the same smell which LVI notices in line 1, and it also indexes the smell with DNOM1 *ɲa⁴a²*. In line 4, TGC Sr., the third participant, produces a turn which might be taken as an answer to the questions in lines 1 and 3. Like both of the turns to which it responds, TGC Sr.'s turn in line 4 also uses DNOM1 to refer to the smell. The discussion of the smell ends with LVI's turn in line 5, which suggests a way to eliminate the smell (and does not include a reference to it).

Figure 4.1: Participants in (31) at onset of line 1

(31) 20180622 4:53

1. LVI: *na^{31}ĩ^{1}ma^{3} na^{1}ɟi^{2}ʔ a^{31}, ɲa^{4}a^{2} e^{3}kɑ̰^{1} i^{4} nu^{5}a^{2} na^{1}ɟi^{2}ʔa^{1}ne^{3}ʔ?*
na^{43} +ĩ^{1}ma^{3} na^{1}= ɟi^{2}ʔ =ʔ a^{31} ɲa^{4}a^{2}
DEF.POSS +excrement 3.A.SC= issue.bad.smell(A) =SUB INTJ:news DNOM1(IV)
=e^{3}kɑ̰^{1} i^{4} nu^{5}a^{2} na^{1}= ɟi^{2}ʔ =a^{1}ne^{1} =ʔ
=SO DET(IV) DLOC1:ALL 3.A.SC= issue.bad.smell(A) =AREAL.SBJ =SUB
'It smells like excrement, hey, couldn't this (DNOM1) be excrement that's making it smell around here?'
((LVI looking at ground and turning torso 30' toward right over course of turn))

2. TGC Sr: (0.2) ()

3. TGC Jr: *tɑ̰²ʔa⁴kɨ⁴kɑ̰¹ nu⁵a²ma⁴ rɨ¹ ʌe¹ʔta² ɨ³¹ʔĩ⁴ a⁴ [ɲa⁴a²] ?*
tɑ̰²ʔa⁴kɨ⁴ =kɑ̰¹ nu⁵a² =ã⁴ma⁴ rɨ¹ ʌe¹ʔta² Ø= ɨ⁴³ =ʔĩ⁴
what? =PURP DLOC1:ALL =Ã⁴MA⁴ and where?:LOC 3.A.SC= put:InamSgO(A) =SUB
a⁴ ɲa⁴a²
DET(IV) DNOM1(IV)
'How come, how does this (DNOM1) get from here to everywhere else?'
((TGC Jr. handling and gazing at arrow cane))

4. TGC Sr: *[a³¹] ɲa⁴a² gu³ʔtʃi²re⁴ma³ ni⁴¹ʔĩ⁴=*
a³¹ ɲa⁴a² gu³ʔtʃi²re⁴ =ma³ ni⁴¹= ĩ⁴
INTJ:news DNOM1(IV) trash(IV) =INFO 3.I= COP(I)
'[Oh], this (DNOM1) is (from) trash='
((TGC Sr. handling arrow cane))

5. LVI: *na⁴ wa³¹ʔi⁵ ɲu¹ʔgu² ɟe⁵a²ã⁴ma⁴ ɲe³na³wa¹gɨ²ɨ¹ra³ʔ*
na⁴ wa³¹ʔi⁵ ɲu¹ʔgu² ɟe⁵a² =ã⁴ma⁴ pe³= na³= wa¹gɨ² =ɨ¹ra¹ =ʔ
COMP INTJ:hedge when? DLOC3 =Ã⁴MA⁴ 2PL.A.SC= 3OBJ.A= rake(A) =sorta =SUB
'Well, you can rake it back toward there any time'
((LVI turns torso 30' toward left, takes one step as if to leave))

The participants in (31) do not engage in any visual behavior showing that they could be attending to (for example) visible pieces of trash generating the smell. This indicates that the tokens of DNOM1 do not represent acts of deferred reference to an invisible entity routed through a visible pivot. Rather, all three of the tokens of DNOM1 in (31) are coreferential and make direct reference to the smell which LVI notices in line 1.

Absent more examples of demonstrative reference to smell in conversation, it is not clear to me why the participants in this excerpt consistently use DNOM1 *ɲa⁴a²* to index the smell, while participants in elicitation consistently used DNOM5 *ŋe³ma²*. One possibility is that the participants' use of DNOM1 in (31) reflects the item's spatial deictic content. DNOM1 *ɲa⁴a²* is the demonstrative normally used to index entities that enclose the speaker (e.g. a cloud of smoke or a room of a house). The smell in (31) is apparently a pervasive feature of the environment in TGC Jr. and Sr.'s back yard (per line 3), with a large extension in space that encloses all three participants; this may motivate the use of DNOM1.

4.4.2.3 Touch only is acceptable with DNOM5

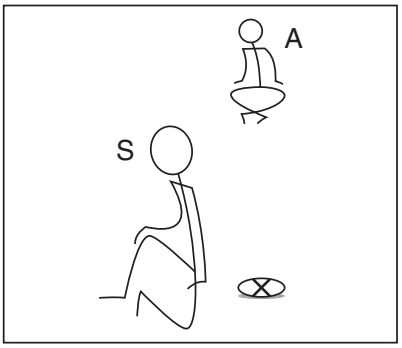
Beyond hearing and smell, people can also perceive referents via haptic touch (touch as a means of exploring objects), proprioception (awareness of one's own body), and taste. As the data on hearing and smell predicts, referents accessed only via haptic touch or only via proprioception can

be indexed with DNOM5. Since taste cannot be divorced from smell outside of a highly controlled setting, I did not attempt to gather data about referents perceived only via taste.

Haptic touch

It proved impossible to gather controlled data about access via haptic touch alone. This was because, in experimental contexts where participants were intended to perceive a referent only via haptic touch, I was unable to prevent them from also looking at the referent. For example, scene 11 of the Demonstrative Questionnaire is intended as a context where the speaker can reach the referent but does not see it. In this scene (32), the referent is immediately behind the speaker, within reach of their arms.

(32) Demonstrative Questionnaire Scene 11



In a version of the Demonstrative Questionnaire fully balanced for mode of perception of the referent, scene 11 would have two variants: one where the speaker handles the referent without looking at it (giving them access via touch but not via vision), and one where the speaker neither touches nor looks at the referent (so that they have no sensory access to the referent at all). I attempted both of these variants, but the participants almost never complied with the instruction not to look at the referent. As a result, this scene does not yield data about either referents accessed via haptic touch only or referents not perceived via any sense.

The conversational corpus, however, does provide one example where DNOM5 is used to index a referent perceived only via haptic touch. This example is potentially ambiguous because the referent has been previously mentioned, meaning that the token of DNOM5 could also be interpreted as the anaphoric use. However, an anaphoric interpretation is unlikely, since objects present in the surround are not generally referred to with anaphoric demonstratives on second and later mentions (but rather with exophoric demonstratives, as in 31, or pronouns).

The example of DNOM5 for a referent accessed only via touch appears in (33). The participants in this excerpt appear in Figure 4.2. UGW is the woman standing at left, MGW is the woman digging in the ground at center, and KGW is the woman at right. UGW, MGW, and KGW are sisters. UGW and KGW live together in a very small settlement on the outskirts of Cushillococha; MGW lives about 2km away in the outskirts of Caballococha. The three sisters are at UGW and

KGW's property, in a parcel of land that belongs specifically to KGW. They are engaged in a mulitparty activity of making cuttings of some plants on KGW's property.

Leading up to the excerpt in (33), KGW and her husband (who is off camera) are jointly telling a story. Then, immediately before (33), UGW and MGW begin talking about the task at hand -- making a cutting from the roots of the plant shown at the center of the frame.

Figure 4.2: Participants in (33) at onset of line 2

(33) 20170630b 1:00

1. UGW: ɟi³¹ʔe²ma⁴, ti³¹ʔĩ³ na¹ɟa¹ʔu²=
ɟi³¹ʔe²ma⁴ ti³¹ =ʔĩ³ na¹= ɟa¹ʔu²
DNOM5(I) 3(I) =ACC IMP.A= get(A)
'There it is (DNOM5), grab it!'
((UGW and KGW both gazing at MGW; no gestures))
((MGW digging and gazing into hole))

2. MGW: *ɟi³¹ʔe²ma⁴ rɨ¹, ma³rɨ³ ta⁴[me⁴³]*
ɟi³¹ʔe²ma⁴ rɨ¹ ma³rɨ³ ta⁴= me⁴³
DNOM5(I) TOP PERF 3(I).A= good(A)
'That one (DNOM5), it's [ready] now'
((MGW removes piece of root from hole; gazing into hole))
((UGW and KGW still gazing at MGW))

3. UGW: *[o]:³ɪ̃¹, a³rɨ¹*
o³ɪ̃¹ a³rɨ¹
INTJ:news INTJ:congruent
'[Oh]hh, okay'

In line 1 of (33), UGW directs MGW's attention to a segment of the root using a presentative with DNOM5. Since the referent is both near MGW, the addressee, and (at least in part) blocked from UGW's vision, UGW's token of DNOM5 could represent either the addressee-centered or the invisible use.

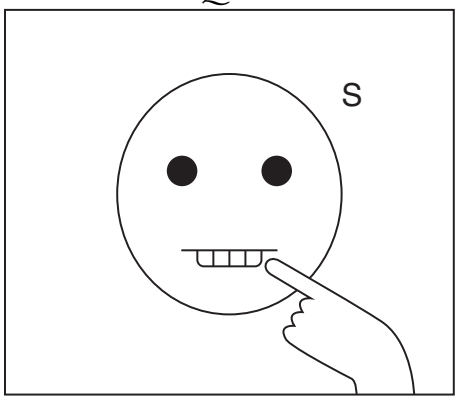
At the onset of line 2, shown in Figure 4.2, MGW is reaching into the hole with both hands to extract the segment of the root which UGW has just presented. As MGW reaches into the hole, she issues the turn in line 2, which makes demonstrative reference to this same root segment. She uses DNOM5, which here cannot be addressee-centered (the referent is not within the addressee's peripersonal space) or anaphoric (or it would represent one of the only examples in the corpus of anaphoric demonstratives indexing an object present in the surround). Instead, MGW's token of DNOM5 in line 2 most likely represents the invisible use of the item. She issues the token as she handles the referent, which -- as shown in Figure 4.2 -- is small enough that it is fully enclosed in her hand, and likely blocked from her vision. This use of invisible DNOM5 therefore shows that the item is acceptable in contexts where the speaker touches the referent, but does not see it.

Proprioception

Proprioception is perception of the position and movement of one's own body. Modulo paralysis or numbness, people perceive all parts of their body via proprioception. They can also perceive some body parts through other senses in addition to proprioception -- for example, you can sense your own elbows through sight and touch as well as through proprioception.

Recall from §4.3.1.1 that DNOM5 is always judged acceptable in reference to the speaker's own teeth. This data point comes from scene 1 of the Demonstrative Questionnaire, where the speaker points at one of her own teeth (without seeing it). Though all 10 participants volunteered DNOM1 in this scene (34), every participant who provided a judgment also accepted DNOM5.

(34) Demonstrative Questionnaire Scene 1 (repeated from 11)



✓*da³¹a¹* / ✓*ɟi²ma²* *tʃo¹pɨ¹ta¹ na⁴ʎu̯¹.*

✓da³¹a¹	/	✓ɟi²ma²	tʃau¹	+pɨ¹ta¹	na⁴= ʎu̯¹
✓DNOM1(III)	/	✓DNOM5(III)	1SG	+tooth(III)	3.A= hurt(A)

'✓This (✓DNOM1, ✓DNOM5) tooth of mine hurts.'
(LWG: 2017.1.171)

Since the speaker in (34) does not see or touch her teeth, she perceives them only via proprioception. Some participants did make contact with their teeth while pointing at them, but this does not mean that (34) requires haptic touch: participants also find DNOM5 acceptable if the speaker is pointing without manual contact (e.g. pointing at a molar from outside the mouth). Thus the felicity of DNOM5 in (34) shows that it is acceptable when the speaker directly accesses the referent via proprioception alone.

It is not possible to use the conversational corpus to probe the relative naturalness of DNOM1 in comparison to DNOM5 for referents perceived via proprioception only. This is not because speakers fail to talk about body parts known via proprioception in the corpus (they talk about the body very often), but because they never use DNOMs to refer to them. Instead, speakers always use DLOCs -- specifically, DLOC1 (Chapter 5) -- to index body parts in the conversational corpus.

4.4.2.4 Interim summary: Only the absence of vision matters for DNOM5

This subsection has showed that DNOM5 can be used for referents directly perceived via any single sense other than vision, whether that sense is hearing, smell, haptic touch, or proprioception. As we saw in §4.3.1.1, it can also be used to index referents that the speaker does not directly perceive via any sense. (35) summarizes the evidence for these statements about the perceptual content of DNOM5 in table form.

(35) Perceptual requirements of DNOM5

Perceptual context	DNOM5
Speaker sees referent at moment of speech in actual world	# (unless near addressee)
Speaker (only) hears referent	✓ (27)
Speaker (only) smells referent	✓ (28) - (30)
Speaker (only) touches referent	✓ (33)
Speaker (only) perceives referent via proprioception	✓ (34)
Speaker does not perceive referent via any sense	✓ (5)

The sole appropriate analysis of this data is that invisible DNOM5 encodes only that the speaker does not see the referent at the moment of speech. Analyses that treat invisible DNOM5 as conveying a general indirect evidential or weak epistemic modal meaning, in line with Levinson (2004a, 2018a), fail. Indirect evidentiality analyses are impossible because DNOM5 is acceptable when the speaker directly perceives the referent via (any) non-vision sense. Likewise, epistemic modal analyses are infeasible because DNOM5 is acceptable even when the speaker knows with certainty where and what the referent is -- for example, when it is part of her own body or she is handling it.

In sum, as with DNOMs 2 and 3, the perceptual content of DNOM5 specifically concerns the sense of vision. It is not about more general evidential categories, epistemic modality, location in space, or general notions of perceptual accessibility. Rather, the perceptual content is about vision as a sense of the human body, in contrast to all of the other sensory modes of access which the human body affords.

4.4.3 Vision is encoded in all of DNOMs 2, 3, and 5

The preceding sections have argued that all of DNOMs 2, 3, and 5 have perceptual requirements. They are acceptable only if the speaker sees (DNOMs 2, 3) or does not see (DNOM5) the demonstrative referent. We also saw, in §4.4, that DNOM1 does not have any perceptual requirements. DNOM1 is accepted in situations where the speaker sees the referent, in situations where the speaker directly perceives the referent via a non-vision sense, and in (some) situations where the speaker does not perceive the referent via any sense.

In this section, I show that vision-related perceptual requirements are encoded, not merely implicated or inferred, in all three of DNOMs 2, 3, and 5. §4.4.3.1 asks what kind of content the perceptual requirements of these three items represent. With this background, §4.4.3.2 sets out all of the logically possible analyses of the perceptual requirements. §4.4.3.3 shows why inference analyses of the perceptual requirements fail, and §4.4.3.4 shows why encoding analyses succeed.

4.4.3.1 Status of the perceptual requirements

Formal pragmatics typically recognizes four types of meaning: entailment, conversational implicature, conventional implicature, and presupposition (see e.g. Chierchia and McConnell-Ginet 1990:17-33). Within this typology, the perceptual requirements of DNOMs 2 and 3 share most

properties with conventional implicatures. They do not, by contrast, share properties with truth-conditional meanings such as entailments, nor with conversational implicatures. Below, I begin by demonstrating that the perceptual requirements are not entailments or conversational implicatures. I then discuss the properties which they share with presuppositions, followed by the properties shared with conventional implicatures.

To show that the perceptual requirements are not entailments or conversational implicatures, it is sufficient to show that they are **projective**. On the definition of projective content proposed by Tonhauser et al. (2013), an implication m associated with a trigger t is projective if the implication m appears both when t is embedded in an atomic sentence (a declarative sentence that does not contain any modal operators) and when t is embedded under the scope of a modal operator, a polar question operator, or negation. Entailments are not projective; neither are conversational implicatures, as they are calculated from entailments. These types of implications appear in atomic sentences, but disappear when their triggers are embedded under modals, polar question operators, and negation. For example, the atomic sentence (36) has the implication (which is an entailment) that E³mi⁵ sang yesterday. The sentence in (37), where the clause from (36) appears as a conditional antecedent, does not have this implication; it gives rise to no inferences about whether the event in the antecedent actually took place. Thus, the entailment of the predicate in (36) fails to project from the conditional antecedent in (37).

(36) *i̱¹ne¹ rɨ¹ na⁴wi³ɟa³e³ i⁴ E³mi⁵.*

i̱¹ne¹ rɨ¹ na⁴= wi³ɟa³e³ i⁴ E³mi⁵
yesterday TOP 3.A= sing(A) DET(IV) E

'Yesterday, E³mi⁵ sang.'
(LWG: 2017.3.130)
Consultants asked to judge if E³mi⁵ sang: 2/2 respond **yes**

(37) *[e³ga⁴ tʃi⁴ i̱¹ne¹ rɨ¹ na¹wi³ɟa³e³gu² i⁴ E³mi⁵ rɨ¹]$_{Antecedent}$ [na⁴di³ẽ³ru¹ã̱¹ʔɨ̃⁵tʃi² i⁴ ɲu̱¹ʔma⁵.]$_{Consequent}$*

e³ga⁴ tʃi⁴ i̱¹ne¹ rɨ¹ na¹= wi³ɟa³e³ =gu² i⁴ E³mi⁵ rɨ¹ na⁴= di³ẽ³ru¹
COND CNTF yesterday TOP 3.A.SC= sing(A) =SUB DET(IV) E TOP 3.A= money
=ã̱¹ =ʔɨ⁵tʃi² i⁴ ɲu̱¹ʔma⁵
=have(A) =really DET(IV) now

'If E³mi⁵ sang yesterday, she has a lot of money right now.'
(LWG: 2017.3.130)
Consultants asked to judge if E³mi⁵ sang: 2/2 respond that **don't know**

In contrast to entailments and conversational implicatures, presuppositions and conventional implicatures **do** project from under modals, negation, and polar question operators. Tonhauser et al. (2013) show that this is true not only in English, but also in Paraguayan Guaraní, for a variety of presuppositions and conventional implicatures. It is also true in Ticuna (though for

reasons of space, I do not display the full data here).

Like presuppositions and conventional implicatures, the perceptual requirements of demonstratives also project. As a consequence, if a demonstrative is unacceptable in a particular atomic sentence for perceptual reasons, it is also unacceptable in modal, conditional antecedent, negated, and polar question variants of that atomic sentence. This can be seen by comparing (38) and (39). (38) is an atomic sentence; (39) realizes the same atomic sentence as a conditional antecedent. DNOM3 *ɟe³a²* is unacceptable in both sentences because, in the context given, the referent is invisible. This shows that the perceptual requirement is projective. If it were not, then the requirement would apply only in the atomic sentence, and not in the conditional variant --- just as the entailment of 'sing' appears in (36), but not in (37). Thus (38) would be unacceptable, but (39) would be acceptable.

(38) Context: Across the table from you and me, there is a box containing some marbles. You know the marbles are there, but can't see them.
#gu³¹ʔe² *pe³tɨ³ka² Bi³tu⁵a¹rɨ³ ti⁴ʔĩ⁴.*

#gu³¹ʔe²	pe³tɨ³ka²	Bi³tu⁵	=a¹rɨ³	ti⁴=	ĩ⁴
#DNOM3(I)	marble(I)	B	=AL.POSS	3(I).I=	COP(I)

(Attempted reading: That (#DNOM3) marble is Victoria's.)
(DGG: 2017.3.177)

(39) Context: Same as (38).
e³ga⁴ Bi³tu⁵a¹rɨ³ ti¹ʔĩ⁴gu² ɟa⁴ #gu³¹ʔe² pe³tɨ³ka², tɨ³¹ʔna¹ tɨ³¹ʔĩ³ na¹ʔã³.

e³ga⁴	Bi³tu⁵	=a¹rɨ³	ti¹=	ĩ⁴	=gu²	ɟa⁴	#gu³¹ʔe²	pe³tɨ³ka²	tɨ³¹	=na¹	tɨ³¹
COND	B	=AL.POSS	3.I.SC(I)=	COP(I)	=SUB	DET(I)	#DNOM3(I)	marble(I)	3(I)	=RCP	3(I)

=ʔĩ³	na¹=	ã³
=ACC	IMP.A=	give:InamSgO(A)

(Attempted reading: If that (#DNOM3) marble is Victoria's, give it to her.)
(DGG: 2017.3.177)

Since the perceptual requirements of DNOMs 2 and 3 are projective, they cannot be entailments or conversational implicatures. Within the standard two-way classification of projective content, they could therefore be either presuppositions or conventional implicatures. I propose that they are conventional implicatures, primarily because they pattern apart from presuppositions in attitude reports. When a presupposition trigger is embedded in an attitude report, it leads to the inference (in Ticuna as in English) that the attitude holder endorses the content of the presupposition. For example, the English word *too* and its Ticuna equivalent *ta¹* 'too' have an additive presupposition: they require that in the utterance context, there is a salient alternative to the presupposition. Therefore, for *too* or *ta¹* to be acceptable embedded in an atittude report, the attitude holder must plausibly know about the salient alternative. As a consequence, it is

unacceptable -- in Ticuna as in English -- to produce discourses like *My mother doesn't know that my brother is going to Lima, and she knows that my sister is going #too.*

The visibility implication of DNOMs 2 and 3 does not share this behavior of presuppositions. When DNOM2 or DNOM3 is embedded in an attitude report, it does **not** lead to an inference that the attitude holder endorses the proposition that the referent is visible to the speaker. (It also does not lead to an inference that the referent is visible to the atittude holder, i.e. there is no perspectival shift.) It is coherent to use DNOM2 or DNOM3 in an attitude report even if the attitude holder has no information about the visibility of the referent to the speaker, as in (40).

(40) Context: Victoria's set of marbles disappeared. She thought that they had been stolen, but actually, I just borrowed them. I show you one of the marbles and say,
Bi³tu⁵ rɨ¹ na⁴³gu² i⁴rɨ³ʔĩ̃³nɨ³ na⁴ ✓*ɟi³¹ʔe²* / ✓*gu³¹ʔe²* *pe³tɨ⁴ka² rɨ¹ ŋi⁵ʔĩ̃⁴ rɨ¹ ta¹rɨ³ta²ʔu²ʔĩ̃⁴.*

Bi³tu⁵ rɨ¹ na⁴³ =gu² i⁴rɨ³= ĩ̃³nɨ³ na⁴ ✓ɟi³¹ʔe² / ✓gu³¹ʔe² pe³tɨ⁴ka² rɨ¹
B TOP 3 =LOC 3(V).R= think(R) COMP ✓DNOM2(I) / ✓DNOM3(I) marble(I) TOP

Ø= ŋj̰ɨ¹ =ʔĩ̃⁴ rɨ¹ ta¹rɨ³= tau²ʔ =ʔĩ̃⁴
IMPERS.A.SC= steal(A) =SUB TOP 3(I).R.SC= get.lost(R) =SUB

'Victoria thinks that that (✓DNOM2 / ✓DNOM3) marble, it was stolen and got lost.'
(LWG: 2017.3.21)

The acceptability of (40) shows that the visibility implication, unlike content that is clearly presuppositional, does not scope under attitude reports in Ticuna. This suggests that the implication is not a presupposition. Within a two-way typology of projective content, the visibility implication must therefore be a conventional implicature.

While the label of conventional implicature fits the visibility implication better than the label of presupposition, I do not find it completely satisfactory, for two reasons. First, in Ticuna the visibility implication of demonstratives patterns together (in projection behavior and behavior in atittude reports) with a large class of other noun phrase implications that are not typically considered conventional implicatures, such as the possession implication of possessive noun phrases. Analyzing all of these implications as conventional implicatures is not faithful either to Grice's original definition of that term or to the ways it has been applied in more recent research in semantics, such as Potts (2005). Second, there are diagnostics where the visibility implication patterns **away** from some implications that are normally considered conventional implicatures, such as the property implication of non-restrictive relative clauses. For example, the visibility implication has fixed temporal interpretation (§4.4.1.4), while the property implication of a non-restrictive relative in Ticuna has free temporal interpretation. Thus, I view the precise classification of the visibility implication (and of deictic content more generally) as a question for further research.

4.4.3.2 Three logically possible analyses of the perceptual requirements

There are three logically possible ways to analyze the perceptual requirements documented for DNOMs 2, 3, and 5 in the preceding subsections. Two of these analyses involve deriving some of the perceptual requirements via inference, while the other does not.

One of the two possible inference-based analyses locates the visibility meanings in DNOMs 2 and 3 only. According to this analysis, DNOMs 2 and 3 encode a privative semantic feature [visible]. Apparent invisible DNOM5 does not encode any perceptual deictic content, but rather picks up its perceptual value through inference, because of paradigmatic contrast with DNOMs 2 and 3. This analysis is shown graphically in (41).

(41) First inference-based analysis of perceptual requirements

DNOM	Spatial Deictic Content	Perceptual Deictic Content	
		Encoded	Inferred
DNOM1	Within reach for Spkr	∅	(no inferences)
DNOM2	Between Spkr and Addr	[visible]	(no inferences)
DNOM3	Out of reach for Spkr	[visible]	(no inferences)
DNOM5	∅	∅	[invisible]

The contrast-based analysis shown in (41) is similar to claiming, in Gricean terms, that the invisibility meaning of DNOM5 is a quantity implicature. However, it is not strictly a quantity implicature, since quantity implicatures are calculated from entailments and (as explained in §4.4.3.1) the deictic content of demonstratives is not entailed. In the interest of precision, I therefore refer to the contrast-based visibility meaning in (41) as an 'inference' rather than an 'implicature.'

The other possible inference-based analysis of the visibility requirements pins the visibility meaning on DNOM5. Under this analysis, DNOM5 encodes a privative semantic feature [invisible]. DNOMs 2 and 3 do not encode any perceptual deictic content. Rather, their visibility meaning is an inference arising from paradigmatic contrast with DNOM5. This inference-based analysis is depicted graphically in (42).

(42) Second inference-based analysis of perceptual requirements

DNOM	Spatial Deictic Content	Perceptual Deictic Content	
		Encoded	Inferred
DNOM1	Within reach for Spkr	∅	(no inferences)
DNOM2	Between Spkr and Addr	∅	[visible]
DNOM3	Out of reach for Spkr	∅	[visible]
DNOM5	∅	[invisible]	(no inferences)

The final possible analysis treats visibility as a binary feature. Under this analysis, DNOMs 2 and 3 encode the positive value of the visibility feature, [+visible]. DNOM5 encodes the negative value, [-visible]. DNOM1, which empirically is not sensitive to visibility, is underspecified for the feature. I refer to this as the encoding analysis of the perceptual requirements. It is shown in (43). This is the analysis which I defend in the following sections.

(43) Encoding analysis of perceptual requirements

DNOM	Spatial Deictic Content	Encoded Perceptual Deictic Content
DNOM1	Within reach for Spkr	∅
DNOM2	Between Spkr and Addr	[+visible]
DNOM3	Out of reach for Spkr	[+visible]
DNOM5	∅	[-visible]

Because the perceptual requirements are neither entailments nor implicatures (as established in §4.4.3.1), we cannot discriminate between the inference-based analyses and the encoding analysis using standard tests for entailment vs. conversational implicature. Instead, we must look to the language-specific predictions of each analysis.

Thus, in the next two subsections, I argue that the inference-based analyses in (41) and (42) fail for two reasons: (a) they do not account for the facts of the visibility requirements discussed at the beginning of this chapter, and (b) they make incorrect predictions about the interactions of the visibility meanings with derivational morphology. I then show that the encoding analysis in (43) is compatible with the facts and correctly predicts the interactions with morphology.

4.4.3.3 Inference analyses of the perceptual requirements fail

Each of the two inference-based analyses of the perceptual requirements has a different empirical flaw. In both cases, the flaw is sufficient to reject the analysis.

Inference-based analysis in (41)

First, consider the inference-based analysis of the visibility requirement in (41), which claims that DNOMs 2 and 3 encode visibility and DNOM5 has no perceptual deictic content. The treatment of DNOM5 in this analysis is identical to the vague analyses of the item discussed in §4.3.1.2.

As a consequence, the inference-based analysis in (41) shares all of the empirical problems of vague analyses of DNOM5 (already discussed in §4.3.1.2). It predicts that DNOM5 should always be acceptable in exophoric reference, modulo competition with other demonstratives. In fact, DNOM5 is only consistently accepted when the referent is near the addressee (addressee-centered use) or is invisible to the speaker (invisible use). Because this model represents a vague analysis of DNOM5, it also suggests that exophoric and endophoric DNOM5 are one lexical item and therefore should have the same syntactic behavior; this too is false. Given these facts, the inference-based analysis in (41) is unacceptable.

Inference-based analysis in (42)

Second, look to the inference-based analysis shown in (42), which claims that DNOM5 encodes invisibility and DNOMs 2 and 3 have no perceptual deictic content. Because this analysis assigns perceptual deictic content to DNOM5, it does not share the incorrect predictions of the analysis in

(42). However, the inference-based analysis in (42) makes a different set of incorrect predictions about DNOMs 2 and 3. These predictions concern the forms' interactions with the enclitic *=ã⁴ma⁴*.

According to the inference-based analysis in (41), the visibility requirement of DNOMs 2 and 3 is not part of the encoded meaning of those items. If we assume that morphology only affects encoded content, and not content that is derived via inference, this predicts that derivational morphology should not be able to modify the visibility requirement. That is false: when the enclitic *=ã⁴ma⁴* appears on DNOMs 2 and 3, the visibility requirement of those items evaporates.

In order to understand the facts about the visibility requirement and *=ã⁴ma⁴*, some background on *=ã⁴ma⁴* is necessary. *=ã⁴ma⁴* is an enclitic which appears on constituents of several syntactic categories: quantifiers, predicates, spatial adjuncts, and DNOMs. (44) outlines the reading(s) of *=ã⁴ma⁴* on each of these constituent types other than DNOMs.

(44) Readings of the enclitic *=ã⁴ma⁴*

Host Constituent	Semantic and syntactic effects of *=ã⁴ma⁴*
Quantifier	takes quantificational verb, derives quantifier without noun class agreement (cf. all other deverbal quantifiers have noun class agreement)
Predicate	similar to English *anyway* or concessive *still* (e.g. 'I told him not to work but he's working*=ã⁴ma⁴*')
Spatial adjunct	takes adjunct expressing location, derives adjunct expressing bearing (e.g. 'it's at the port' > 'it's toward the port')
Spatial adjunct	takes adjunct expressing motion goal, derives adjunct expressing direction (e.g. 'walk to town' > 'walk toward town')

The readings of *=ã⁴ma⁴* on these constituent types are extremely diverse. I view them as evidence that the surface morpheme *=ã⁴ma⁴* corresponds to several different, homophonous lexical entries. Under this view, it is not surprising that *=ã⁴ma⁴* also has two apparently disjoint readings on DNOMs. In both of these readings, *=ã⁴ma⁴* appears only on DNOMs 1, 2, and 3.

One of the two readings of *=ã⁴ma⁴* on DNOMs 1, 2, and 3 involves contrast. When a speaker is talking about two or more objects which have the same spatial deictic value relative to them, they will generally use a bare nominal demonstrative to index the first referent mentioned, and a nominal demonstrative plus *=ã⁴ma⁴* to refer to the second and later mentioned referents. For example, in (45), KSC used bare DNOM1 to index one of her own hands (line a), then DNOM1 with *=ã⁴ma⁴* to index the other (line b).

(45) a. *da³¹a¹ tʃau¹ʔmẽ¹ tʃo³¹ʔĩ̃⁵ na⁴ʎu̯¹.*

da³¹a¹ tʃau¹ +mẽ¹ tʃo³¹ =ʔĩ̃⁵ na⁴= ʎu̯¹

DNOM1(III) 1SG +hand(III) 1SG =IBEN 3.A= hurt(A)

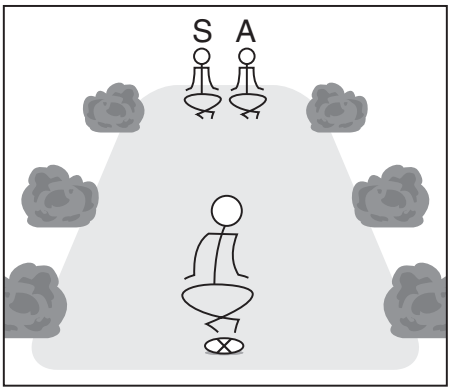
'This (DNOM1) my hand hurts.'

b. *da³¹a¹ã⁴ma⁴ rɨ¹, ta⁴ma³ tʃo³¹ʔĩ⁵ na⁴ʌu̯¹.*
da³¹a¹ =ã⁴ma⁴ rɨ¹ ta⁴ma³ tʃo³¹ =ʔĩ⁵ na⁴= ʌu̯¹
DNOM1 =Ã⁴MA⁴ TOP NEG 1SG =IBEN 3.A= hurt(A)
'This other one (DNOM1=*ã⁴ma⁴*), it doesn't hurt.'
(KSC: 2018.1.43)

I have chosen to illustrate the contrastive use of *=ã⁴ma⁴* with this example, a token involving DNOM1, because it is an especially clear example of contrastive reference. However, my field-notes, corpus, and results from Wilkins (1999b) (a quasi-experimental task about contrastive use of demonstratives) also provide many examples of DNOMs 2 and 3 being used with *=ã⁴ma⁴* in situations of contrastive reference.

The second reading of *=ã⁴ma⁴* on DNOMs is perceptual. When DNOMs 2 and 3 bear *=ã⁴ma⁴*, their spatial deictic content remains the same, but their perceptual content is altered: the derived forms with *=ã⁴ma⁴* can be used to index referents that are invisible to the speaker. For example, LWG volunteered both DNOM2 with *=ã⁴ma⁴* and DNOM3 with *=ã⁴ma⁴* in (invisible) scene 15 of the Demonstrative Questionnaire (46). Contrast is not necessary to make this use of *=ã⁴ma⁴* acceptable -- there is only one possible referent in (46), not two identical referents, as in (45).

(46) Context: Demonstrative Questionnaire Scene 15



a. *ɟi²a⁴ã⁴ma⁴ pe⁴ʔtʃi¹ rɨ¹ ku³¹rɨ³ ni⁴¹ʔĩ⁴?*
ɟi²a⁴ =ã⁴ma⁴ pe⁴ʔtʃi¹ rɨ¹ ku³¹rɨ³ ni⁴¹= ĩ⁴
DNOM2(II) =Ã⁴MA⁴ basket(II) TOP 2SG.AL.POSS 3.I= COP(I)
'That (DNOM2=*ã⁴ma⁴*) basket, is it yours?' (volunteered)

b. *gu⁴a²ã⁴ma⁴ pe⁴ʔtʃi¹ rɨ¹ ku³¹rɨ³ ni⁴¹ʔĩ⁴?*
gu²a⁴ =ã⁴ma⁴ pe⁴ʔtʃi¹ rɨ¹ ku³¹rɨ³ ni⁴¹= ĩ⁴
DNOM3(II) =Ã⁴MA⁴ basket(II) TOP 2SG.AL.POSS 3.I= COP(I)
'That (DNOM3=*ã⁴ma⁴*) basket, is it yours?' (volunteered immediately after a)
(LWG: 2017.1.172)

It is crucial here that DNOMs with *=ã⁴ma⁴* are not **exclusively** used to index invisible referents. They can also be used to index visible referents, including in situations that do not involve contrast. For example, scene 13 of the Demonstrative Questionnaire is identical to scene 15 (46) except that the referent is visible. Three participants volunteered DNOM3 with *=ã⁴ma⁴* in the visible version of the scene (scene 13), and two volunteered it in the invisible version (scene 15).

The acceptability of DNOMs with non-contrastive *=ã⁴ma⁴* for both visible and invisible referents indicates that *=ã⁴ma⁴* does **not** simply mean that the referent is invisible. Rather, non-contrastive *=ã⁴ma⁴* makes the demonstrative which it modifies neutral with respect to visibility. Since this derivational morpheme can manipulate the visibility requirement, that requirement cannot arise from pragmatic inference; it must be encoded.[5]

4.4.3.4 The encoding analysis of the perceptual requirements succeeds

Given the weaknesses of the two inference-based analyses discussed above, the best way to account for the perceptual requirements of DNOMs 2, 3, and 5 is to posit that all three of the items encode a binary feature [visible]. This feature is shorthand for a conventional implicature encoding whether the speaker sees the demonstrative referent at the moment of speech (though the classification as a conventional implicature bears the caveats in §4.4.3.1). DNOMs 2 and 3 encode [+visible]. Invisible DNOM5 encodes [-visible] and is a separate lexical item from addressee-centered and endophoric uses of DNOM5. DNOM1 is underspecified for [visible], accounting for its acceptability both for referents that the speaker sees and for those which they perceive through other senses (§4.4).

The encoding analysis accounts for the data from the Demonstrative Questionnaire, for the data on access via non-vision senses presented in §4.4, and for the interactions between the visibility requirement of DNOMs 2 and 3 and *=ã⁴ma⁴* discussed in the last section. The rejections of DNOMs 2 and 3 in the invisible scenes of the Demonstrative Questionnaire, as well as in the examples of access via hearing and smell in §4.4, reflect their encoded [+visible] feature. Conversely, the rejections of DNOM5 in visible, non-addressee-centered scenes reflect that item's encoded [-visible] feature. The acceptability of DNOMs 2 and 3 with *=ã⁴ma⁴* for invisible referents arises because the composition of the demonstrative with *=ã⁴ma⁴* is semantically subtractive: it removes the demonstrative's perceptual deictic content.

My claim that the visibility meanings of DNOMs 2, 3, and 5 are encoded does **not** represent a claim that competition and pragmatic inference play no role in demonstrative use. I have already alluded, in §4.4.3.2, to the idea of competition between DNOM1 and DNOM5 in reference to invisible entities within the speaker's peripersonal space. In Chapters 5 and 6, we will see more general evidence that -- where a context meets the deictic requirements of more than one demonstrative -- the possible demonstratives compete. The outcome of competition among demonstratives is, I claim, governed by a hierarchy of demonstratives, analogous to a syntactic person hierarchy (§5.3.3). Likewise, although I attribute the visibility meanings documented in this chapter to en-

[5]This argument does involve a prior assumption that meanings generated via inference are not available to morphology. However, I am not aware of work in pragmatics that disputes this assumption, even among authors who reject ideas about a strict ordering of pragmatics after truth-conditional semantics (e.g. Levinson 2000).

coded content, my analysis leaves open the possibility that demonstratives could gain additional, non-encoded perceptual meanings via inference. Additional perceptual meanings could be inferred either from the encoded perceptual deictic content or from spatial deictic content. For example, several participants in the Demonstrative Questionnaire volunteered comments that DNOM1 is most appropriate in contexts where the speaker is handling the referent (i.e. perceives it via touch as well as vision) at the moment of speech. This association between DNOM1 and access via touch likely arises from the spatial deictic content of DNOM1, which conveys that the referent is within the speaker's peripersonal space (Chapter 5). Handling something is a stereotypical case of having it within your peripersonal space; thus the touch association is potentially a stereotype implicature.

4.5 Summary and conclusion

4.5.1 Summary

Since Boas (1911a,b), dozens of American (and other) languages have been described as encoding 'visibility' or other perceptual information in demonstratives. With important exceptions, the evidence for these claims in the descriptive literature has been thin. As a result, scholars interested in demonstratives as a form of spatial language, such as Levinson, have expressed justifiable skepticism that visibility is ever encoded in demonstratives' deictic content. Instead, they have suggested that apparent visibility contrasts arise from encoded content that concerns space (Enfield 2003), epistemic modality (Levinson 2018b), or perception via specific non-vision senses, such as hearing (Levinson 2018a). These arguments together suggest a more general hypothesis that demonstratives never encode information about vision, though they may encode information about other senses.

In this chapter, I have evaluated this implicit hypothesis against data on the demonstratives of Ticuna, using data collected with the same methods (the Demonstrative Questionnaire and observation of maximally informal conversation) employed by Levinson and Enfield. This data supports the existence of visibility contrasts, as first proposed by Boas, and does not support Levinson and colleagues' position.

The data clearly shows that two of the demonstratives of Ticuna, DNOM2 *ŋe³a²* and DNOM3 *ɟe³a²*, are used only to index referents that the speaker sees at the moment of speech. Conversely, one demonstrative, DNOM5 *ŋe³ma²*, is used only to index referents that the speaker does not see (outside of its addressee-centered use). The requirements of these demonstratives concern vision as a sense of the human body. They are not about space, epistemic modality, general direct evidentiality, or senses other than vision. Whether vision is encoded in the deictic content for all three of these demonstratives, or only in some, is an analytical question, not an empirical one. However, as I show in §4.4.3, the most empirically adequate analysis is that all three encode information about vision.

I do not intend this analysis as an argument against the language-specific claims about visibility made by Levinson (2004a, 2018b) and Enfield (2003). Those authors present data which clearly

shows that the demonstratives of their object languages do not encode visibility. For example, Levinson (2018b) includes examples showing that the putative 'invisible' demonstrative of Yelî Dnye cannot index an invisible referent if its location is known. What the data presented in this chapter shows is that Levinson and Enfield's arguments against visibility -- though accurate for the data they examine -- are not true for **every** language with an apparent visibility contrast in demonstratives. Though demonstratives do not universally encode visibility, they do encode it in Ticuna, and likely also in other American languages.

4.5.2 Conclusion

The arguments made in this chapter matter to our theory of demonstratives in several ways.

First and most specific, the empirical data presented here shows that demonstratives can have perceptual deictic content. This demonstrates that evidentiality -- defined as the grammatical encoding of information about mode of access -- is not restricted only to the propositional domain. Propositional evidentials convey information about how speakers know propositions; the perceptual deictic content of demonstratives, in an analogous way, conveys information about how speakers know referents. At an analytical level, I also argue that the perceptual deictic content of demonstratives is encoded, rather than arising from inference or from non-perceptual forms of deictic content.

Second, I have also shown that perceptual deictic content of a demonstrative can be independent from its spatial deictic content. As I argue in the following chapters, DNOMs 2 and 3 have spatial deictic content in addition to their perceptual content. By contrast, as I have shown above, invisible DNOM5 has only perceptual deictic content. My analysis therefore treats spatial and perceptual deictic content as orthogonal (much as, for example, aspect and evidentiality might be orthogonal in a language with propositional evidentials). Prior work, on the other hand, has generally seen perceptual and spatial deictic content as either mutually exclusive (Hanks 1990) or hierarchically related, such that all demonstratives with perceptual deictic content also have spatial content (Davis and Saunders 1975; Gillon 2009).

Third, and at a higher level, these results show that the encoding of perceptual information in demonstratives is consistent with other research findings on the language of perception. Across languages, vision consistently patterns as either the most lexically and grammatically codable sense, or the second most codable. For example, in informal conversation across languages, people use vision verbs more often than they use verbs relating to the non-vision senses (San Roque et al. 2015). Even speakers of languages that have very large lexica for describing non-vision sensory experiences still talk about vision more often than about the other senses (Floyd et al. 2018). Color, a property that can only be perceived via vision, is one of the most lexically codable property concepts across languages (Majid et al. 2018). In systems of propositional evidentials, if any evidential encodes information about a specific sense of the body, that sense is likely to be vision (see the references in De Haan 2001 or San Roque 2008:314).

Given the token frequency, high degree of lexicalization, and (in some languages) grammatical status of information about vision, it would be surprising if -- as Levinson (2018a) suggests -- demonstratives could encode information about the other senses, but not about vision. Rather,

what the language of perception research predicts is that demonstratives, like other domains of the language of perception, can encode meanings relating to any of the senses. Supporting this prediction, this chapter shows that the items can encode information about vision. Other work on perceptual deictic content in demonstratives, reviewed in Chapter 3, indicates that they can also encode information about hearing (as in Khaling, Jacques and Lahaussois 2014, and Tiriyó, Meira 2018). While there is not yet evidence that any language has specialized demonstratives for referents known via other senses, for example smell or taste, we have no a priori reason to believe that olfactory or gustatory demonstratives could not exist.

Last and most general, these findings provide another example of the larger generalization that language, in all domains, is shaped by the fact that people have bodies and operate in space. Linguists often think about the influence of the body on language structure in diachronic perspective. The idea that specific articulatory patterns motivate sound change is familiar, and so is the grammaticalization of lexical body part terms into postpositions, reflexives, and functional items of other classes. One of my goals here has been to provoke readers to consider the synchronic influence of the body as well. As I suggested in Chapter 1, it is a reflex of embodiment that exophoric demonstratives exist at all; a formal language could not have exophoric deixis. It is a reflex of specifically **human** embodiment -- of the status of the human body, with its specific sensory affordances, as the most basic form of common ground -- that exophoric demonstratives encode information about the senses.

With this same motivation, in the two following chapters I consider the spatial and attentional deictic content of the four exophoric nominal demonstratives of Ticuna (and their locative counterparts). While the perceptual deictic content studied in this chapter highlights the embodied quality of deixis, the next chapters foreground its status as an interactive system: a way of relating referents to yourself and other discourse participants, and a tool for managing attention.

Chapter 5

Speaker- and addressee-proximal demonstratives

5.1 Introduction

This chapter asks one question: What is the deictic content of 'proximal' demonstratives -- the meaning component that makes them different from 'distal' demonstratives?

I argue that the speaker-proximal and addressee-proximal demonstratives of Ticuna have two kinds of deictic content: spatial and attentional. The speaker-proximal demonstratives are DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²*. Their addressee-proximal counterparts are DNOM5 *ŋe³ma²* and DLOC5 *ŋe⁵ma²* (forming a minimal tone pair with each other).

The **spatial** component of the proximal demonstratives encodes that at least part of the referent is located within the peripersonal space of the deictic origo: that is, the speaker or addressee. A person's peripersonal space is the space that they can reach without moving relative to the ground (Kemmerer 1999). As discussed in §3.4.3, the peripersonal space is defined by the range of perception via the sense of haptic touch. It is therefore a perceptuo-spatial construct, not a purely spatial one.

The **joint attention** and **actions** of the speaker and addressee also impact the use of the proximal demonstratives. The two proximals can index referents located outside the origo's peripersonal space in three kinds of situations:

1. When the speaker is calling new joint attention to a referent (for DNOM/DLOC1 only)
2. When the deictic origo is moving toward the referent (for both DNOM/DLOC1 and DNOM/DLOC5)
3. When the deictic origo owns or is being given the referent (for DNOM/DLOC5 only)

I argue that these joint attention- and action-oriented uses of the proximal demonstratives do not represent encoded meanings. Instead, they arise from the spatial deictic content of the proximals via deferred reference (for the joint attention use) and deictic transposition (for the motion and ownership uses; cf. §3.2.4 for the terms 'deferred reference' and 'deictic transposition').

This analysis explains the attestation of similar attention-, motion-, and ownership-oriented uses of speaker- and addressee-proximal demonstratives across languages with otherwise dissimilar deictic systems.

The rest of the chapter is organized as follows. §5.2 introduces some key concepts in the study of proximal demonstratives: the contrast between egocentric, altercentric (addressee-centered), and sociocentric (dyad-centered) origos for proximals, and competing theories about whether proximals encode information about space. §5.3 provides evidence, primarily from the Demonstrative Questionnaire, that the speaker- and addressee-proximal demonstratives of Ticuna have spatial deictic content, and that that content specifically concerns location within the origo's peripersonal space. §5.4 then shows and discusses evidence, primarily from conversation, that the proximals are also sensitive to the joint attention and actions of the discourse participants. §5.5 relates these findings to the literature discussed in Chapter 3 and §5.2, then summarizes and concludes.

5.2 Concepts in the study of proximal demonstratives

The literature offers three competing theories about the deictic content of proximal demonstratives cross-linguistically.

One theory posits that the deictic content of proximal demonstratives concerns **location in space relative to a single discourse participant**. This **egocentric/altercentric theory** is taken for granted by the traditional linguistic literature (reviewed in Chapter 3), and is also used as a null hypothesis in most psychologically oriented research on demonstratives. Under this analysis, speaker-proximal (egocentric) demonstratives convey that the demonstrative referent is located in a space that counts as 'near' the speaker, while addressee-proximal (altercentric) demonstratives convey that the referent is located in a space that counts as 'near' the addressee.

While not all versions of this analysis are interested in defining what counts as 'near,' some are, as discussed in §3.4. Psycholinguistic work that has tested this theory, for example, suggests that the space which counts as 'near' a discourse participant is their peripersonal space (Kemmerer 1999; Coventry et al. 2008). An alternative view is that the space which counts as 'near' a participant (or to be more accurate to the analysis, 'not far') is defined by interactionally emergent factors like the activity of the origo's hands; the origo's gaze; and the presence of salient barriers in space around the origo (Enfield 2003).

Another theory, closely related to the first, claims that the deictic content of proximals concerns **location in space relative to the interaction**. This **sociocentric** theory argues that apparent speaker-proximal demonstratives locate the referent inside of a shared space defined jointly by the locations of speaker and addressee (not simply in a space defined by the position of the speaker). Under these analyses, the deictic origo of proximal demonstratives is the interactive dyad, not either the speaker or the addressee alone. Both observational (Hanks 1990; Jungbluth 2003) and experimental (Clark and Sengul 1978; Peeters et al. 2015) researchers have adopted versions of this analysis, for English (Clark and Sengul 1978), Yucatec Maya (Hanks 1990), Spanish (Jungbluth 2003), and Dutch (Peeters et al. 2015).

The final viable theory of proximal demonstratives claims that their deictic content concerns **'accessibility'** rather than space. 'Accessibility' is a cognitive-perceptual construct, defined as 'the ease (of effort) with which particular mental contents come to mind' (Piwek et al. 2008:702, citing Kahneman 2003). It is operationalized as a composite of salience, joint attention status, and prior mention status. Accessibility theories of demonstratives posit that proximal demonstratives encode high accessibility of the referent to the origo, while distal demonstratives encode low accessibility. Per the composite definition of accessibility, a referent can have high accessibility because it is located near the speaker's body, because it is perceptually salient to the discourse participants, because it is in joint attention, or because it has recently been mentioned in the discourse (even if it is not present in the physical surround). While accessibility theories are supported in detail only by psychological studies, such as Piwek et al. (2008), many typological works on demonstratives (e.g. Anderson and Keenan 1985) mention them. Anecdotally, accessibility theories of proximals are also popular among linguists with cognitive-functional and typological theoretical orientations.

Accessibility-oriented theories of proximal demonstratives contrast with egocentric/altercentric and sociocentric spatial theories in two ways. First, accessibility theories deny that the deictic content of proximals concerns space, while the other two theories treat space as primary. Second, spatial theories treat deixis as an embodied phenomenon: the speaker locates the referent in the physical surround relative to her own body, or the addressee's body. Accessibility theories, on the other hand, treat it as disembodied: the speaker locates the deictic referent relative to her own memory and/or the addressee's memory. This makes exophoric and endophoric uses of demonstratives tractable under a single analysis, but at the expense of cutting information about the body out of the semantics of the items.

In the following sections, we will see that -- in their core uses, i.e. those which are potentially available in all contexts -- the speaker- and addressee-proximal demonstratives of Ticuna are respectively used to index referents within the speaker's peripersonal space and within the addressee's peripersonal space (§5.3). They are not used to index referents located outside of the participants' peripersonal spaces, whether or not the referents are inside the sociocentric space. This pattern supports an analysis of the items as having strictly egocentric/altercentric deictic origos, and as encoding location within the origo's peripersonal space (rather than 'distance' from the origo). Conversely, this data does not support a sociocentric spatial analysis or an accessibility analysis.

Conversational data, on the other hand, is less straightforward than the data of the Demonstrative Questionnaire (§5.4). Examining the conversational corpus, I show that speakers **do** sometimes use the proximals to index referents located beyond the origo's peripersonal space. I label these spatially exceptional uses of the proximals as 'extended,' reflecting that they are possible only in attentionally and/or spatially marked contexts. Though the existence of the extended uses could be taken as support for an accessibility analysis, I argue that a theory based on (actual) joint attention and action, not (potential) accessibility, is the best way to capture the regularities that emerge from token-level study of the extended uses.

5.3 Core uses: Peripersonal space

This section examines the spatial deictic content of the speaker-proximal demonstratives, DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²*, and their addressee-proximal counterparts, DNOM5 *ŋe³ma²* and DLOC5 *ŋe⁵ma²*. §5.3.1 discusses the speaker-proximal demonstratives, §5.3.2 the addressee-proximals, and §5.3.3 the hierarchical relationship between the speaker- and addressee-proximals.

5.3.1 Speaker-proximal demonstratives DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²*

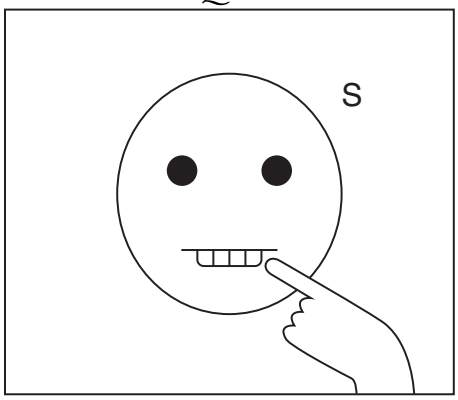
DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²* have the speaker as their deictic origo. The nominal demonstrative in this pair, DNOM1 *ɲa⁴a²*, prototypically indexes a referent that is located within the speaker's peripersonal space -- part of their body, in contact with their body, or close enough for them to reach without moving relative to the ground. The locative demonstrative, DLOC1 *nu⁵a²*, indexes points within the speaker's peripersonal space, such as points on the body and points close enough for the speaker to reach without moving relative to the ground. DLOC1 (and less commonly, DNOM1) can also index any region that properly includes the speaker's body, such as the peripersonal space itself, or the region of space enclosed by the house, town, or state where the speaker is located. The two speaker-proximal demonstratives, in root form, do not convey anything about the relationship between the addressee and the referent object or location; they are specifically and exclusively egocentric.

I now turn to the evidence for these generalizations, focusing on the claims that (a) the deictic origo of DNOM1 and DLOC1 is the speaker and (b) the spatial deictic content of DNOM1 and DLOC1 concerns location within peripersonal space.

5.3.1.1 DNOM1 indexes referents located on the speaker's body or within their peripersonal space

The first evidence about the spatial deictic content of DNOM1 comes from the Demonstrative Questionnaire. There were three scenes of the questionnaire where all 10 participants volunteered DNOM1. These were scenes 1, 7, and 8, shown in (47-49) below. In all of these scenes, the referent is either part of the speaker's body or within reach for the speaker. In scene 1 (47), the referent is part of the speaker's body. In scenes 7 and 8 (48, 49), the referent is within easy reach for the speaker, located immediately in front of them (48) or beside them (49).

(47) Demonstrative Questionnaire Scene 1

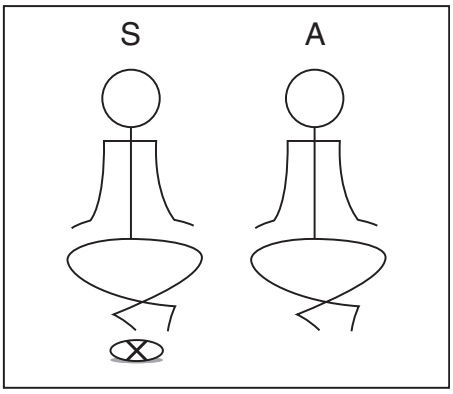


da³¹a¹ tʃo¹pɨ¹ta¹ na⁴ʎu̯¹.

da³¹a¹ tʃau¹ +pɨ¹ta¹ na⁴= ʎu̯¹
DNOM1(III) 1SG +tooth(III) 3.A= hurt(A)

'This (DNOM1) tooth of mine hurts.'
(LWG: 2017.1.171)

(48) Demonstrative Questionnaire Scene 7

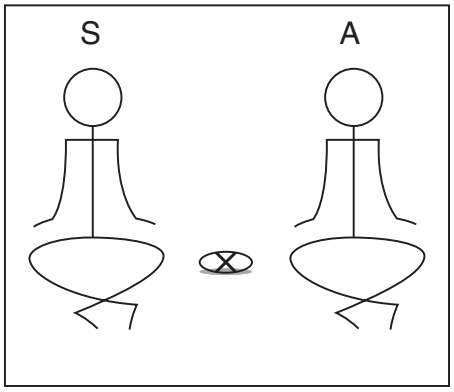


da³¹a¹ pa³ne⁴ra¹ rɨ¹ɛ̃¹ʔna⁵ ku³¹rɨ³ ni⁴¹ʔĩ⁴?

da³¹a¹ pa³ne⁴ra¹ rɨ¹ɛ̃¹ʔna⁵ ku³¹rɨ³ ni⁴¹= ĩ⁴
DNOM1(III) metal.pot(III) ALT 2SG.AL.POSS 3.I= COP(I)

'Is this (DNOM1) pot yours?'
(ECG: 2017.2.45)

(49) Demonstrative Questionnaire Scene 8



ku³¹rɨ³ ni⁴¹ʔĩ⁴ ɟa¹ da³¹a¹ ta³ru⁵?

ku³¹rɨ³ ni⁴¹= ĩ⁴ ɟa¹ da³¹a¹ ta³ru⁵
2SG.AL.POSS 3.I= COP(I) DET(III) DNOM1(III) fire.fan(III)

'Is this (DNOM1) fire fan yours?'
(YCG: 2017.3.79)

In addition to the three unanimous scenes, there were seven additional scenes where participants displayed high or moderate agreement on DNOM1 in volunteered data. These seven scenes can be divided into five where speakers showed high agreement on DNOM1 -- defined, per §2.1.2, as at least eight of 10 participants volunteering the item -- and two where they showed a moderate level of agreement.

The scenes with high agreement on DNOM1 were 3, 6, 11, 19, and 22. In all of these scenes, as in the unanimous scenes, the referent is either in contact with the speaker's body (scene 3) or is within reach for the speaker (scenes 6, 11, 19, and 22). Nine of ten participants volunteered DNOM1 in each of these five scenes. The scenes with moderate agreement on DNOM1 were scenes 2 and 20. These are scenes where the referent is objectively within reach for the speaker, but is also within reach for the addressee (e.g. in scene 2, the referent is a body part of the addressee). Six of 10 participants volunteered DNOM1 in each of them.

Besides the scenes listed above, there are no other scenes of the Demonstrative Questionnaire where the referent is a body part of the speaker, in contact with the speaker's body, or in reach for the speaker. That is, participants **always** display at least moderate agreement (as defined in §2.1.2) on DNOM1 in every one of the 10 scenes of the questionnaire where the referent is within the speaker's peripersonal space. And conversely, participants **never** display moderate or high agreement on DNOM1 when the referent is not within the speaker's peripersonal space.

Conforming to this generalization, in the conversational corpus there is a very strong association between use of DNOM1 and reference to entities within the speaker's peripersonal space. Uses of DNOM1 to index referents objectively beyond peripersonal space do exist (§5.4), but they are much less common than uses of the item to index referents inside the speaker's peripersonal

space. Rather, the routine use of DNOM1 in the corpus is to index a referent that is on the speaker's body, that the speaker is handling, or that is located at least partially within the speaker's reach.

(50) provides an example of the use of DNOM1 in the conversational corpus to index a referent that the speaker is handling. Figure 5.1 shows the participants in this example. They are UGW, the woman at right in the pink t-shirt; MGW, the woman at center in the black t-shirt; KGW, the woman at left in the white shorts; and JLU, the man who is standing just off-camera at the left side of the frame. UGW, MGW, and KGW are sisters; KGW is married to JLU. They are outside JLU and KGW's house.

At the opening of the excerpt in (50), the participants have just finished loading some cargo in the vehicle at the center of the frame, and are preparing to drive off. As KGW walks inside the house to pick up a final item, UGW reaches toward the cargo bed of the vehicle with her left hand and idly spins the wheel of the bicycle lying on the bed. As she does this, she produces line 1 of (50). The referent of her token of DNOM1, the first word in the turn in line 1, is the bicycle. She is handling the bicycle's wheel, as shown in the figure, at the moment that she begins to produce the demonstrative.

Figure 5.1: Participants in (50) at onset of line 1

(50) 20170630b 0:16

1. UGW: *da³¹a²*, *a³¹*, *ku³¹rɨ³ a⁴kɨ⁵ʔɪ̃⁴*, *reparacion=wa⁵ [ku³na³ʌe⁴³]?*
da³¹a¹ a³¹ ku³¹rɨ³ a⁴kɨ⁵ʔɪ̃⁴ reparacion =wa⁵ ku³= na³=
DNOM1(III) INTJ:HESIT 2SG.AL.POSS HESIT(IV) Sp:repair =ALL 2SG.A= 3OBJ.A=
ʌe⁴³
transport:InamSgO(A)
'This (DNOM1), um, your whatsitcalled, are you taking it to the repair (shop)?'
((UGW, on *da³¹a²*, grips front wheel between thumb and index finger of left hand, repeatedly spins wheel))
((UGW gazes at bicycle, then on syllable *wa⁵* shifts gaze to JLU))
((JLU off camera))

2. (JLU:) *[ŋɪ̃³¹]*
ŋɪ̃³¹
logical.yes
'Yeah'

In (50) the referent of DNOM1 is the bicycle. It is not located entirely within UGW's peripersonal space, but enough of it is that she can handle it. Throughout the conversational corpus, DNOM1 is routinely used in situations like this one -- where, though the referent is too large or too far to be entirely within the speaker's peripersonal space, they are still able to reach and touch some part of it. It is also routinely used in contexts where the referent is entirely within peripersonal space, for example, where the referent is completely contained in the speaker's hand.

5.3.1.2 DLOC1 indexes points on the speaker's body or within their peripersonal space

Parallel to DNOM1, one of the core uses of DLOC1 is to index places on the speaker's body or within the speaker's peripersonal space. Results for DLOC1 in the DLOC version of the Demonstrative Questionnaire were extremely similar to results for DNOM1 in the DNOM version, with DLOC1 appearing as the strongly preferred demonstrative in all references to places on the speaker's body or within her peripersonal space.

There were three scenes in the DLOC version of the Demonstrative Questionnaire where all five participants volunteered DLOC1. These were scenes 1 (also a unanimous DNOM1 scene; 47), 8 (again, a unanimous DNOM1 scene; 65), and scene 19 (a high agreement DNOM1 scene). In scene 1, also shown above, the speaker points at a part of their own body. In scenes 8 and 19, the speaker indexes a location within their reach. Beyond the three unanimous scenes, there were seven additional scenes where participants displayed at least moderate agreement on DLOC1 in volunteered data. These were scenes 3, 6, 7, 11, 17, 20, and 23. In all of scenes 3, 6, 7, 11, and 20, the referent location is on the speaker's body (scene 3) or within the speaker's peripersonal

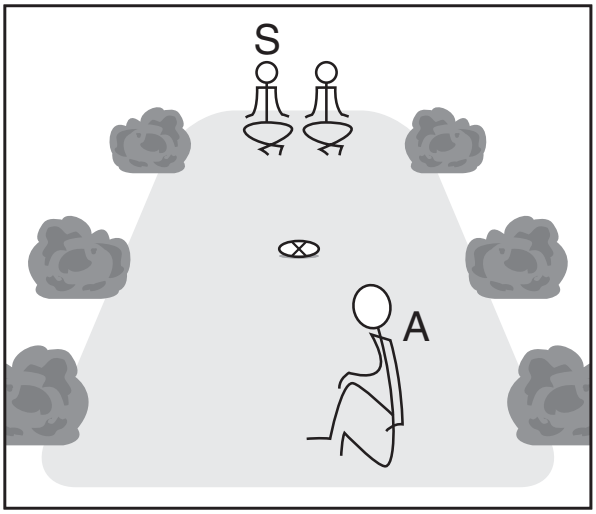
space (scenes 6, 7, 11, and 20). In scenes 17 and 23, however, the referent location is not on the speaker's body or within their peripersonal space.

In sum, as with DNOM1, participants displayed at least moderate agreement on DLOC1 in every scene of the Demonstrative Questionnaire where the referent was within the speaker's peripersonal space. However, unlike with DNOM1, there was not a clearly biunique relationship between use of DLOC1 and location of the referent within the speaker's peripersonal space. This is because DLOC1 was also volunteered in two scenes, 17 and 23, where the referent location was not within peripersonal space.

Examining scenes 17 and 23 more closely, however, shows that they are not counterexamples to the generalization that DLOC1 was used only for locations within peripersonal space. In both of these scenes, more than half of the speakers who volunteered DLOC1 -- three of four in scene 17, two of three in scene 23 -- volunteered it with the clitic *=ã⁴ma⁴*. On spatial adjuncts, including locative demonstratives, *=ã⁴ma⁴* takes a telic goal or location description (e.g. 'walk to town,' 'lie at the port') and derives an atelic direction or bearing description (e.g. 'walk toward town,' 'lie toward the port'). Thus, in both of these scenes, the participants who volunteered DLOC1 were using it to index not the referent **location** targeted by the questionnaire, but rather the **direction** of that location relative to the addressee's current location.

That scenes 17 and 23 are not counterexamples can be seen clearly from an example of how DLOC1 was actually used in these scenes. In scene 17 (51), the speaker and addressee are standing at opposite ends of a large cleared space. The speaker refers to a location at the middle of the space, equidistant between speaker and addressee. In my implementation of the DLOC version of the questionnaire, the speaker made this reference by directing the addressee to stand at the referent location. Three out of the five participants produced DLOC1 with *=ã⁴ma⁴* in this context, as shown in (51).

(51) Demonstrative Questionnaire Scene 17



nu²ã⁴ma⁴ na¹tʃi⁴.

nu²a² =ã⁴ma⁴ na¹= tʃi⁴
DLOC1:LOC =Ã⁴MA⁴ IMP.A= stand(A)

'Stand this way (DLOC1=Ã⁴MA⁴).' (more lit., toward here)
(ECP: 2017.2.111)

The use of DLOC1 in (51) is a description of a direction, not a location. The speaker is directing the addressee to move towards them, then stand still. Thus, DLOC1 still indexes the speaker's peripersonal space in this use -- but as the end point of a vector, not as a static location. Crucially, it does **not** index the location shown in the image in (51). Since that location is not within the speaker's peripersonal space or a perimeter that encloses it, it actually cannot be indexed **as a static location** by DLOC1 (absent a marked attentional context or an in-progress motion event involving the location: §5.4).

5.3.1.3 DLOC1 indexes regions of space that enclose the speaker's peripersonal space

A person's peripersonal space can be seen as the smallest possible perimeter that encloses all of their body. DLOC1, as well as indexing this perimeter and places within it, can also index any **larger** perimeter which encloses the speaker's body. There is no limit to how small or how large the space indexed by DLOC1 in this use can be. It can be as small as the borders of peripersonal space, or as large as the borders of the nation. In fact, on this latter point, my corpus contains multiple examples where DLOC1 is used to index the entire region of Loreto or the entire nation of Peru.

In (52), the speaker is telling me about the death of a former neighbor. The neighbor had four sons; one lived in the city of Iquitos (the capital of Loreto region, 400km from the Cushillo-

cocha/Caballococha area) and another lived in Tarapoto (the largest city in the adjacent region of San Martín). These cities are not near the Cushillococha/Caballococha area by any standard -- traveling between Iquitos and Caballococha takes 10 hours by the fastest mode of transportation and two days by more common modes. But Iquitos is part of the same political unit as the local area, and Tarapoto is not. Therefore the neighbor's son from Iquitos is said to be from 'here (DLOC1)' in (52b) and throughout the story, while the son from Tarapoto is from 'there (DLOC3)' in (52c) and throughout.

(52) DGG Locality Description 35:36

a. *rɨ¹ na⁴ne³gɨ⁴ rɨ¹ i⁵na⁴ʌu³gɨ⁴ ga⁴ de- de-...*
rɨ¹ na⁴ +ne³ =gɨ⁴ rɨ¹ i⁵= na⁴= ʌu³ =gɨ⁴ ga⁴ de- de-
and 3 +son =PL TOP VCL= 3.A= arrive(A) PL DET.REMPST HESIT HESIT
'(When my neighbor died,) his sons, they arrived, fr-...'

b. *wɨ⁴³ʔi⁴ ni⁴¹ʔĩ⁴ i⁴ policia i¹ʔĩ¹ʔɨ̃⁴, i⁴ nu⁵a²* *I³tʃi⁴tu²wa⁵,*
wɨ⁴³ʔi⁴ ni⁴¹= ĩ⁴ i⁴ policia i¹= ĩ¹ =ʔɨ̃⁴ i⁴
one 3.I= COP(I) DET(IV) Sp:policeman(IV) 3.I.SC= COP(I) =NMLZ(IV) DET(IV)
nu⁵a² I³tʃi⁴tu² =wa⁵
DLOC1:ALL Iquitos =ALL
'There was one who was a policeman here (DLOC1) in Iquitos,'

c. *rɨ¹ to¹ i⁴ ta¹ i⁴ policia i⁴ na⁴ne³ ɟe⁵a² Tarapotowa⁵.*
rɨ¹ to¹ i⁴ ta¹ i⁴ policia i⁴ na⁴ +ne³ ɟe⁵a²
and other(IV) DET(IV) also DET(IV) Sp:policeman(IV) DET(IV) 3 +son DLOC3:ALL
Tarapoto =wa⁵
T =ALL
'And the other (was) also a policeman, his son, there (DLOC3) in Tarapoto.'

Speakers often shift, within the same turn, between using DLOC1 to index a point on the body (a maximally restricted use of the item) and using it to index a large region of space that includes their current location (a maximally expanded one).

(53) provides especially clear examples of both maximally restricted and maximally expanded uses of DLOC1. Figure 5.2 shows the participants in this excerpt. RGW, an older woman, is seated off-camera to the far left; her husband (RGWH) is lying on the floor at left; her father, DGG, is in the white shirt and baseball cap at right; and her daughter-in-law, AYM, is in the foreground at right. The four adults are on a social visit at DGG's home.

When the excerpt in (53) opens, RGW has just (in the prior turn) begun to tell the others about how her elbow hurts from the previous day's agricultural work. She produces a second turn about the pain in line 1 of (53); then AYM sympathizes in line 4. Figure 5.2 shows AYM at the moment that she produces the second token of DLOC1 in line 4.

Figure 5.2: Participants in (53) in line 4, at onset of second token of DLOC1

(53) 20170527a 2:07

1. (RGW:) *ta⁴gu²ma³ no²ʔta⁴ka² tʃi³ʍai³ʔne³kɨ³ʔi⁵rɨ³, nu⁵a² [nu⁵a²] tʃo³¹ʔĩ⁵] na⁴ʎu̯¹*
   ta⁴gu²ma³ no²ʔta⁴ka² tʃi³= ʍai³ʔ +ne³kɨ³ =ʔi⁵rɨ³ nu⁵a²
   never like(hedge) 1SG.I= hit.swinging(I) +NI:plant.group =INFO DLOC1:ALL
   nu⁵a² tʃo³¹ =ʔĩ⁵ na⁴= ʎu̯¹
   DLOC1:ALL 1SG =IBEN 3.A= hurt(A)
   'Since I basically never clear weeds, here here (DLOC1) it hurts for me.'

2. RGWH: [()]

3. (RGW:) *o³¹*
   'Oh'

4. AYM: *į̃¹ʔne¹ã⁴ma⁴ nu²a² ta¹ʔi²e³gu², ʎi²ri⁴ tʃa³ʎu⁵ma¹tʃi³tʃa³ki¹ʔi³ ga⁴ nu⁵[a²]*
į̃¹ʔne¹ã⁴ma⁴ nu²a² ta¹= i² -e³ =gu² ʎi²ri⁴ tʃa³= ʎu̱¹
2.days.ago DLOC1:LOC 1EXCL.A.SC= do(A) -PL =SUB suddenly 1SG.A= hurt(A)
+ma¹tʃi³ +tʃa³ki¹ʔi³ ga⁴ nu⁵a²
+NI:muscle +NI:arm DET.REMPST DLOC1:ALL
'The other day when we were working here (DLOC1), all of a sudden the muscle of my arm started to hurt here (DLOC1).'
((AYM makes no gesture until the onset of the verb root *ʎu̱¹* 'hurt;' on onset, places left hand on bicep of right arm, turns head 15' right toward DGG))
((on the word *nu⁵a²*, AYM turns head 15' further right, gazes at DGG))
((DGG then gazes at AYM))

5. RGW: *[m³¹]:*
'[M]mm'

Three of the four tokens of DLOC1 in (53) refer to points on the discourse participants' bodies; the other refers to a large region of space which encloses the participants. The first two tokens of DLOC1, in RGW's turn in 1, index points on RGW's body (we know from a preceding turn, not shown, that both are on her elbow). The fourth token, spoken by AYM in line 4, also indexes a point on the speaker's body: AYM shows the other participants, with the gesture in Figure 5.2, that the referent of this token of DLOC1 is part of the bicep of her right arm. These three tokens -- both tokens in line 1, and the second token in line 4 -- represent the use of DLOC1 to index points on the body and within the peripersonal space, discussed in the preceding section.

But the other token of DLOC1, in the first clause of AYM's turn in line 4, is a different use. This token indexes not a place on AYM's own body, but a larger region of space that encloses her and the other participants. More precisely, the token indexes the locality where DGG's house is located, a place known as *Ma¹wɨ⁵tɨ⁴ɨ̃¹* 'Guan Creek.' AYM and her husband have a garden about 1km from DGG's house at Guan Creek; their own house is roughly 3km away in the central area of Cushillococha. This turn, and other material in this recording, make clear that the garden at Guan Creek is the place where AYM was working the previous day. Thus the first token of DLOC1 in line 4 indexes the entire area of Guan Creek, including both AYM's current location and her garden, in implicit contrast to other places that AYM might have been working (such as her home).

The ability to index all of the space inside a very large perimeter is not unique to DLOC1. DNOM1 can also be used in this way. (54) provides an example, parallel to (52), where a speaker uses DNOM1 to index the entire nation of Peru.

(54) Context: Speaker is explaining to me why he joined the Peruvian army during the Peru-Ecuador conflict of 1995.
ɲu¹ã¹kɨ² *na⁴ʔ* *nɨ³¹ʔna¹* *tʃa¹dau²ʔɨ̃⁴* *ga⁴* *ɲa⁴a²* *na⁴³tʃi⁵ɨ̃¹a¹ne¹.*

ɲu¹ã¹kɨ² na⁴ʔ nɨ³¹ =na¹ tʃa¹= dau² =ʔɨ̃⁴ ga⁴ ɲa⁴a² na⁴³
how? COMP 3 =RCP 1SG.A= see(A) =SUB DET.REMPST DNOM1(IV) DEF.POSS

+tʃi⁵ɨ̃¹a¹ne¹
+nation(IV)

'(I wanted to) take care of this (DNOM1) country however I could.'
(SSG: tsr 0:41)

In the syntactic context of (54), where the deictic modifies the noun *na⁴³tʃi⁵ɨ̃¹a¹ne¹* 'nation,' using DNOM1 rather than DLOC1 is obligatory because locative deictics cannot modify nouns. However, outside of syntactic contexts which force the use of DNOMs over DLOCs, DLOC1 is vastly more common in reference to regions than DNOM1 (minimally a 9:1 DLOC:DNOM ratio).

The symbolic use of DNOM/DLOC1 also makes relevant the most marginal member of the demonstrative paradigm -- DNOM/DLOC4. As noted in §1.3, DNOM4 is used **exclusively** in deixis to regions of space that include the speaker (uses like 54) and time periods that include the present (phrases like 'this year'). DLOC4 is its locative demonstrative counterpart, used only to index regions that include the speaker; it cannot index points. Thus, both are hyponyms of DNOM/DLOC1.

Unlike DNOM/DLOC1, DNOM/DLOC4 are marginal to the demonstrative system, at both type and token levels of analysis. In type terms, they display considerable syntactic differences from other demonstratives; for example, DNOM4 precedes determiners, while all other demonstratives follow them. In token terms, they are orders of magnitude less frequent than all of the other DNOMs and DLOCs. For example, there are just two tokens of DLOC4 in the conversational corpus, compared to 204 tokens of DLOC1. The analysis of the speaker-centered proximal demonstratives presented in this chapter therefore passes over DNOM/DLOC4 to focus on DNOM/DLOC1.

5.3.1.4 DNOM1 and DLOC1: interim summary

DNOM1 and DLOC1 prototypically index referents that are located, at least in part, on the speaker's body or within the speaker's peripersonal space. The Demonstrative Questionnaire data shows that it is specifically necessary for objects and points indexed by these demonstratives to be inside the speaker's peripersonal space -- within reach of their arms -- and not simply 'near' the speaker. It was never the case that speakers displayed moderate or higher agreement on these forms for a referent that was not within peripersonal space, even if it was 'near' the speaker by comparison to some other possible referent or by comparison to its location relative to the addressee. Conversely, it was always the case that where a referent was within the speaker's peripersonal space, participants volunteered DNOM1 and DLOC1 to index that referent.

This strong biunique relationship between location in peripersonal space and use of DNOM/DLOC1 generally also holds in conversational data (though with the important exception of attention-

calling uses of DNOM//DLOC1 for referents beyond peripersonal space, discussed in §5.4). Conversational data like (50) additionally shows us something that could not be discovered from the Demonstrative Questionnaire: it is acceptable to use DNOM1 if **part** of the referent is inside the speaker's peripersonal space, even if another part is outside.

Beyond the findings from the Demonstrative Questionnaire, DNOM1 and DLOC1 also have another prototypical use. They index regions of space that enclose the speaker, which can be as relatively small as a house or locality, or as relatively large as a province or nation. Both DNOM1 and DLOC1 have regional or symbolic deictic uses; however, such uses are much more common for DLOC1.

In both the object/point and region uses of DNOM/DLOC1, the items are tied to the speaker's peripersonal space. The object/point uses require that at least part of the referent is within the peripersonal space. The region uses require that the referent encloses the peripersonal space, which entails that part of the referent is inside (or more precise, underlies or overlies) the peripersonal space. In this sense, the two speaker-proximal demonstratives represent spatial analogues to the 1SG pronoun (as first proposed by Bühler 1982 [1934]). The 1SG pronoun indexes the speaker; the speaker-proximal demonstratives index a referent that is (partially) within the peripersonal space that belongs to the speaker.

Under the view that the speaker-proximal demonstratives are analogous to 1SG pronouns, it is not surprising that there are equivalences between the 1SG pronoun and the speaker-proximal demonstratives -- specifically, DLOC1 -- in the grammar of Ticuna. One such equivalence is between the 1SG pronoun and DLOC1 as complements of the verb meaning 'give.'

The verb 'give' (which has three allomorphs depending on the number and animacy of the object) is one of a very small number of ditransitive verbs in Ticuna. As a ditransitive, it normally requires a recipient argument marked with the recipient case enclitic *=na¹*, such as the 2SG pronoun in line 1 of (55). But to direct an addressee to give you something, it is acceptable to omit an overt 1SG recipient argument and replace it with DLOC1, as in line 2 of (55).

Note that the two sentences in (55) immediately follow one another in the discourse (they are drawn from a conversation) and do not have coreferential indirect objects. The indirect object is dropped in line 2 of (55) because it is being replaced by DLOC1, not because of zero anaphora. Additionally, note that the token of DLOC1 in line 2 of (55) cannot be interpreted as a motion goal (unlike the use of *here* in its English gloss). This is because, in Ticuna clauses headed by verbs of placement and transfer, motion goals must have the locative case -- not the allative case found on the token of DLOC1 in (55b).

(55) 20170527a 33:18
Context: DGG and AYM are trying to make change. DGG says to AYM,

1. DGG: *cien* *ku³¹ʔna¹* *tɨ³¹ʔɨ̃³* *na¹ʔã̃³*
cien ku³¹ =na¹ tɨ³¹ =ʔɨ̃³ na¹= ã̃³
Sp:100 2SG =RCP 3(I) =ACC IMP.A= give:InamSgO(A)
'I gave you 100 (soles).'

2. DGG: [nu⁵a²] tɨ³¹ʔĩ³ na¹ʔã³
[nu⁵a²] tɨ³¹ =ʔĩ³ na¹= ã³
[DLOC1:ALL] 3(I) =ACC IMP.A= give:InamSgO(A)
'Give it [to me (DLOC1)] (lit. give it here).'

In the following sections, I show that the equivalence between proximal demonstratives and local pronouns in Ticuna is not limited to the equivalence of speaker-proximal demonstratives and 1SG pronouns. I argue that the same relationship holds between the addressee-proximal demonstratives and second-person pronouns (§5.3.2), and that competition between speaker- and addressee-proximal demonstratives is resolved by a lexical hierarchy of demonstratives, analogous to syntactic person hierarchies (§5.3.3).

5.3.2 Addressee-proximal demonstratives DNOM5 ŋe³ma² and DLOC5 ŋe⁵ma²

For DNOM5 ŋe³ma² and DLOC5 ŋe⁵ma², the deictic origo is the addressee. The nominal demonstrative of this pair, DNOM5 ŋe³ma², is the addressee-centered counterpart to DNOM1 ɲa⁴a². It prototypically indexes a referent that is within the addressee's peripersonal space, whether part of their body, in contact with their body, or within their reach. The locative demonstrative in the pair, DLOC5 ŋe⁵ma², indexes points within the addressee's peripersonal space, as well as the peripersonal space as a whole.

While the speaker-proximals often index regions including the origo, use of the addressee-proximals to index regions is unattested in my data. Instead, the addressee-proximal demonstratives index only objects, points, and the minimal region defined by the origo's peripersonal space. The two sets of proximal demonstratives do, however, have properties in common. One is their tie to the peripersonal space, already mentioned. The other is their single-participant origo. Parallel to the strictly egocentric speaker-proximals, the addressee-proximals are strictly addressee-centered, not sociocentric. Moreover, due to a hierarchical relationship between speaker- and addressee-proximals, addressee-proximals cannot index referents which are in peripersonal space for both speaker and addressee. The referent of an addressee-proximal must be within peripersonal space for the addressee **only** (§5.3.3).

In the following sections, I detail the evidence for the above generalizations, especially for the claims that (a) the deictic origo of DNOM5 and DLOC5 is the addressee and (b) the demonstratives index referents located within the addressee's peripersonal space (in contrast to simply 'near' the addressee). Because I lack data on the use of DNOM5 in contexts that unambiguously include multiple addressees, the discussion is restricted to contexts involving a single addressee.

5.3.2.1 DNOM5 indexes referents located on the addressee's body or within their peripersonal space

Data from the Demonstrative Questionnaire task provides our first evidence that DNOM5 ŋe³ma² indexes referents located within the addressee's peripersonal space. Interpreting the Demonstra-

tive Questionnaire data requires an initial analytical step: we need to recognize that invisible DNOM5 can index a referent located anywhere in space, provided that the speaker does not see the referent (Chapter 4). Therefore, to understand uses of DNOM5 **other** than the invisible use, we must look specifically to scenes of the questionnaire where the speaker sees the referent.

There are three scenes of the Demonstrative Questionnaire where (a) the referent is visible to the speaker and (b) participants displayed moderate to high agreement on DNOM5 in volunteered data. These were scene 5, scene 10, and scene 16. In contrast to DNOM1, which was volunteered by all 10 participants in three scenes, there were no scenes where all 10 participants volunteered DNOM5.

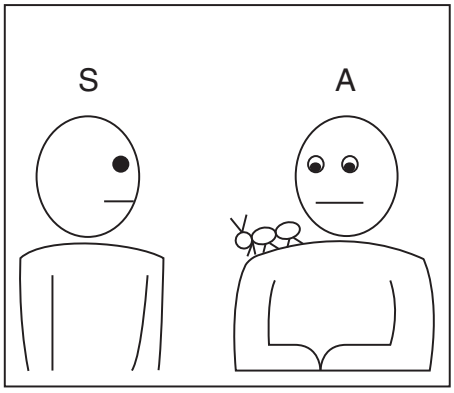
In scene 5 (56), the speaker indexes an insect on one of the addressee's teeth, but without manually pointing at it. I prevented speakers from manually pointing in this scene by asking them to hold a large sheet of plastic in both hands. The majority of participants then made some form of non-manual point toward the referent using the head, chin, or lips.[1] Nine of 10 participants volunteered DNOM5 in scene 4, showing very high agreement on the item.

In scene 10 (57), the speaker and addressee are seated side-by-side. The referent is on the far side of the addressee from the speaker, such that the addressee can reach it but the speaker cannot. While the instructions for the Demonstrative Questionnaire suggest that the referent should be invisible to the speaker in this configuration, my participants were consistently able to see the referent (as discussed in Chapter 4). Six of 10 participants volunteered DNOM5 here, showing moderate agreement.

In scene 16 (58), the speaker and addressee are standing at opposite ends of a large cleared space. The referent is with the addressee, in front of them and visible to both participants. Nine of 10 participants volunteered DNOM5 in this scene, again showing very high agreement.

[1]The absence of manual pointing is relevant because it distinguishes the scene from scene 5 of the Demonstrative Questionnaire, which is identical except that the participant is allowed to make a manual point. In scene 5, **with** manual pointing, DNOM5 becomes significantly less natural: it was volunteered by just three of 10 participants, rather than nine. (The remaining seven participants volunteered all three of the other exophoric DNOMs.)

(56) Demonstrative Questionnaire Scene 5

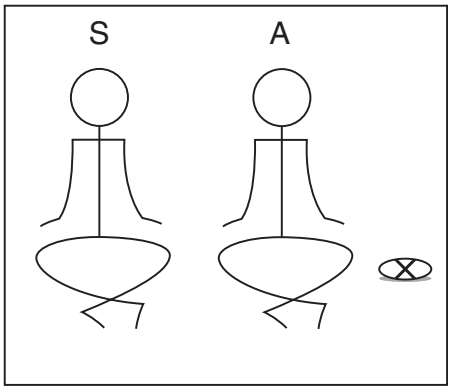


ŋe³ma² *mu¹kɨ²* *rɨ¹* *ta⁴* *ku³¹ʔĩ³* *na⁴pai¹.*

ŋe³ma² mu¹kɨ² rɨ¹ ta⁴ ku³¹ =ʔĩ³ na⁴= pai¹
DNOM5(IV) horsefly(IV) TOP FUT 2SG =ACC 3.A= bite(insect)(A)

'That (DNOM5) horsefly, it's going to bite you.'
(KSC: 2018.1.43)

(57) Demonstrative Questionnaire Scene 10

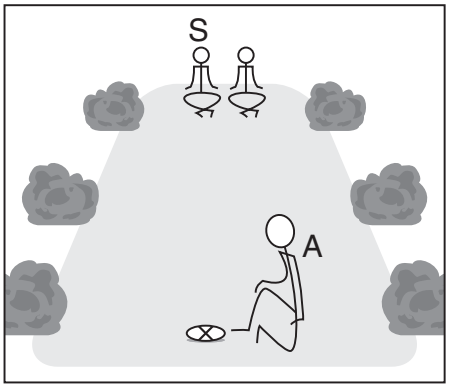


ku³¹rɨ³ *ni⁴¹ʔĩ⁴* *i⁴* *ŋe³ma²* *pa³ka³ra⁴?*

ku³¹rɨ³ ni⁴¹= ĩ⁴ i⁴ ŋe³ma² pa³ka³ra⁴
2SG.AL.POSS 3.I= COP(I) DET(IV) DNOM5(IV) lidded.basket(IV)

'Is that (DNOM5) basket yours?'
(SSG: 2017.2.186)

(58) Demonstrative Questionnaire Scene 16



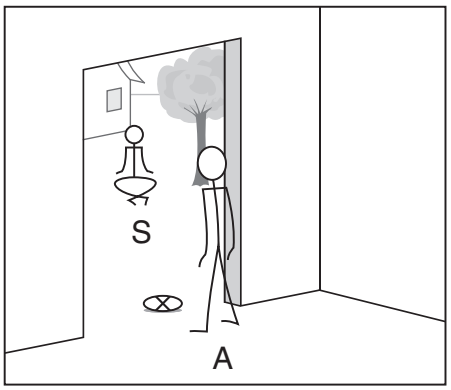
ku³¹ri³ ni⁴¹ʔĩ⁴ i⁴ *ŋe³ma²* *pe⁴ʔtʃi¹?*

ku³¹ri³	ni⁴¹= ĩ⁴	i⁴	ŋe³ma²	pe⁴ʔtʃi¹
2SG.AL.POSS	3.I= COP(I)	DET(IV)	DNOM5(IV)	basket(IV)

'Is that (DNOM5) basket yours?'
(ECP: 2017.1.183)

Among these scenes, there is one (scene 5) where the referent on the addressee's body, and two (scenes 10 and 16) where it is within reach for the addressee. Scenes where the referent is closer to the addressee than to the speaker, but is not within the addressee's reach, generally **fail** to elicit DNOM5. For example, consider scene 23, shown in (70). In this scene, the addressee stands inside the door of a built space, while the speaker sits several meters outside. The referent is just outside the door of the built space, placing it significantly closer to the addressee than to the speaker, but still beyond the addressee's reaching space.

(59) Demonstrative Questionnaire Scene 23



ku³¹rɨ³ ni⁴¹ʔĩ⁴ i⁴ ***ɟe³a²*** *pa³ka³ra⁴?*

ku³¹rɨ³ ni⁴¹= ĩ⁴ i⁴ **ɟe³a²** pa³ka³ra⁴
2SG.AL.POSS 3.I= COP(I) DET(IV) **DNOM3(IV)** lidded.basket(IV)

'Is **that (DNOM3)** basket yours?'
(SSG: 2017.2.187)

If DNOM5 only required that the referent was closer to the addressee than to the speaker, then participants should display high agreement on the item in scene 23, as in the scenes just discussed above. This prediction is wrong. Participants do not display moderate or high agreement on any demonstrative, including DNOM5, in scene 23. Instead, the most common demonstrative volunteered in this scene was DNOM3 (shown in the example), volunteered in root form by four of 10 participants and with the enclitic *=ã⁴ma⁴* by a fifth participant. Beyond DNOM3, one participant volunteered DNOM1, one volunteered DNOM2, and three volunteered DNOM5. Similarly, judgment data did not strongly favor DNOM5 over other demonstratives. Both DNOM2 and DNOM5 were widely accepted by participants who did not volunteer them. Seven of nine participants who did not volunteer DNOM2 accepted the item, and four of seven who did not volunteer DNOM5 accepted it.

This data shows that -- while DNOM5 is likely acceptable in the configuration shown in scene 23 -- it is not substantially more acceptable than other demonstratives. This suggests that DNOM5 specifically indexes referents that are within the addressee's peripersonal space, not simply referents that are 'near' the addressee by a more general standard.

Despite the shared tie of DNOM1 and addressee-proximal DNOM5 to peripersonal space, the two items display an important difference in experimental data. In the Demonstrative Questionnaire data, there is a biconditional relationship between location in the speaker's peripersonal space and use of DNOM1: DNOM1 is used if and only if the referent is within the speaker's peripersonal space. But for DNOM5, even if we restrict the data to scenes with visible referents, there is only a **one-way** conditional relationship between use of DNOM5 and location in the addressee's peripersonal space.

Although using DNOM5 for a visible referent requires that it is in the addressee's peripersonal space, indexing a referent in the addressee's peripersonal space does **not** require DNOM5. DNOMs 1, 2, and 3 can also be used to index referents in the addressee's peripersonal space, provided that the spatial and perceptual relationship between speaker and referent meets the requirements of those demonstratives. As a consequence, there are several scenes of the Demonstrative Questionnaire where the referent is objectively within the addressee's peripersonal space, but speakers consistently volunteered DNOMs 1, 2, or 3 rather than DNOM5. I consider the use of demonstratives other than DNOM5 for referents in the addressee's peripersonal space in §5.3.3, as well as in Chapter 6.

Turning now to conversational data, (60) provides examples both of how DNOM5 is used to index referents located near the addressee, and how it is **not** the only demonstrative possible for such referents. Specifically, this example shows that a referent that is within the peripersonal space of the addressee, but not that of the speaker, can be indexed with either DNOM3 *ɟe³a²* (an egocentric distal demonstrative) or DNOM5 *ŋe³ma²* (the addressee-proximal).

(60) is drawn, like (53), from the conversation between RGW, DGG, and AYM during their social visit at DGG's home. Figures 5.3 and 5.4 show the participants in this example -- Figure 5.3 displaying the video at the onset of line 1, and Figure 5.4 displaying the video from the onset of line 2. In both stills, we see that RGW is seated on the table at the left edge of the frame; AYM is seated on the floor at the back of the frame, with her 2-year-old daughter; and DGG is at the right edge of the frame. DGG has just agreed to pay AYM 20 soles for an earlier purchase, but he wants to pay her with a 100-sol note; she agrees to change the large note only very reluctantly. As AYM looks through a wallet for the change, RGW (her mother-in-law) points out the quantity of the bills to her, suggesting that it wouldn't be so hard to make the 80 soles change after all.

In the excerpt in (60), the first deictic token appears in line 1, shown in Figure 5.3. As AYM picks out two 20-sol notes from her wallet, RGW indexes them with DNOM3. In line 2, shown in Figure 5.3, AYM picks up a 50-sol note from the same place. RGW then indexes the three bills in play (the new 50 and the two 20s) with DNOM5. Her use of DNOM5 in line 2 is partially coreferential with the token of DNOM3 in line 1, potentially suggesting that the token of DNOM5 in line 2 represents an anaphoric rather than an addressee-centered exophoric use. However, an anaphoric interpretation is in fact impossible, as the second DNOM functions as the predicate in a presentative construction (which is not allowed for the anaphoric use of DNOM5; Chapter 4).

Figure 5.3: Participants in (60) at onset of line 1

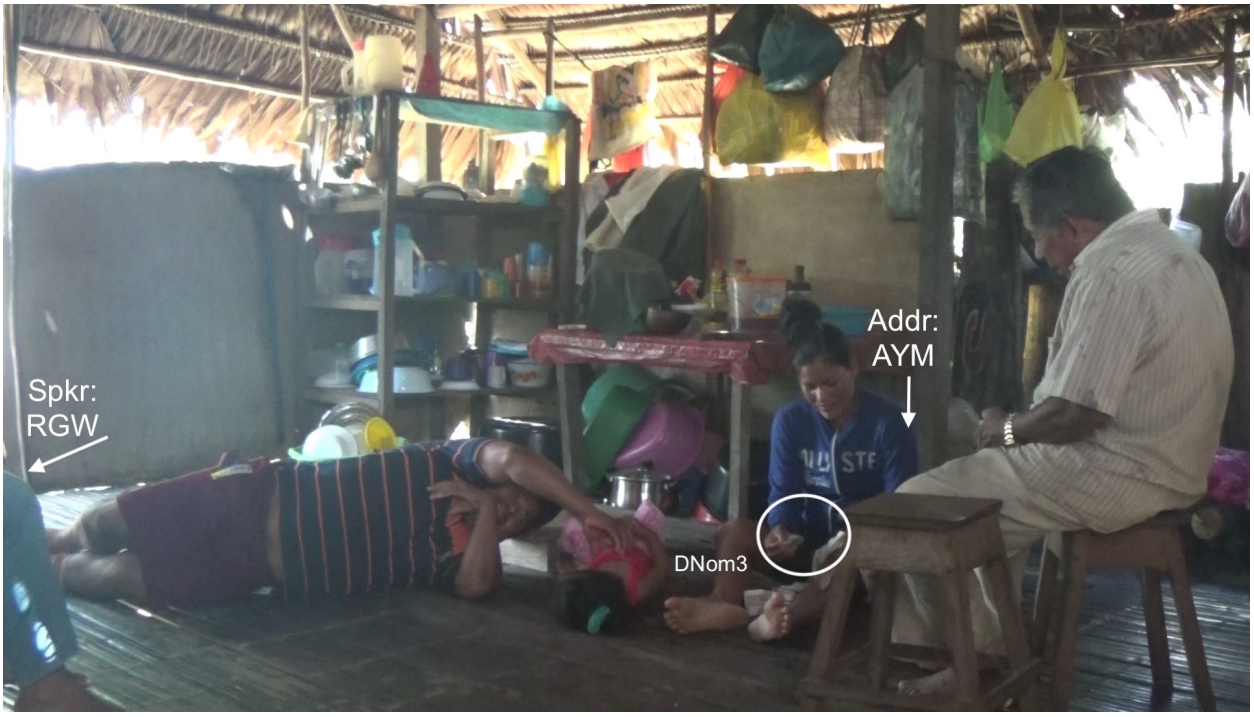


Figure 5.4: Participants in (60) at onset of line 2

(60) 20170527 34:10

1. (RGW:) *dɨ¹ʔ, gu³¹ʔe² a³ri¹ ti⁴¹ʔĩ⁴ a⁴ veinte*
   dɨ¹ʔ gu³¹ʔe² =a³rɨ¹ ti⁴¹= ĩ⁴ a⁴ veinte
   PRES DNOM3(I) =INFO 3(I).I= COP(I) DET(I) Sp:20
   'Look, there's (DNOM3) (some) 20s.'
   ((AYM handling two 20-sol notes, as shown in Figure 5.3))

2. (RGW:) *ɟi³¹ʔe²ma⁴ ti⁴¹ʔĩ⁴ a⁴ noventa*
   ɟi³¹ʔe²ma⁴ ti⁴¹= ĩ⁴ a⁴ noventa
   DNOM5(I) 3(I).I= COP(I) DET(I) Sp:90
   'There's (DNOM5) 90.'
   ((AYM handling a 50-sol note as shown in Figure 5.4))

The referents of RGW's token of DNOM3 in line 1 are in exactly the same location relative to the speaker, RGW, and the addressee, AYM, as the referents of her token of DNOM5 in line 2. Likewise, both the referents in (a) and those in (b) are the targets of the addressee's gaze. Even though the spatial and attentional contexts of (a) and (b) are effectively identical, they still allow two different deictic construals of the referent.

RGW's first construal of the referent, in line 1, is egocentric. DNOM3 indexes referents that are far from the speaker and provides no information about the referent's location relative to the addressee (Chapter 6). Her second construal, in line 2, is addressee-centered. This kind of context -- a situation where the addressee is handling the demonstrative referent, and the speaker and addressee do not share peripersonal space -- is a very prototypical one for the use of addressee-centered DNOM5. However, even this maximally addressee-centered context does not **require** the use of DNOM5, while equivalently speaker-centered contexts do require the use of DNOM1. In §5.3.3, I analyze this as evidence of a lexical ranking placing DNOM1 over DNOM5.

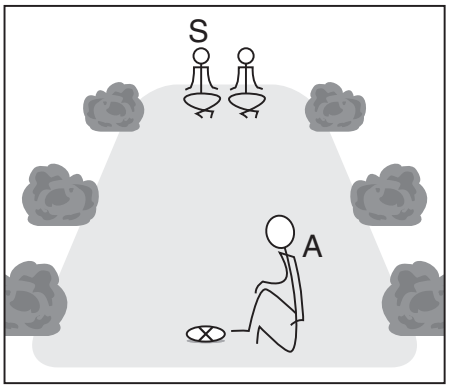
5.3.2.2 DLOC5 indexes the addressee's peripersonal space and points within it

DLOC5 *ŋe⁵ma²* is the locative demonstrative counterpart to DNOM5 *ŋe³ma²*. Like DNOM5, DLOC5 has both anaphoric and exophoric uses. Unlike DNOM5, which has two distinct exophoric uses (invisible and addressee-centered), exophoric DLOC5 has only one use. It is always addressee-centered, indexing the region defined by the addressee's peripersonal space, or a region or point within their peripersonal space.

The DLOC version of the Demonstrative Questionnaire provides relatively little data on DLOC5, as participants displayed moderate agreement on the form in only one scene, and never displayed high agreement. The single moderate agreement scene is scene 16, where speaker and addressee are standing at opposite ends of a large cleared space, facing each other (61). The referent location

is immediately in front of the addressee; the speaker directs the addressee to move from where they are to the referent location. Four out of five participants volunteered DLOC5 in this scene, displaying high agreement (note that participants also displayed high agreement on this scene in the DNOM version of the questionnaire). Other scenes of the DLOC version of the Demonstrative Questionnaire where the referent is within the addressee's peripersonal space most often elicited the egocentric distal locative demonstrative, DLOC3 *ɟe⁵a²*, rather than the addressee-centered DLOC5.

(61) Demonstrative Questionnaire Scene 16



ŋe²ʔma⁴ na¹tʃi⁴.

ŋe²ʔma⁴ na¹= tʃi⁴
DLOC5:LOC IMP.A= stand(A)

'Stand there (DLOC5).'
(ECP: 2017.2.11)

While the Demonstrative Questionnaire provides little data on DLOC5, data from the conversational corpus makes clear that DLOC5 is used only to index the addressee's peripersonal space and points within it.

As a first piece of evidence for the addressee-centered exophoric use of DLOC5, consider the example in (62), which includes addressee-centered uses of both DNOM5 and DLOC5. Figure 5.5 shows the participants in this example. TGC Jr. is the man in the red shirt seated at right; MJP, his wife, is the woman in the turquoise blouse in the right foreground; and TGC Sr., TGC Jr.'s father, is the man in blue seated at left. The three participants are in the back yard of their home in Cushillococha, where TGC Jr. and Sr. are engaged in a joint activity of processing arrow cane to make arrows.

Immediately prior to the excerpt in (62), MJP is telling a story. In the final turn before the excerpt, TGC Jr. takes the piece of cane which he is processing out of the fire and bends it against a piece of concrete to test if it is ready for use. In line 1 of the excerpt, TGC Sr. tells his son where to put the piece of cane that he is currently handling; then in line 2, MJP cautions him to take care with the cane. TGC Jr. does not comply with the request in line 1, but instead returns the cane to the fire.

Figure 5.5: Participants in (62) at onset of line 1

(62) 20180622 9:44

1. TGC Sr: *ŋe³ma²* *[e⁴ti¹ta²ã⁴ na³wɛ̰¹na⁴gi⁴, me³¹a²] i¹we⁵ʔĩ⁴e⁴ti¹*
ŋe³ma² +e⁴ti¹ =ta²ã⁴ na³= wɛ̰¹ -na⁴gi⁴
DNOM5(IV) +RN:above =SCALAR.FOC 3OBJ.IMP.A= put:1DInamO(A) -DIR:up
me³¹a² i¹= wɛ̰¹ =ʔĩ⁴ +e⁴ti¹
well 3.I.SC= be.1D(I) =SUB(IV) +RN:above
'Put it right on top of that/those (DNOM5), on top of the one that's good and straight.'
((TGC Sr. gazing at TGC Jr.; no gesture))
((TGC Jr. testing cane on concrete))

2. MJP: *[ŋe⁵ma²* *ni³¹ʔna¹ na¹dau²]*
ŋe⁵ma² ni³¹ =na¹ na¹= dau²
DLOC5:LOC 3 =RCP IMP.A= see(A)
'Be careful with it there (DLOC5).'
((MJP swings left arm toward left briefly on *ni³¹ʔna¹*; no other gesture))

The referent of TGC Sr.'s token of DNOM5 in line 1 is the pile of processed cane on the far side

of TGC Jr. from the camera (enclosed by the left white circle on the image). Since TGC Sr. has not mentioned the cane pile before, and it is presumably visible to him, this cannot be the anaphoric or invisible uses of DNOM5. Rather, the token in line 1 is a token of addressee-centered DNOM5 used to index a referent in the addressee's peripersonal space (even though the addressee is not handling the referent, but instead another piece of cane).

The referent of MJP's token of DLOC5 in line 2 is also a location within TGC Jr.'s peripersonal space -- the bit of concrete that he is bending the cane against to test it (at the back right of the frame; enclosed by the right white circle on the image). Minutes before this excerpt, TGC Jr. accidentally snapped another almost-ready piece of cane as he tested it; MJP therefore reminds him not to snap this piece of cane on the concrete as well. Importantly, her reference to the piece of concrete with DLOC5 is not coreferential with TGC Sr.'s reference to the cane pile with DNOM5. Both of these are addressee-centered, but they index two different referents within the addressee's peripersonal space.

As a second piece of evidence for the addressee-centered use of DLOC5, this time not coinciding with an addressee-centered use of DNOM5, look to (63). The analysis of DLOC1 as speaker-proximal, and DLOC5 as addressee-proximal, predicts that the use of DLOC1 and DLOC5 by interlocutors will display reciprocity of perspectives. Where A indexes a place with DLOC5 in speaking to B, B will index that place with DLOC1 in speaking to A -- just as A would refer to B with the 2SG pronoun, but B would refer to themselves with the 1SG pronoun.

(63) shows that this prediction is true. In this example, all of the four adults shown in the frame (except the young woman at left) are on a social visit from their town to relatives in Cushillococha. They are seated in the semi-enclosed kitchen of the relatives' house. A is the woman in the white shirt in the center of the frame, B is the woman squatting in the blue shirt at right, and C is the young man in red at the back of the frame. C is tying up a hammock, in which A and the young woman will eventually put their infants.

Figure 5.6: Participants in (63) at onset of line 1

(63) 20180628 16:55

1. A: *ŋe²ʔma⁴ ni⁴da³¹a¹gɨ²tʃi¹gɨ¹ ta⁴ ni⁴¹ʔĩ⁴*
ŋe²ʔma⁴ ni⁴= da³¹ -a¹gɨ² =tʃi¹gɨ¹ ta⁴ ni⁴¹ʔĩ⁴
DLOC5:LOC 3.I= lie.1D(I) -DIR:along =DISTRIB FUT FOC
'It (hammock tie) is going to go all the way along there (DLOC5).'
((A is holding hammock body in left hand; holding webbing and rope of free end in right hand; gazing at C; and chin pointing at rafter of opposite wall))

2. B: *ta⁴ dɨ¹ʔwa⁴ ku¹ʔã³mą¹gu²*
ta⁴ dɨ¹ʔwa⁴ ku¹= ã³ +mą¹ =gu²
FUT finally 2SG.A.SC= have.inal(A) +NI:wife =SUB
'When you get married one day...' (teasing C)
((B makes no gesture, gazing at own task))

3. C: *na³¹pa¹, ta⁴ma³a³rɨ¹ nu⁵a², ta⁴ma³ nɨ³¹ʔĩ³ tʃa¹ʍa⁵ʔĩ⁴ na⁴ na¹wɐ̰¹kɨ⁵ra¹ĩ³ʔ*
na⁴³ +pa¹ ta⁴ma³ =a³rɨ¹ nu⁵a² ta⁴ma³ nɨ³¹ =ʔĩ³ tʃa¹=
DEF.POSS +hammock NEG =INFO DLOC1:ALL NEG 3 =ACC 1SG.A.SC=
ʍa̰¹ =ʔĩ⁴ na⁴ na¹= wɐ̰¹ =kɨ⁵ra¹ĩ¹ =ʔĩ⁴
know(A) =SUB COMP 3.A.SC= put:1DInamO(A) =INFER =SUB
'The hammock, but here (DLOC1) I don't- I don't know where it gets put I guess.'
((C has both hands engaged in tying hammock; gazing at task))
((A gazing at C))

In line 1, A addresses C, telling him to tie up one end of the hammock (currently in his hand) along the rafter at one side of the house. Her token of DLOC5 indexes a section of the rafter, as shown by C's uptake of the turn in line 1: in lines 3 and after, he complies by tying the rope at the end of the hammock to the rafter, then wrapping the excess rope around a length of the rafter measuring approximately 25cm. The rafter is a place within C's reach -- in fact, he is touching it as A issues the turn in line 1 -- and has not been mentioned before in the conversation. This shows that the token of DLOC5 in line 1 is the addressee-centered use of the item.

The next reference to the rafter, however, is not with DLOC5 in either anaphoric or addressee-centered function, but with DLOC1. In line 3, C himself refers to the same spot on the rafter as A did in line 1. As C speaks, he is gazing at the referent, trying without success to tie the hammock cuff around it. Because the referent location is within his reach, he indexes it with DLOC1. This is exactly the same sequential ordering -- first an addressee-centered reference, then a speaker-centered one -- as we would have found between 2SG and 1SG pronouns if the speakers in this example had been talking about one another as individuals, rather than about locations in one another's peripersonal space.

5.3.2.3 Interim summary

DNOM5 *ŋe³ma²* and DLOC5 *ŋe⁵ma²* have much the same relation to the addressee as DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²* have to the speaker. DNOM/DLOC1 index referents within the speaker's peripersonal space; DNOM/DLOC5, referents within the addressee's peripersonal space. The only difference between the two sets of items in exophoric use is that DNOM/DLOC1 routinely indexes referents that enclose the speaker, while DNOM/DLOC5 is not attested in reference to spaces that enclose the addressee.

As with DNOM/DLOC1, the notion of peripersonal space is crucial to an accurate analysis of DNOM/DLOC5. It is not sufficient to say, on the model of traditional linguistic analyses, that DNOM/DLOC5 index referents that are 'near' the addressee. Rather, they specifically index referents that are **within the peripersonal space** of the addressee. That a referent is closer to the addressee than to the speaker, or is relatively near the addressee given the overall size of the participants' engagement area, is not sufficient for speakers to index that referent with DNOM/DLOC5. Scenes of the Demonstrative Questionnaire which have the referent relatively near but not in reach of the addressee, such as scene 23 (70), do not elicit high or moderate agreement

on DNOM/DLOC5; moreover, in contexts like this in the conversational corpus, speakers do not generally use DNOM/DLOC5.

Another key similarity between DNOM/DLOC1 and DNOM/DLOC5 is their equivalence to local pronouns. We saw in §5.3.1 that there is a syntactic equivalence between DLOC1 and the 1SG pronoun as complements of the verb meaning 'give.' While there is no narrowly syntactic equivalence of this kind between DNOM/DLOC5 and the 2SG pronoun, speakers can identify pragmatic equivalences. I asked three consultants how to tell an addressee to stay where he or she is, without moving. All three volunteered DLOC5 as the most natural way to convey this, using utterances such as (64).

(64) *ŋe²ʔma⁴ta²ma⁴* *rɨ³ʔɑ̃ũ̃¹.*

ŋe²ʔma⁴	=ta²ma⁴	rɨ³=	ɑ̃ũ̃¹
DLOC5:LOC	=SCALAR.FOC	IMP.R=	stay:SgS(R)

'Stay right there (DLOC5) (where you are).'
(LWG: 2017.4.6)

No other exophoric DLOC was consistently judged acceptable in an utterance with force like (64). When the referent location is important just for the fact that it is where you, the addressee, are now, DLOC5 is the only way to index it.

Despite these significant similarities between DNOM/DLOC1 and DNOM/DLOC5, there is an important difference between the items. As shown by the Demonstrative Questionnaire data as well as by attested uses, speakers have an extremely strong preference for indexing all entities within their own peripersonal space with DNOM/DLOC1. Using other demonstratives for referents inside of the speaker's own peripersonal space is unusual and happens only when the attentional or perceptual context very strongly favors another demonstrative (§5.3.3). By contrast, the preference for DNOM/DLOC5 over other demonstratives for referents within the addressee's peripersonal space is weaker. As we saw in (60), speakers can can also use other demonstratives, especially DNOMS/DLOCS 2 and 3, to index referents that are within the addressee's peripersonal space. In the next section, I interpret this as evidence for a lexical hierarchy operating among the nominal demonstratives.

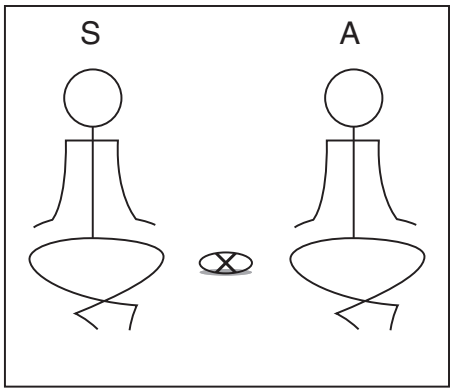
5.3.3 Hierarchy of speaker- vs. addressee-proximals

The analogy between proximal demonstratives and participant pronouns breaks down somewhat when we come to the issue of competition. Since it is not (normatively) possible for the same person to be both speaker and addressee, there is generally no pragmatic competition between 1SG and 2SG pronouns. On the other hand, it is possible for a referent to be in reach for both speaker and addressee. In such a context, speaker-proximal and addressee-proximal demonstratives compete as means of indexing the referent, since it fulfils the spatial requirements of both kinds of demonstrative.

The outcome of competition between speaker- and addressee-proximal demonstratives in Ticuna is controlled by a simple lexical ranking: The speaker-proximal demonstrative always wins. When participants are close enough together that their peripersonal space overlaps, referents in the shared part of the space can be indexed only with DNOM/DLOC1.

Scene 8 of the Demonstrative Questionnaire shows this restriction. In this scene, speaker and addressee are seated side-by-side, and the speaker indexes a referent equidistant between them. The referent is in reach for both speaker and addressee (65). 10 of 10 participants volunteered DNOM1 in this scene in the DNOM version of the Demonstrative Questionnaire, and five of five volunteered DLOC1 in the DLOC version. DNOM/DLOC5 was rejected by 60% of participants (6 of 10 in the DNOM version, three of five in the DLOC version).

(65) Demonstrative Questionnaire Scene 8



ku³¹rɨ³ pe⁴ʔtʃi¹ ni⁴¹ʔĩ⁴ i⁴ ✓*ɲa⁴a² / #ŋe³ma²*?

ku³¹rɨ³ pe⁴ʔtʃi¹ ni⁴¹= ĩ⁴ i⁴ ✓ɲa⁴a² / #ŋe³ma²
2SG.AL.POSS basket(IV) 3.I= COP(I) DET(IV) ✓DNOM1(IV) / #DNOM5(IV)

'Is this (✓DNOM1 / #DNOM5) your basket?'
(ECP: 2017.1.182)

The judgments against addressee-centered DNOM5 and DLOC5 in (65) indicate that, in pragmatically impoverished contexts like the Demonstrative Questionnaire, DNOM5 and DLOC5 are unacceptable for referents located inside both speaker and addressee's peripersonal space. I say 'in pragmatically impoverished contexts' here because -- in the conversational corpus and my notes on overheard speech -- there are a small number of contexts where the spatial configuration of speaker, referent, and addressee is similar to (65), but speakers use DNOM/DLOC5 rather than DNOM/DLOC1. All of these exceptional examples involve highly marked attentional contexts, such as announcing that the referent belongs to the addressee. I describe them in §5.4.3.

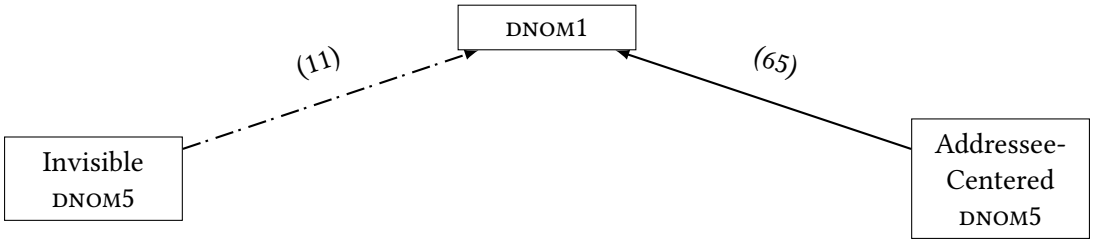
In attentionally neutral contexts, then, DNOM/DLOC1 and addressee-centered DNOM/DLOC5 are hierarchically related. DNOM/DLOC1 outranks addressee-centered DNOM/DLOC5. Per §5.4.3, this ranking is not absolute; DNOM/DLOC5 can be chosen over DNOM/DLOC1 in a context that strongly favors an addressee-centered construal of the referent. However, in pragmatically neutral con-

ditions, the ranking is strong enough to render DNOM/DLOC5 unacceptable to more than half of participants.

DNOM1 displays a similar, but not identical, hierarchical relationship with invisible DNOM5. Recall from the discussion of scene 1 in §4.4 that, in reference to an invisible entity within the speaker's peripersonal space -- such as their own teeth -- participants always volunteered DNOM1, but also always accepted invisible DNOM5. This suggests that DNOM1 outranks invisible DNOM5 as well as addressee-centered DNOM5. The preference for DNOM1 over invisible DNOM5, though, is weaker than the preference for DNOM1 over addressee-centered DNOM5 (consistent with my analysis of the uses as arising from two separate lexical items).

The diagram in Figure 5.7 visually represents this ranking of DNOM1 over both invisible and addressee-centered DNOM5. (In the interest of simplicity, I leave aside DLOCs in the diagram.) In the figure, an arrow connecting two demonstratives reflects a ranking of one demonstrative (the goal of the arrow) over the other (the source of the arrow). The use of a broken line in the arrow connecting two demonstratives represents that the ranking is violable, while the use of a solid line represents that the ranking cannot be violated except in pragmatically marked conditions. The number neighboring each arrow is the number of the example in this chapter (or Chapter 4) that provides the evidence for the ranking.

Figure 5.7: Lexical ranking of DNOM1 relative to invisible and addressee-centered DNOM5

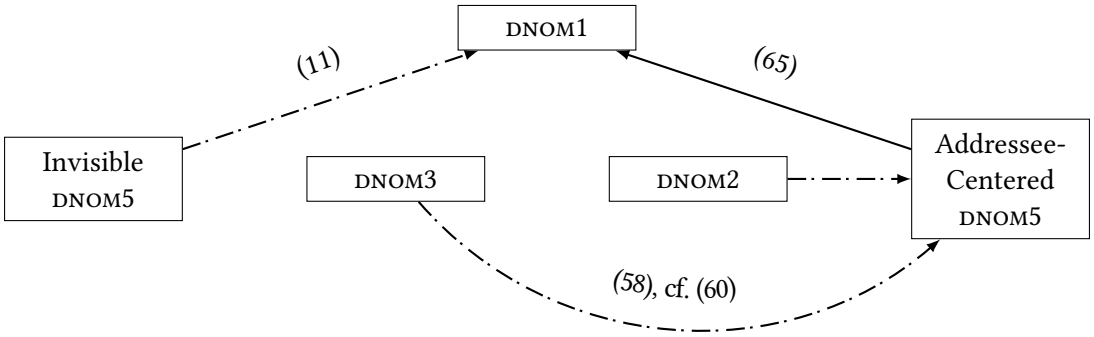


The hierarchy shown in Figure 5.7 easily expands to include the ranking of other demonstratives relative to DNOM/DLOC5. In the preceding section, I showed that DNOM/DLOC5 is never obligatory in reference to entities in the addressee's peripersonal space. DNOM/DLOC2 and DNOM/DLOC3 can also be used to index referents in the addressee's peripersonal space, provided that those demonstratives' other deictic requrements are met. On the other hand, while DNOM/DLOC5 is never obligatory in reference to the addressee's peripersonal space, it is strongly preferred over other demonstratives (in terms of volunteered data in the Demonstrative Questionnaire, judgment data, and frequency in the conversational corpus). Thus, in contexts of competition -- where the referent meets the deictic requirements of both DNOM/DLOC5 and DNOM/DLOCs 2 or 3 -- it is DNOM/DLOC5 that typically wins. To model this pattern, we can simply add DNOMs 2 and 3 to the hierarchy from Figure 5.7, violably ranked below DNOM5.

Adding DNOMs 2 and 3 yields the lexical hierarchy of nominal demonstratives shown in Figure 5.8. The ranking of demonstratives in this figure is not intended to be exhaustive. Since I have not

yet discussed the spatial deictic content of DNOMs 2 and 3 in their own right, I reserve discussion (and representation) of the relationship between those items and DNOM/DLOC1 for Chapter 6.

Figure 5.8: Lexical ranking of DNOMs 1, 2, 3, and 5



Hierarchies of demonstratives similar to those shown in Figures 5.7 and 5.8 may exist in other languages that have addressee-centered demonstratives. But since the details of feature hierarchies in other linguistic domains, like syntax and morphology, are not universal, I do not predict that every language with addressee-centered demonstratives will display the same hierarchical relationships shown here. For example, other languages with addressee-centered demonstratives could rank the addressee-proximal term above the speaker-centered distal term, requiring addressee-centered demonstratives to be used for any referent inside the addressee's peripersonal space.

Though the representations of the demonstrative hierarchy shown in Figure 5.7 and 5.8 have the advantage of capturing this system's similarity to other kinds of feature hierarchy, they also have a significant disadvantage. Both Figure 5.7 and 5.8 obscure that DNOMs/DLOCs 1, 2, and 3 define a natural class which excludes DNOM/DLOC5. For all of DNOMs/DLOCs 1, 2, and 3, the speaker either is the deictic origo (for DNOM/DLOC1 and DNOM/DLOC3) or is one of the participants who together define the deictic origo (DNOM/DLOC2). For DNOM/DLOC5, the speaker is not part of the deictic origo; only the addressee is. As such, another way of capturing the hierarchy in Figure 5.8 is to say that **speaker-centered deixis is always possible** as an alternative to addressee-centered deixis.

5.4 Extended uses: Joint attention, motion, and ownership

The Demonstrative Questionnaire is designed mainly to probe the space- and visibility-related meanings of demonstratives. It does not provide a principled way to test whether demonstratives also have attention-related meanings. To probe for whether the speaker- and addressee-proximal demonstratives convey information about attention, I therefore turn to data from informal conversations.

As I have noted above, data from informal conversation largely conforms to the patterns that would be expected based on the Demonstrative Questionnaire. Speakers in the corpus of maximally informal conversation normally use DNOM/DLOC1 to index all and only those referents that are in or that enclose their own peripersonal space. They use DNOM/DLOC5 to index some, but not all, referents that are in the peripersonal space of their addressees.

There are, however, exceptions to these patterns. Speakers do sometimes use DNOM/DLOC1 to index referents that are objectively outside their peripersonal space, and they also sometimes use DNOM/DLOC5 to index referents that are outside the addressee's peripersonal space. Together, these uses could be taken to suggest that the speaker- and addressee-proximals have an attentional component as well as a spatial one.

Extended uses of the proximals -- uses where the items index referents that are not in peripersonal space for the origo participant -- fall into three categories.

First, speakers can use DNOM/DLOC1 to call new joint attention to a referent, even when it is not within their peripersonal space. DLOC1 is more often attested in this function than DNOM1, but both appear.

Second, speakers can use DNOM1 (and to a lesser extent, DNOM5) to index referents which the origo participant is moving toward, even if they are not yet inside that participant's peripersonal space at the moment of speech. Thus, I, the speaker, can use DNOM1 to index referents that I am moving toward even when I have not yet reached them. Equally, I can use DNOM5 to index referents that you, the addressee, are moving toward, even when you have not yet reached them.

Third, speakers often use DNOM5 to index referents that belong to the addressee, even if they are not within the addressee's peripersonal space. Many of these uses also involve establishing new joint attention on the referent, or the speaker moving the referent toward the addressee, suggesting that this use may be as much about motion and attention as ownership. When the speaker is giving the referent to the addressee to own or control, the preference for using DNOM5 is strong enough that it is acceptable even for referents that are within the speaker's peripersonal space, overriding the DNOM1 > DNOM5 hierarchy discussed in §5.3.3.

Below, I discuss joint attention-calling uses of the proximals in §5.4.1, motion goal uses in §5.4.2, and ownership-related uses in §5.4.3.

5.4.1 DNOM/DLOC1 establishes joint attention on new referents

As we saw in §5.3.1, DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²* have a spatial core. In pragmatically impoverished conditions, they are always and only used to index referents that are located within or enclose the speaker's peripersonal space. In data from maximally informal conversation, however, speakers occasionally use DNOM/DLOC1 to index referents that are outside their peripersonal space. Exceptional uses of DNOM/DLOC1 to index referents beyond peripersonal space almost always involve the speaker calling the addressee's attention to a referent that the addressee has not attended to before -- that is, establishing new joint attention. They also almost always coincide with large, multi-articulator deictic gestures. This pattern suggests that speakers may be using DNOM/DLOC1 primarily to draw the addressee's attention to their deictic gestures, and only secondarily -- via the gesture -- to the demonstrative referent.

(66) and (67) present two examples where the same speaker uses DNOM/DLOC1, in concert with a multi-articulator deictic gesture, to establish new joint attention on a referent located beyond her peripersonal space. These examples come from the same recording as (63), but appear respectively 29 seconds and 16 seconds before that example. Figures 5.9 and 5.10 show the participants in these examples. They are A, the woman in the white shirt seated at center with the baby; C, the man in the red shirt who we saw hanging the hammock in (63), and who is mostly off camera in these sequences; and two other off-camera adults, D and E. Participants A, C, and D are on a social visit to the house where E and her mother live.

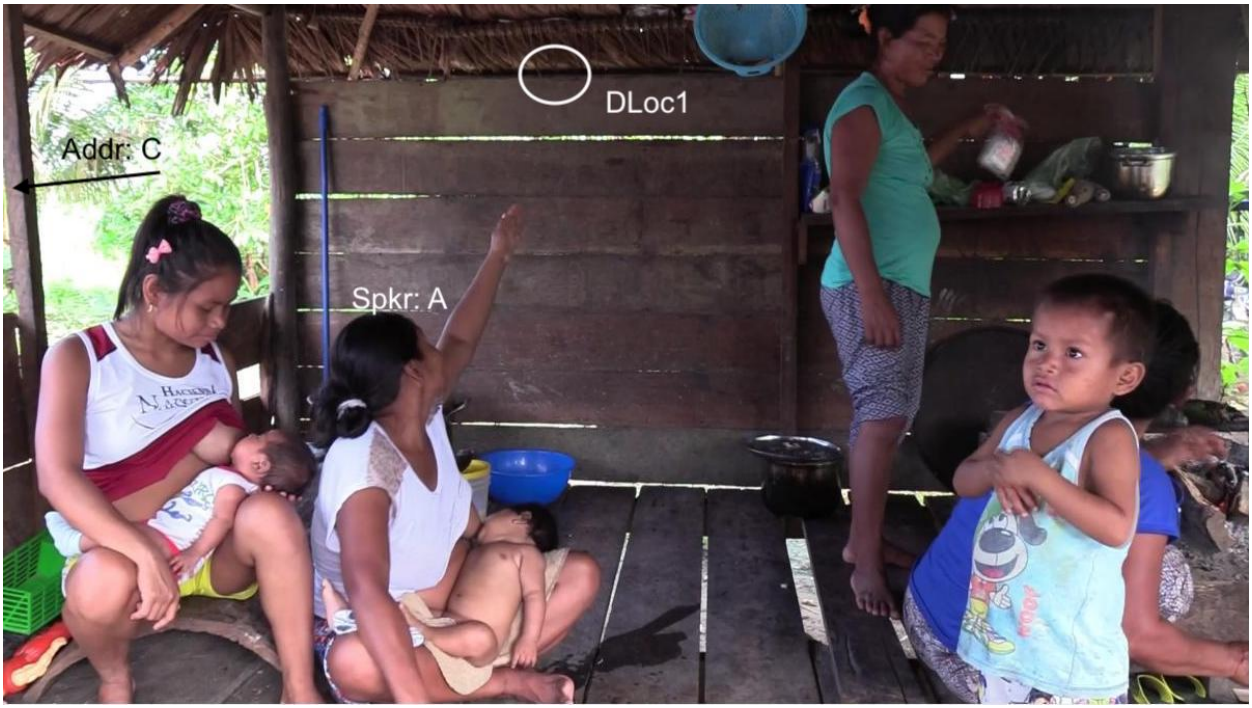
Prior to the first excerpt, (66), the participants have been listening to an off-camera participant telling a story. Then the young woman at the far left suggests they hang a hammock for the two infants. On the audio track, we hear C audibly walk up the ladder into the house with the hammock (and we briefly see him with it); he then stands next to the video camera, out of the frame. Then the excerpt in (66) begins.

In line 1 of (66), A points toward the opposite wall of the house and tells C to 'look.' She uses the presentative interjection *di̱¹ʔka⁴* (which I have glossed as 'hey') and the lexical verb *dau²* 'look, see,' but no other deictic words. She does, however, make a multi-articulator deictic gesture: she gazes, raises her chin, and points with her left hand toward the opposite wall of the house. In line 2, overlapping with A's turn in line 1, off-camera speaker D also tries to get C's attention; his turn consists only of the presentative interjection (again glossed as 'hey') and a temporal marker. Next, in line 3, C issues a turn that is formatted as a content question (and can be seen as an other-initiation of repair on line 1). In line 4, E follows C's question with another turn that is formally a content question. E's question includes a candidate answer, and perhaps because of this, it never gets an answer from another participant.

C's question in line 3, on the other hand, is answered by A's turn in line 6. Over the four turns from line 1 to line 4, A has been continuously pointing toward the same target, and continuously gazing at C. But C, as his content question in line 3 indicates, has not taken up A's body movements as information about how the hammock should be tied. As a consequence, in line 6 A produces the sequence's first verbal deictic reference to the locations where C should tie the hammock. These referent locations are two points on the opposite wall of the house, specifically on the lowest rafter of the roof.

As Figure 5.9 shows, the referent locations to which A directs C's attention are at least two meters away from where A is seated -- well beyond the space which A can reach from her seat on the floor. Nevertheless, in her turn in line 6, A indexes both of the referent locations with DLOC1 *nu⁵a²*.

Figure 5.9: Participants in (66) in line 6, at onset of second token of DLOC1



(66) 20180628 16:26

1. A: *dɨ¹ʔka⁴, nɨ³¹ʔĩ̃³ [na¹dau²*
   dɨ¹ʔka⁴ nɨ³¹ =ʔĩ̃³ na¹= dau²
   PRES 3 =ACC IMP.A= see(A)
   'Hey look'
   ((A chin pointing, left hand pointing with American Sign Language (ASL) letter B handshape, and gazing at opposite wall of house))

2. (D:) *[ma³rɨ³] ka⁴*
   ma³rɨ³ dɨ¹ʔka⁴
   PERF PRES
   'Hey already'
   ((D off camera))
   ((A turns head back toward direction of C))

3. (C:) *ɲu¹ʔgu² ta⁴a³rɨ¹ a⁴ ɲa⁴a²?*
   ɲu¹ʔgu² ta⁴ =a³rɨ¹ a⁴ ɲa⁴a²
   how? FUT =INFO DET(IV) DNOM1(IV)
   'How should this be (i.e. how should it be tied up)?'
   ((C off camera))

4. (E:) *ʎe¹ʔta² ta⁴a³rɨ¹ a¹tʃɨ̰¹ʔte²e²ʔɨ̃⁴, i⁴ ɲa⁴a²?*
ʎe¹ʔta² ta⁴ =a³rɨ¹ a¹= tʃɨ̰¹ʔte²e³ =ʔɨ̃⁴ i⁴ ɲa⁴a²
where?:LOC FUT =INFO 3.I.SC= swing.in.hammock(I) =SUB DET(IV) DNOM1(IV)
'Where is he (A's baby) going to lie? In this (hammock)?'
((E off camera))

5. ((A still pointing with left hand in B handshape at opposite wall through lines b-d))

6. A: *nu⁵a²* *rɨ¹*, *nu⁵*
nu⁵a² rɨ¹ nu⁵a²
DLOC1:ALL and DLOC1:ALL
'(Tie it) here (DLOC1), and here (DLOC1).'
((A still gazing at C on onset, then turns head back toward opposite wall, extends elbow and makes B-hand point again))
((A's posture at onset of second token of DLOC1 shown in Figure 5.9))

The sequential context of A's tokens of DLOC1 in line 6 of (66) makes clear that these tokens act to establish new joint attention on the referents. Prior to line 6, A and other participants have been engaged in a sequence of three failed bids for C's attention. The first is A's presentative and 'look' imperative in line 1; the second, D's overlapping presentative in line 2. The third, which begins in line 1 and continues through line 6, is A's deictic gesture toward the opposite wall of the house. All of these are attemps to direct C's attention to the opposite wall -- directly in the case of A's deictic gesture, indirectly (via drawing attention to A and her gesture) in the case of the presentative turns in lines 1 and 2.

But C either does not perceive the joint attention bids from A and D, or does not understand them. Rather than follow A and D's instructions (implicit in their speech and explicit in A's deictic gesture) to cross the room and tie the hammock on the other wall, he issues the content question in line 3. A then draws his attention to the points on the opposite wall again, but this time she uses explicit deictic content in her speech as well as her gesture. By this point, A's deictic words in line 6 are the fourth attempt in the sequence to direct C's attention to the opposite wall. Thus the use of DLOC1 here is clearly one that calls joint attention to a new referent, rather than one that presupposes joint attention on a referent already known to the addressee.

However, even A's composite utterance in line 6 does not successfully direct C's attention to the opposite wall. Instead, C's uptake in the moments immediately following line 6 is to begin tying up one end of the hammock in the corner of the house located toward and to the left of the camera. It takes him 13 seconds to tie the hammock at that side. In this time, A and two off-camera speakers continue pointing to the opposite side of the house and telling him to tie the other end there. They refer to the relevant side of the house seven times as they try to draw C's attention to it. Each one of their references is with DLOC1, even though the referent location is

not within peripersonal space for any of the speakers.

The eighth verbal deictic reference to the opposite side of the house with DLOC1 (or, including the references in in 66, the tenth overall) occurs in line 1 of (67). In this turn, A appears to become frustrated with C. Still pointing at the opposite side of the house from where C is standing, she directs him to 'tie it up toward here (DLOC1).' C then issues line 3, which is only his second turn in the entire hammock-hanging sequence. In this turn -- again morphosyntactically a content question, and pragmatically an other-initiation of repair -- C asks A to clarify the location reference which she produced in line 1. In line 4, A responds to the content question/repair initiation by turning her head from her pointing target to C, then producing the single word *ɲa⁴a²=gu²* (DNOM1=LOC) 'on this!.'

Figure 5.10: Participants in (67) at onset of line 4

(67) 20180628 16:39

1. A: *nu²ã⁴ma⁴ tʃi⁴ ku³na³ʎa¹, ɲu¹ʔã¹kɨ²ma³re³*
nu²a² =ã⁴ma⁴ tʃi⁴ ku³= na³= ʎa¹ ɲu¹ʔã¹kɨ² =ma³re³
DLOC1:LOC =Ã⁴MA⁴ CNTF 2SG.A= 3OBJ.A= tie(A) how? =just
'You should try and tie it up this way (DLOC1) (lit. toward here), however you can.'
((A gazing up toward C and index finger pointing with right hand behind her, toward opposite wall of house))

2. ((A turns head toward opposite wall of house and makes continuous index finger point with right hand at it for 2s))

3. (C:) *ʌe¹ʔĩ⁴wa⁵ã⁴ma⁴?*
ʌe¹ʔĩ⁴ =wa⁵ =ã⁴ma⁴
where?(IV) =ALL =Ã⁴MA⁴
'Which way?'

4. A: *ɲa⁴a²gu²↘*
ɲa⁴a² =gu²
DNOM1(IV) =LOC
'On this (DNOM1)!'
((A turns head to gaze at C again, then back toward pointing target of right hand))
((A's posture at onset of line shown in Figure 5.10))

A's token of DNOM1 in line 4 of (67) is, just like her tokens of DLOC1 in line 6 of (66), embedded in a sequence of failed bids to direct C's attention to the opposite wall of the house. Given C's content question in the immediately preceding line -- an obvious index that the previous bids for his attention have failed -- the token of DNOM1 in line 4, like the tokens of DLOC1 in the preceding example, can only be read as an attempt to establish joint attention on a new referent. It cannot presuppose joint attention with the addressee, who has failed to start attending to the referent despite 10 preceding linguistic references to it (and over 20 seconds of continuous pointing at the referent by A). The only difference between the DNOM1 token here and the DLOC1 tokens preceding it in (66) and between the two excerpts is syntactic category. The failed bids for C's attention before (67) use DLOCs, and the one in this line uses a DNOM.

Despite the need for two repair sequences, A and the others ultimately do succeed in directing C's attention to the demonstrative referent. Nine seconds after the end of A's turn in line 6 of (67), C begins crossing the room to tie the other end of the hammock at the referent location. After he crosses the room and begins tying the hammock at the locations that A and others have been calling his attention to, they cease to index those locations with DLOC1. Instead, on the single occasion that A refers to the location after this, she uses DLOC5 (in line 1 of 63), picking up on the location of the referent (once C has crossed the room) within C's peripersonal space.

Use of a proximal demonstrative to call new joint attention to a referent that is not within the origo's peripersonal space, as in (66) and (67), appears to be specific to the speaker-proximal, DNOM/DLOC1. It is not general to both of the proximal demonstrative series. To be sure, the conversational corpus does contain examples where DNOM/DLOC5 is used to draw an addressee's attention to a referent that is outside of their peripersonal space. However, such spatially exceptional uses of DNOM/DLOC5 are much less straightforwardly about establishing joint attention than the equivalent exceptional uses of DNOM/DLOC1. As well as calling new joint attention to the referent, the spatially exceptional uses of DNOM/DLOC5 all involve referents that belong to the

addressee, or that the speaker is transferring to the addressee at the moment of speech. Therefore, I consider them motivated by the addressee's ownership of the referent, and discuss them separately in §5.4.3.

5.4.2 DNOM1 and DNOM5 index the origo's motion goal

Ticuna speakers conventionally use DNOM1 to refer to their own motion goals, even when the motion goal is well beyond their peripersonal space. They also use DNOM5, the addressee-centered demonstrative, to refer to the addressee's motion goal -- even, likewise, when it is far beyond the addressee's peripersonal space. Especially for DNOM1, it is difficult to find clear evidence for these generalizations in the conversational corpus, since (a) once speakers begin moving toward a referent that is not in their peripersonal space, they are likely to walk out of the camera shot (leaving the analyst unable to tell whether the referent is in their peripersonal space at the moment of speech), and (b) in the conversational data, motion toward a referent often coincides with establishing new joint attention on the referent.[2]

Therefore, after observing many spatially unusual uses of DNOM1 and DLOC5 for motion goals, I created a modified version of the Demonstrative Questionnaire to test for the conventionality of motion goal uses of those demonstratives. The motion goal version of the questionnaire excluded scenes 1-5 (where the referents are body parts or body contacts of the speaker and addressee). For the remaining scenes, it tested up to three conditions per scene: speaker in motion toward demonstrative referent, addressee in motion toward demonstrative referent, and both speaker and addressee in motion toward referent. In scenes where the referent was within small-scale space, the motion was realized by me (the addressee) or the participant extending a hand to to grab the referent; in larger-scale scenes, it was realized by me or the participant taking one or two steps toward the referent. Frame sentences for the motion goal version of the questionnaire were designed to allow the participant to use only a DNOM and not a DLOC. Therefore, the data does not allow conclusions about motion goal uses of DLOCs.

I carried out parts of the motion goal version of the Demonstrative Questionnaire with four speakers, two men and two women. Due to the length of the motion goal questionnaire (60 scenes), none of the participants completed the entire task, and some combinations of scene and condition were never tested. Even in the complete data, there are still several scenes such that all participants completed the scene in a given motion condition, but the data for that condition is not informative because of ceiling effects (for instance, because all participants volunteered the same demonstrative in both motion and motionless conditions) or the effects of perceptual deictic content (even in contexts involving motion, DNOM5 is still strongly preferred over all other DNOMs for referents that are not visible to the speaker).

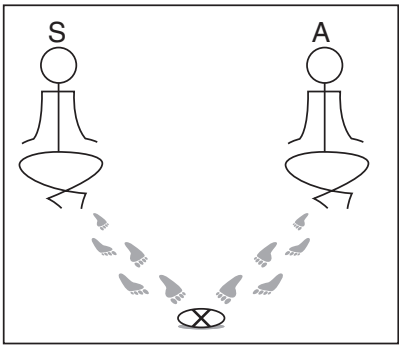
[2] In a diachronic analysis, this could be taken as evidence that the motion goal use and joint attention-associated use of proximals are historically linked.

5.4.2.1 DNOM1 indexes the speaker's motion goal

Leaving aside uninformative scenes and scenes with data from less than three participants, there were three scenes of the motion goal version of the Demonstrative Questionnaire which provided evidence that motion by the speaker influences the use of DNOM1. These were scene 12, scene 14, and scene 17.

Scene 12 provides the clearest example of the effects of motion on DNOM1. This scene has the speaker and addressee seated side by side, with the referent about five paces away; it is equidistant from the participants and visible to both (82). In the original version of the Demonstrative Questionnaire, scene 12 very reliably elicited DNOM3 (volunteered by nine of 10 participants) and not DNOM1 (volunteered by only one of 10 participants). In the motion goal task, however, participants volunteered DNOM1 in four of six trials for conditions with the speaker in motion toward the referent.

(68) Demonstrative Questionnaire Scene 12



Similar patterns as in scene 12 hold for scenes 14 and 17, where the speaker and addressee are in a large cleared space, and the referent is placed in the middle of that space. In scene 14, where the speaker and addressee are at the same end of the cleared space, only three of 10 participants volunteered DNOM1 in the unmodified task, but three of four volunteered it in conditions with the speaker in motion toward the referent. The results were almost identical for scene 17, where the speaker and addressee are at opposite ends of the cleared space. Only three of 10 participants volunteered DNOM1 in this scene in the unmodified task, while three of three volunteered it for conditions with the speaker in motion toward the referent.

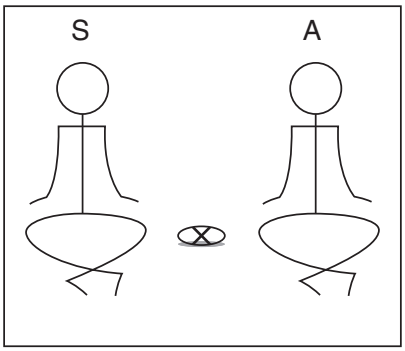
5.4.2.2 DNOM5 indexes the addressee's motion goal

Moving to the addressee-proximal demonstrative, there were two scenes of the motion goal task which provided evidence that motion by the addressee influences the use of DNOM5. These were scenes 8 and 23.

In scene 8, also discussed in §5.3.3 above, the speaker and addressee are seated side by side. The referent is between them, equidistant from and visible to both (69). In the no-motion condition, DNOM5 was never volunteered in this scene and was rejected by six of 10 participants.

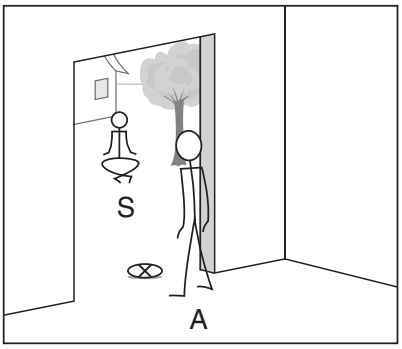
However, in the addressee motion condition (i.e. with the addressee reaching for the referent at the moment of speech), DNOM5 was volunteered by three of four participants.

(69) Demonstrative Questionnaire Scene 8



In scene 23, the addressee is standing in the doorway of a walled space, while the speaker is several meters outside. The referent is immediately outside the doorway, near the addressee but not inside the perimeter with her (70). In the no-motion condition, DNOM5 was volunteered in this scene by three of 10 participants, judged acceptable by four, and rejected by two (one participant did not provide a judgment). In the addressee motion condition, on the other hand, DNOM5 was volunteered by three of three participants, including one (ABS) who rejected it in the no-motion condition.

(70) Demonstrative Questionnaire Scene 23

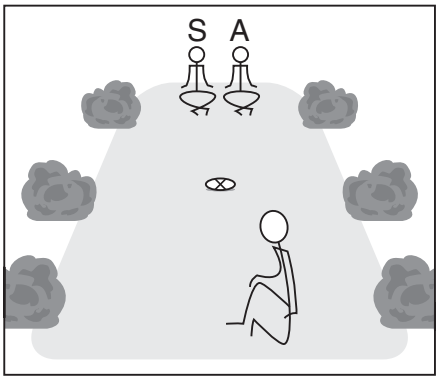


Further evidence for the effect of addressee motion on the use of DNOM5 comes from outside the motion goal task proper. In the unmodified (i.e. motionless) version of the Demonstrative Questionnaire, there were seven trials where the speaker first volunteered a demonstrative other than DNOM5, then -- as I began walking toward the referent to set up for the next scene -- volunteered DNOM5 in reference to the same object. This occurred with four different participants (SSG, ABS, ECG, and YCG) in a total of six unique scenes.

(71) shows an example of this pattern. The scene is scene 14, where the speaker and addressee together are at one end of a large cleared space, and the referent is in the middle. One participant, ECG, initially volunteered DNOM1 in the scene and rejected all other exophoric DNOMs (line a), including DNOM5. Then, as I began walking toward the referent, ECG **volunteered** a reference

with DNOM5 (line b), one of the elements that she had rejected a moment before.

(71) Demonstrative Questionnaire Scene 14



a. No motion:
✓da²a² / #ɟi²a⁴ / #gu²a⁴ / #ɟi²ma⁴ o³ɟa¹ rɨ¹ ku³¹rɨ³ ni⁴¹ʔĩ⁴?

✓da²a² / #ɟi²a⁴ / #gu²a⁴ / #ɟi²ma⁴ o³ɟa¹ rɨ¹ ku³¹rɨ³
✓DNOM1(II) / #DNOM2(II) / #DNOM3(II) / #DNOM5(II) metal.pot(II) TOP 2SG.AL.POSS
ni⁴¹= ĩ⁴
3.I= COP(I)
'This (✓DNOM1) / #that (DNOM2/3/5) pot, is it yours?'

b. As I (addressee) walk toward referent:
✓ɟi²ma⁴ o³ɟa¹ rɨ¹ ku³¹rɨ³ ni⁴¹ʔĩ⁴

✓ɟi²ma⁴ o³ɟa¹ rɨ¹ ku³¹rɨ³ ni⁴¹= ĩ⁴
✓DNOM5(II) metal.pot(II) TOP 2SG.AL.POSS 3.I= COP(I)
'That (✓DNOM5) pot, is it yours?'

(ECG: 2017.2.45)

The video of (71) shows that I had taken several steps toward the referent at the time of ECG's volunteered DNOM5 reference, making me substantially closer to it than she was, though it was still not close enough for me to reach. In the cases of this phenomenon with SSG and ABS, on the other hand, I took only one or two steps toward the referent before the speaker volunteered DNOM5. This suggests that the use of DNOM5 found in these trials of the unmodified Demonstrative Questionnaire reflects specifically that the referent is the addressee's motion goal (rather than reflecting, for instance, that the referent is closer to the addressee than to the speaker).

Hanks (1990:431) describes the 'immediate' (speaker-centered) locative demonstrative of Yucatec Maya as also indexing the speaker's motion goal. However, I am not aware of any other studies that describe motion by the origo (as opposed to the referent) as influencing demonstrative use. Because of this scarcity of literature, it is not clear to me whether the motion goal uses of DNOM1 and DNOM5 involve deictic transposition -- treating the origo as if they had already arrived

at the motion goal, and had the referent inside their peripersonal space -- or are sui generis. Deictic transposition and its cousin deferred reference appear to be very general properties of deixis across languages and modalities (cf. §3.2.4), made possible by the same perspective-shifting capacity as speech and attitude reporting. As such, if the motion goal uses of DNOM1 and DNOM5 documented here are cases of deictic transposition, then it is predicted that similar motion-related uses will exist in all languages with speaker- and addressee-proximal demonstratives. On the other hand, if the motion goal use does not arise from deictic transposition, then there is no prediction that it will be available to the speaker- or addressee-proximal demonstratives of any given language.

5.4.3 DNOM5 indexes objects owned by the origo

The conversational corpus and my notes on overheard speech contain a small number of examples where exophoric DNOM5 is used to index a referent that is visible to the speaker and is not located inside the addressee's peripersonal space. All of these tokens involve a referent that is being transferred to the addressee, or that the addressee has under their temporary control. I therefore posit that these tokens reflect a spatially neutral use of DNOM5 to index referents that are owned by the addressee. This ownership use of DNOM5, much like the motion goal use, can be analyzed as arising from deictic transposition. The origo is tranposed from the addressee's actual location at the moment of speech (with the referent outside their peripersonal space) to their anticipated location at the end of the transfer event (with the referent inside their peripersonal space).

At the same time, all of the spatially atypical uses of DNOM5 also involve the speaker establishing new joint attention on the referent with the addressee. It is possible that more data would reveal that this use requires a specific attentional context -- establishing new joint attention -- as well as a specific control relationship between the addressee and the referent. Association with joint attention would call for a different analysis (in terms of joint attention), rather than an analysis exclusively in terms of ownership.

The clearest example of the ownership use of DNOM5 in my corpus appears in (72). Figure 5.11 shows the participants in this example. The example is drawn from the same recording session as (63) and the other hammock-hanging examples, but from 40 minutes later; most of the participants from those examples have left. In the excerpt, A is the woman in the white blouse at the center back of the figure, and B is the woman in the blue blouse at the right foreground (B also contributed a turn in 63; there she is also labeled as B). A lives in the house and is one of the main users of the cooking fire seen at top right; B is a relative visiting from another town.

Understanding the example in (72) requires some background information about the participants and their activity. In the moments leading up to this excerpt, A, B, and A's coresident adult daughter (off camera) have been discussing whether the fish on the fire are done cooking. B announces that they are. Then, immediately before the first turn shown in (72), A picks up a leaf-wrapped packet of fish from the fire, unwraps it, and deposits it on one of the plates in front of her. This is the first step toward A serving the meal that she and B have prepared for the large assembled group of relatives. Etiquette requires that the oldest people in this group be served first. The oldest person present is a man, who I will call C. C is seated on the floor immediately

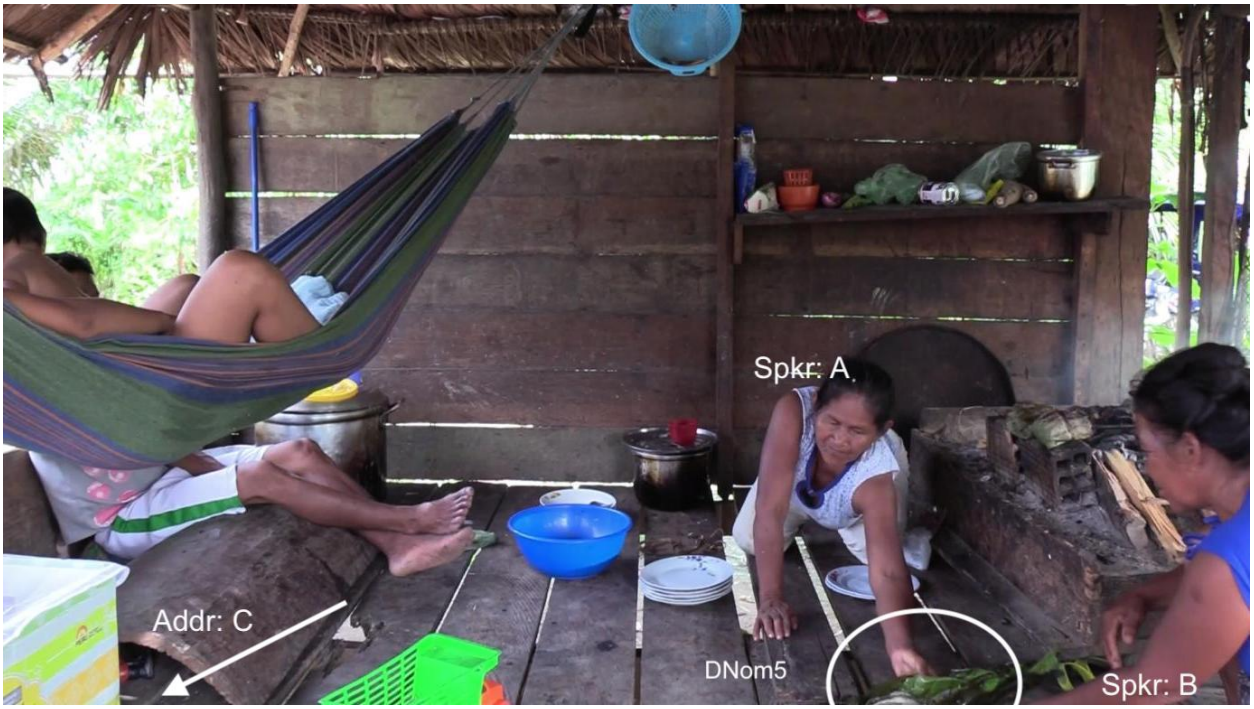
to left of the video camera (i.e. off camera, but closest to the extreme left foreground corner of the frame); we have seen him sit down there on camera, and shortly after the excerpt see him get up from the same location.

After A unwraps the fish, she issues the turn and handles the plate with the fish as shown in line 1 of (72). A's turn is not obviously recipient-designed for C, as she does not address him or gaze at him during the turn (or immediately before or after). After C fails to make any move toward the fish, A follows her speech and action in line 1 with the behavior in line 2. There, A leans forward and stretches out her torso and arms with the plate, bringing it into B's reach. As she does this, A says that she is leaving the plate 'right here (DLOC1)' (a joint attention-calling use of the item) and marks her utterance with a particle otherwise used mainly to form tag questions, which I have glossed as 'okay?.' With her statement of the obvious and her use of this particle, A appears to be pursuing uptake from some addressee, but it is not clear whether that addressee is B or C.

B, however, is clear that the recipient of the fish should be C, not her. In line 3, B issues a very general affiliative response to A's turn, but she does not take the fish for herself. Instead, as shown in line 4, she moves the plate and fish further forward (toward the near wall of the house). This move keeps the fish inside her peripersonal space, but takes it out of the camera frame. In the interest of clearly showing the location of the referent, I have taken the image of the participants and referent shown in Figure 5.11 from the end of line 3; however, at the point of the DNOM5 references in lines 5 and 6, it is perhaps 20cm forward of this location (but still inside B's reaching space, since she is able to transfer the fish to its new location without moving relative to the ground).

The two tokens of ownership-oriented DNOM5 appear in lines 5 and 6 of (72). After B moves the plate forward, she gazes toward the left foreground of the frame -- where C is seated -- and issues, in line 5, a turn that consists of a presentative with DNOM5 plus a vocative kinship term. The referent of the presentative in line 5 is in B's own peripersonal space, but it is not at all in the peripersonal space of her addressee C, who is seated on the opposite side of the house from her. Then in line 6, A issues her own presentative, again with DNOM5. She too is gazing toward C's location in the left foreground area of the frame. The noun class of her presentative shows that she is indexing the fish near B (which is noun class I) and not the bowl of toasted manioc in her own hand at the moment of speech (noun class IV); as a consequence, the transcription consultant, ABS, judged that the token in line 6 could only be coreferential with the token in line 5. This does not mean that the token in line 6 represents the anaphoric use of DNOM5, since as we saw in Chapter 4, the anaphoric use is not acceptable in presentatives.

Figure 5.11: Participants in (72) at end of turn in line 3



(72) 20180628 60:42

1. A: *tɨ³¹ʔĩ̃³ ta⁴ ku³ŋo̰¹*
   tɨ³¹ =ʔĩ̃³ ta⁴ ku³= ŋo̰¹
   3(I) =ACC FUT 2SG.A= eat(A)
   'You can eat it'
   ((A picking up plate with fish in both hands and extending arms toward B))
   ((A gazing at plate))
   ((B gazing at fire))

2. A: *nu²a²ta²ã⁴ tɨ³¹ʔĩ̃³ tʃa¹ʔɨ³¹ʔ, [kɨ²a⁴na⁴*
   nu²a² =ta²ã⁴ tɨ³¹ =ʔĩ̃³ tʃa¹= ɨ³¹ =ʔĩ̃⁴ kɨ²a⁴na⁴
   DLOC1:LOC =SCALAR.FOC 3(I) =ACC 1SG.A.SC= put:InamSgO(A) =SUB INTJ:tag
   'I'm putting it right here, [okay?'
   ((A leaning forward, stretching torso and arms further to pass plate to B))
   ((A gazing at plate))
   ((B gazing at A))

3. B: *[ŋɨ³¹]*
ŋɨ³¹
logical.yes
'[Yeah]'
((A sets plate down in front of B))

4. ((B takes plate in right hand and slides it further forward, out of frame))

5. B: *ɟi³¹ʔe²ma⁴ː pa² ǫ¹ʔ*
ɟi³¹ʔe²ma⁴ pa² ǫ¹ʔ
DNOM5(I) VOC grandfather:VOC
'There it is (DNOM5), grandpa'
((B raises head and gazes toward left foreground of frame i.e. toward C))
((A picks up another plate from stack of plates, places it in front of stack))
((A gazing at task))

6. A: *ɟi³¹ʔe²ma⁴ dɨ¹ʔ*
ɟi³¹ʔe²ma⁴ dɨ¹ʔ
DNOM5(I) PRES
'There it is (DNOM5)'
((A picks up bowl of toasted manioc in right hand and moves it forward))
((A gazing toward left foreground of frame i.e. toward C))

The referent of the presentatives in lines 5 and 6 is not within the peripersonal space of the addressee, C. In line 5, it is within peripersonal space only for the speaker, B; in line 6, it is not within peripersonal space for either the speaker or the addressee. The spatial configurations of speaker, addressee, and referent in these turns would therefore more often lead to the use of DNOM1 in line 5, where the referent is within the speaker's peripersonal space, and to that of DNOM3 in line 6, where it is outside of peripersonal space for both speaker and addressee. But here, the speakers are conveying to the addressee that the referent belongs to him -- more specifically, that it is his to eat. This property of the turns in lines 5 and 6 is what motivates the use of DNOM5 in this example.

Ownership becomes relevant again a few seconds later in the excerpt from which (72) is drawn. C takes some time to uptake what is happening in the sequence above. From the turn in line 6 to the time that he stands up and approaches the fire to eat, it is 13 seconds. During the 13 seconds, there is no other talk that is clearly addressed to him and concerns the fish. But when he does get up, he ultimately is not served the fish presented to him in (72). As he begins to stand, A is preparing a new plate which contains three fish, sprinkling them with salt. When he takes his first step toward A and the fire, A picks up the plate in her left hand and passes it to him. At the moment that she picks it up -- and before it moves into C's peripersonal space, or C

moves enough to reach it -- A produces another presentative with DNOM5, shown in (73). I do not show an image of the participants here because, at the moment of the utterance in (73), most of the frame is taken up by the image of C's back as he stands (though enough frame remains clear that we see A's actions).

(73) 20180628 71:03
A: *ma³ri³ ɟi³¹ʔe²ma⁴ gɨ⁴ma³*

ma³ri³ ɟi³¹ʔe²ma⁴ =gɨ⁴ =ma³
PERF DNOM5(I) =PL =INFO

'Now there they are (DNOM5)'

The plate is in A's hand and therefore definitionally within her peripersonal space at the moment that she says (73). But as in (73), A is telling B that the referents belong to him (or as the transcription consultant commented, A is inviting B to eat). As in (72), this motivates the use of DNOM5 over DNOM1, even though the referent is not (yet) within the addressee's peripersonal space, and is (still) in the speaker's.

The above examples are valuable for showing that spatially exceptional, ownership-oriented uses of DNOM5 exist, and that the preference for DNOM5 in speaking of referents owned by the addressee is powerful enough to override the usual DNOM1 > DNOM5 hierarchy for referents located between speaker and addressee. However, (72) and (73) are also somewhat marked in that they involve the speaker(s) giving the referent to the addressee, not simply referring to an entity that the addressee already owns. This leaves open the question of whether the ownership-oriented use of DNOM5 is specifically performative, or can also presuppose an existing ownership relation.

(74) shows an example of an ownership-oriented use of DNOM5 that is relatively presupposing. The participants in this example are shown in Figure 5.12. They are LVI, the woman at top left; TGC Sr., at center, LVI's father; and TGC Jr., at right, TGC Sr.'s father and LVI's brother. As described in earlier examples from this recording, TGC Jr. and TGC Sr. are in the back yard of their house processing wild cane for arrows; LVI, who lives in a different house nearby, is visiting them on her way back from town. Prior to the excerpt in (74), TGC Jr. has been telling LVI about a trip to another community which he plans to take the next day. LVI appears totally uninterested, giving no signals of recipiency during five successive turns by TGC Jr.

After TGC Jr. finishes the last of the turns in his telling, LVI changes the subject with the question in line 1 of (74). She turns her upper body and points to the camera, making it unmistakable as the referent of her token of DNOM5. TGC replies in line 2. It is not clear whether the person deixis in this line reflects that TGC is quoting my speech, or involves him claiming to be the agent of the recording. Uptake does not clarify because, immediately after line 1, the participants are distracted by one of the pieces of cane breaking in the fire, and begin discussing the cane-processing task rather than the recording.

Figure 5.12: Participants in (74) at end of line 1

(74) 20180622 4:33

1. LVI: *tɑ̨¹ʔa⁴kɨ⁴ ɟi¹ʔĩ¹ʔĩ⁴ i⁴ ŋe³ma²?*
tɑ̨¹ʔa⁴kɨ⁴ ɟi¹ʔĩ¹ʔĩ⁴ i⁴ ŋe³ma²
what? 3.SC.COP DET(IV) DNOM5(IV)
'What's that (DNOM5)?'
((LVI index pointing with right hand at video camera on *ŋe³ma²*; LVI's face off camera))
((TGC Jr. obscured by TGC Sr., who is picking up dried cane from next to him))

2. TGC Jr.: *o³¹, pe³¹ʔĩ³ tʃa³gra³ba¹*
o³¹ pe³¹ =ʔĩ³ tʃa³= gra³ba¹
INTJ 2PL =ACC 1SG.A= Sp:record(A)
'Oh, I'm recording you guys'
((TGC Jr. turns head and gazes at video camera on *o³¹*, then gazes at LVI))
((LVI's face off camera, but torso oriented toward TGC Jr.))

On the (many) occasions in the video corpus when participants refer to the video camera, they almost always index it using DNOM3 *ɟe³a²*, except when addressing people who are standing right

next to the camera, when they typically use DNOM5 *ŋe³ma²*. In (74), however, the video camera is outside of peripersonal space for both LVI and her addressee, TGC Jr. Despite this, and despite the fact that the camera must be visible to her, LVI still indexes it with DNOM5.

LVI's use of DNOM5 to index the camera when it is outside of her addressee's peripersonal space suggests that this token, like those in (72) and (73), represents ownership-oriented use of DNOM5. It also suggests that the 'ownership'-oriented use may be more about the addressee's control over the referent at the moment of speech, and less about their permanent ownership of the referent. LVI may believe here that TGC Jr. has the video camera under his temporary control, and she certainly believes that he has more information about it than she does, since she asks him a content question about it in line 1. However, it is not realistic that LVI believes that TGC owns the camera in any way enduring beyond the recording (since at the time of this recording, LVI knew me well and knew that I had durable control of the video camera).

5.5 Conclusion

This section relates the findings on the speaker- and addressee-proximal demonstratives to the theories of proximals discussed in §5.2. I show that the data discussed in §5.3 supports spatial theories of proximal demonstratives which (a) treat the speaker or addressee alone (not the dyad) as the deictic origo, and (b) analyze the deictic content of demonstratives as concerning location within the origo's peripersonal space, not distance or location within a larger interactionally emergent space. I also argue that, although the extended uses of the proximals described in §5.4 may appear to support accessibility theories of proximals over spatial ones, accessibility theories are not restrictive enough to account for the data as a whole.

5.5.1 Impacts on spatial analyses

Recall from §5.2 that analyses of proximal demonstratives vary along two dimensions: (a) what discourse participant(s) define the deictic origo, and (b) what deictic content the proximal conveys about the referent in relation to the origo. On the issue of the deictic origo, the traditional view has been that the only possible origos for proximal demonstratives are the speaker alone or addressee alone (e.g. Fillmore 1973; Anderson and Keenan 1985; Diessel 1999). Against this view, other authors (e.g. Hanks 1990) propose that the interactive dyad is the origo of at least some proximals. On the issue of the deictic content, the traditional view has been that the deictic content of proximals encodes the distance between the origo and the demonstrative referent. More recent research, by contrast, has proposed that the deictic content of proximals instead encodes location inside the origo's peripersonal space (Kemmerer 1999), location inside an interactionally emergent 'here-space' projected from the origo (Enfield 2003), or high cognitive-perceptual accessibility (Piwek et al. 2008).

5.5.1.1 Deictic origo of the proximals

As I have argued throughout this chapter, the Ticuna speaker- and addressee-proximals support strictly egocentric/altercentric analyses of the deictic origo over sociocentric ones. The speaker-proximal demonstratives, DNOM/DLOC1, index only referents that are at least partly within the speaker's peripersonal space. Their addressee-proximal counterparts, DNOM/DLOC5, index only referents at least partly within the addressee's peripersonal space. Sociocentric theories of the proximal origo are not consistent with this pattern. They predict that, in configurations where the referent is located inside the interactive dyad but not inside either participant's peripersonal space (e.g. scene 17 of the Demonstrative Questionnaire), at least one of the proximals will be acceptable -- since the referent is within the dyad, and the dyad defines the origo. This prediction is incorrect: Ticuna speakers do not consistently use either proximal in this type of configuration. Instead, as we will see in the following chapter, speakers have a **dedicated sociocentric demonstrative** -- DNOM/DLOC2 -- at their disposal for referents inside the sociocentric space.

A significant advantage of the egocentric/altercentric analysis of the proximal origo is that it captures the parallels between the speaker- and addressee-proximal demonstratives and the local pronouns. Following Bühler (1982 [1934]), I analyze DNOM/DLOC1, the speaker-proximal demonstrative, as analogous to the 1SG pronoun, and DNOM/DLOC5, the addressee-proximal, as analogous to the 2SG pronoun. This analysis correctly predicts that there will be syntactic parallels between the proximal demonstratives and the local pronouns that correspond to their origos -- such as the equivalence, seen in (55), between the speaker-proximal DLOC1 *nu⁵a²* and the 1SG pronoun.

The analogy between proximal demonstratives and pronouns breaks down, however, in contexts that satisfy the deictic requirements of more than one demonstrative. In contexts that meet the deictic requirements of both speaker-proximal DNOM/DLOC1 and addressee-proximal DNOM/DLOC5, we observe ranking of DNOM/DLOC1 over DNOM/DLOC5. This ranking alone could be analyzed as analogous to a 1SG > 2SG person hierarchy, an analytic device which has independent syntactic motivations in other languages. We also, however, observe hierarchies between demonstratives which have the same origo -- for example, ranking of DNOM1 (which conveys the referent's location relative to the speaker's reaching space) over invisible DNOM5 (which conveys the referent's invisibility to the speaker). This observation means that the hierarchical relationships between demonstratives cannot be captured exclusively by ranking their origos, or by ranking the pronouns equivalent to their origos. Instead, we need a hierarchy that ranks the demonstrative lexical items themselves, as represented diagrammatically in Figures 5.7 and 5.8.

5.5.1.2 Deictic content of the proximals

The Ticuna proximals also support an analysis of the deictic content of proximals as encoding location within the origo's peripersonal space. They fail to support analyses of the deictic content as concerning distance, and they also fail to support analyses based on location relative to an interactionally emergent 'here-space' (other than the peripersonal space).

Distance analyses of the deictic content fail because they make incorrect predictions about the

relationship between the metrical distance of the referent from the speaker and the use of speaker-proximal demonstratives. Specifically, distance analyses predict that there should be a inverse linear relationship between the distance of a referent from the origo and the probability that the speaker indexes that referent with a proximal demonstrative. In the Demonstrative Questionnaire data, however, we find a categorical relationship -- not a linear one -- between the distance of a referent from the speaker and the number of participants who volunteer a speaker-proximal demonstrative. Participants always volunteer speaker-proximal demonstratives for referents that are within their reaching space; they consistently fail to volunteer them for referents beyond the reaching space. For example, consider the Demonstrative Questionnaire scene 8 vs. scene 12 vs. scene 13. In all of these scenes, the speaker and addressee are together, and the referent is visible to and equidistant from both of them. It is inside both participants' reaching space in scene 8; outside their reaching space and approximately two meters away in scene 12; and outside the reaching space and over 10 meters away in scene 13. Distance analyses predict that, as the distance of the referent increases across these scenes, there should be a linear decrease in the use of the speaker-proximal demonstrative. This prediction is incorrect. Rather than a linear relationship, we find a categorical one where all 10 participants volunteer the speaker-proximal demonstrative in scene 8, only one volunteers it in scene 12, and no participants volunteer it in scene 13. Likewise, the relationship between the distance of the referent from the addressee and speakers' use of the addressee-proximal demonstrative is categorical, not linear. We see 9 of 10 participants volunteering the addressee-proximal in scene 16 (where the referent is within the addressee's reaching space), but only 3 of 10 in scene 23 (where it is just out of the addressee's reach).

The data also does not support analyses of the deictic content as encoding location within an interactionally emergent here-space larger than the peripersonal space (as in Enfield 2003). The here-space, as defined in Enfield's analysis of demonstrative use in Lao, is the area inside a perimeter projected from the speaker's body. The extension of the perimeter is controlled by factors such as the location of the addressee (that is, the here-space can simply be the sociocentric space), the speaker's manual activity, the presence of physical barriers surrounding the speaker or referent, and the speaker's pre-existing 'engagement area' (a perimeter defined by the set of referents that they have attended or referred to earlier in the discourse).

The peripersonal space has similarities to the here-space, but it is not the same. What the peripersonal space shares with the here-space is that (a) both are projected from the speaker's body and (b) both can be defined by the origo's manual activity (the peripersonal space is always defined by potential reaching; the here-space is potentially defined by actual manual activity). What distinguishes the two concepts is that the here-space is sensitive to factors other than the reachability of the referent -- for example, the location of the addressee -- and the peripersonal space is not. Therefore, peripersonal space analyses of the deictic content of proximals predict a strong biunique relationship between the reachability of the referent to the origo and the use of proximal demonstratives centered on that origo. Here-space analyses allow that proximals may **always** be used for referents inside reaching space, but they do not predict that they will **only** be used for referents within that space. Instead, here-space analyses predict that we should also observe uses of proximal demonstratives for referents that are outside of the origo's reaching

space, but inside the sociocentric space; inside of a salient physical barrier with the origo; or inside of an engagement area projected from the origo. The data from the Demonstrative Questionnaire shows that these predictions are false for Ticuna. On the sociocentric space issue, speakers do not use the speaker-proximal or addressee-proximal demonstratives for referents that are only within sociocentric space (§5.5.1.1). On the issue of barriers, the presence of physical barriers, like walls, does not impact Ticuna speakers' use of proximal demonstratives. For example, nine of 10 speakers volunteered the speaker-proximal demonstrative in scene 19 of the Demonstrative Questionnaire, where the speaker indexes a referent that within their reach, but separated from them by a built barrier.

In sum, only an analysis based on location within peripersonal space can account for the behavior of the Ticuna speaker- and addressee-proximals in the Demonstrative Questionnaire. This is consistent with the parallel analysis of proximals and local pronouns which I have advocated throughout this chapter. Local pronouns index the speaker or addressee themselves; proximal demonstratives index referents within the peripersonal space of the speaker or addressee -- within a space projected from the origo's body, and defined by the perceptuo-spatial criterion of reachability, not simply by space or by perception.

It is crucial that my peripersonal space analysis is specific to the **proximal** demonstratives of Ticuna. This analysis does not entail anything about whether notions of distance or location relative to an interactionally emergent here-space are relevant elsewhere in the deictic system of the language. Likewise, my statement that these demonstratives are strictly egocentric/altercentric does not mean that sociocentric space, or considerations of symmetrical access to the referent by the participants, are irrelevant to the deictic system. In the following chapter, I in fact argue that one of the language's demonstratives **does** have a sociocentric origo, and that its deictic content **does** concern location relative to an interactionally emergent space larger than the peripersonal space.

5.5.2 Impacts on psychological analyses

5.5.2.1 Accessibility analyses

Recall from §5.2 that some theories of proximal demonstratives treat their deictic content as concerning only the cognitive-perceptual accessibility of the referent. Under these theories, proximal demonstratives index referents that have high cognitive-perceptual accessibility to the origo. On the account of Piwek et al. (2008), the authors who develop this kind of analysis in greatest depth, referents can be highly accessible because they are within the origo's reaching space (i.e. highly perceptually accessible via touch); because they are visually salient; because they are in joint attention; or because they have been recently mentioned in the discourse. Note that while joint attention is part of the definition of accessibility, authors writing on joint attention (e.g. Küntay and Özyürek 2006; Peeters et al. 2015) generally do not adopt accessibility analyses as such. Instead, those authors treat the spatial and joint attention properties of demonstratives as orthogonal.

For the Ticuna proximals, data from the Demonstrative Questionnaire does not support accessibility analyses at all, and conversational data supports them only in very weak form. Accessibility analyses of proximals predict that, in attentionally neutral contexts, proximals can be used for referents that are located anywhere in space, provided that they are visible and relatively visually salient. As such, they radically overpredict the use of proximals in the Demonstrative Questionnaire. They also predict that demonstratives other than proximals will be used to establish joint attention on new referents, while proximals will be used for referents that are already in joint attention (given that attention is a component of accessibility, Piwek et al. 2008:703). The conversational data shows that the opposite is true in Ticuna. Speaker-proximal demonstratives **draw** joint attention, including to referents outside the peripersonal space, while addressee-proximal and non-proximal demonstratives are attentionally neutral. While this pattern does support a role for attentional factors (in addition to spatial and perceptual ones) in demonstrative use, it does not conform to accessibility theorists' analysis of proximal demonstratives in other languages, and it does not justify assigning an exclusively attentional semantics to the speaker-proximals.

5.5.2.2 Basis of the attention-drawing use of proximals

Compared to other research on proximal demonstratives, the data presented in this chapter supports a more spatial and less psychological analysis of the items. While other research has documented a wide range of uses of speaker-proximal demonstratives for referents outside the speaker's peripersonal space, the Ticuna conversational corpus shows that uses of proximals for referents outside the origo's peripersonal space are extremely restricted. They fall into only three categories: (a) uses of the speaker-proximal to draw joint attention to a new referent; (b) uses of both proximals to index the origo's motion goal; and (c) uses of the addressee-proximal to index referents that are owned by or under the control of the addressee (all tokens in this last category also involve drawing joint attention to a new referent, and all but one also involve motion). I propose that all three of these 'extended' uses of proximals arise from the spatial-perceptual deictic content of the items.

In arguing that the extended uses of proximals are due to the items' spatial semantics, I begin with uses of the speaker-proximal demonstrative to draw joint attention to new referents located outside the speaker's peripersonal space. Similar uses of proximals are attested in many languages, but are typically analyzed as licensed by pointing gestures rather than by attentional factors. Levinson (2018a:32), for example, writes that when the speaker is pointing, the Tzeltal proximal can be used for referents located 'right up to the horizon.'

It is true in the Ticuna conversational data that all uses of speaker-proximal demonstratives for referents beyond peripersonal space involve pointing. However, pointing is unsatisfying as an explanation for this use, since virtually all tokens of exophoric demonstratives in conversation involve deictic gesture. Therefore, I suggest that it is primarily the act of drawing joint attention to a new referent, and only secondarily the use of pointing gestures, that motivates the use of speaker-proximals for referents beyond the speaker's peripersonal space. When the speaker produces a speaker-proximal demonstrative, they direct the addressee to look at them (in order to search their peripersonal space for possible referents). If the addressee uptakes the demonstrative

and looks at the speaker, then there are two possible outcomes: either (a) the addressee perceives the demonstrative referent within the speaker's peripersonal space, or (b) the addressee perceives that the speaker is pointing, and therefore shifts their search space for the referent away from the speaker's peripersonal space, and to the space targeted by the point. Because pointing gestures are spatially precise -- delimiting a relatively small search space -- directing attention to a pointing gesture in this way is an effective technique for establishing joint attention on the gesture's target.

Under this analysis, the use of proximals to draw joint attention to new referents does **not** reflect that proximals have an unbounded spatial extension in conjunction with pointing. It reflects that proximals, precisely because of their speaker-anchored spatial deictic content, are an effective tool for directing the addressee's attention to the speaker's body, and therefore to the targets of the speaker's pointing gestures. Put another way, when the speaker uses a proximal to draw attention to a distant referent, they are engaged in a form of deferred reference. The spatial deictic value of the proximal directs attention to one referent -- the speaker's pointing gesture, made with a part of their body -- in order to index another, the target of the pointing gesture. This is no different from the more prototypical cases of deferred reference discussed in Chapter 4, where the speaker directs attention to one referent (located beyond their body) in order to index another.

Similar to this analysis of the attention-drawing use of proximals, analyses in terms of deictic transposition are available for the motion- and ownership-licensed uses of the proximals for referents beyond the origo's peripersonal space. In the use of the speaker- and addressee-proximals for motion goals, the origo's location at the moment of speech is transposed with their future location at the end of the motion path. Since the referent will be within the origo's peripersonal space at the end of the motion path, proximal demonstratives become acceptable in reference to it under the transposition. Likewise, most ownership-licensed uses of the addressee-proximal involve the speaker transferring the referent to the addressee. The referent's location at the moment of speech is transposed with its future location at the end of the transfer event. Since it will be within the addressee's peripersonal space at the end of the transfer, the addressee-proximal becomes acceptable in reference to it.[3]

Insofar as deferred reference and deictic transposition are general to all forms of verbal and nonverbal deixis, these analyses make the testable prediction that the same phenomena I have described in this chapter -- the use of speaker-proximals to draw joint attention to new referents, the use of proximals for either origo's motion goal, the use of addressee-proximals for referents being transferred to the addressee -- will be present in any language that has speaker- and addressee-proximal demonstratives. To the extent that previous studies have tested these predictions, they appear to be true. For example, experimental research by Coventry et al. (2014) found that English speakers are more likely to use *this* than *that* to index referents which they own, and Levinson (2018a:32-33) reports that pointing 'extends the [speaker-]proximal zone' (a pattern which I would

[3]This analysis is specific to tokens of the ownership-oriented use that involve transfer of the referent. It does not account for tokens that involve a referent already under the control of the addressee, since it is unclear to me whether such presupposing uses are productive.

interpret as reflecting an association between speaker-proximals and attention-calling deixis) in Sáliba (Margetts 2018) and Tiriyó (Meira 2018) in addition to Tzeltal.

My analysis of the extended uses of the speaker- and addressee-proximals as arising from spatial deictic content, transformed by deferred reference and deictic transposition, also has the advantage of parsimony. Independent of the extended uses, we must assign the proximals spatial deictic content in order to account for their core uses (to index referents within the origo's peripersonal space) in the Demonstrative Questionnaire and conversational data. Likewise, independent of any data about the proximals, we must posit that deferred reference and deictic transposition exist in Ticuna in order to account for anomalous uses of visible demonstratives for invisible referents (§4.2.2, §4.4). As such, all parts of the deferred reference/transposition analysis of the extended uses are independently necessary. The alternative to the deferred reference/transposition analysis is to claim that each of the extended uses of the proximals reflects sui generis deictic content. Under this maximalist style of analysis, we will be obliged either to describe the deictic content of each proximal as including a large number of disjunctive features, or to claim that each proximal represents several homophonous lexical items. Both of these alternative analyses have no motivation outside of the extended uses, while the deferred reference/transposition analysis has independent motivations from the visibility data.

5.5.2.3 Looking ahead

In this chapter, I have argued for a egocentric/altercentric, corporeal semantics for the speaker- and addressee-proximal demonstratives. Using data elicited in the Demonstrative Questionnaire in tandem with conversational data, I showed that in attentionally neutral contexts, Ticuna's two sets of proximal demonstratives -- the speaker-proximal DNOM1 *ɲa⁴a²* and DLOC1 *nu⁵a²*, and the addressee-proximal DNOM5 *ŋe³ma²* and DLOC5 *ŋe⁵ma²* -- specifically index referents within the reaching space of the speaker (DNOM/DLOC1) or addressee (DNOM/DLOC5). Uses of the proximals to index referents beyond the participants' peripersonal space exist in the conversational corpus, but are restricted to a small set of contexts: drawing joint attention to a discourse-new referent, indexing the origo participant's motion goal, or indexing referents which the origo participant owns or has under their control. I argued that these uses all reflect acts of deferred reference or deictic transposition. They do not provide evidence against a basically spatial-perceptual semantics for the proximals. Rather, it is the spatial-perceptual content of the proximals -- for example, the association of the speaker-proximal with the speaker's peripersonal space -- that makes the spatially atypical extended uses possible.

In the following chapter, I turn to the two non-proximal demonstratives of the language: DNOM/DLOC2 *ŋe³a²/ŋe⁵a²*, which would be labeled as 'medial' in traditional analyses, and DNOM/DLOC3 *ɟe³a²/ɟe⁵a²*, which would be labeled as 'distal.' There, I argue -- in line with speakers' intuitions -- that DNOM/DLOC3 is essentially an antonym of DNOM/DLOC1. It is egocentric and conveys only that the referent is outside the speaker's peripersonal space. DNOM/DLOC2, on the other hand, will puncture the sheerly egocentric/altercentric, spatial analysis proposed so far. Its origo is sociocentric, and its deictic content is not simply about location inside peripersonal space. Rather,

it conveys that the referent is within an interactionally emergent space defined jointly by the locations of speaker and addressee.

Chapter 6

Medial and distal demonstratives

6.1 Introduction

Chapter 5 explored the origo and deictic content of Ticuna's speaker-proximal demonstrative, DNOM/DLOC1 *ɲa⁴a²/nu⁵a²*, and its addressee-proximal counterpart, DNOM/DLOC5 *ŋe³ma²/ŋe⁵ma²*. This chapter turns to two demonstratives which, on first look, appear to be medial and distal. The demonstrative which initially appears to be medial is DNOM/DLOC2 *ŋe³a²/ŋe⁵a²*; the apparent distal is DNOM/DLOC3 *ɟe³a²/ɟe⁵a²*.

I ask two questions about the apparent medial and distal demonstratives. First: What is their origo? Second: Are the traditional terms 'medial' and 'distal' accurate ways to characterize the items' deictic content?

I answer these questions in different ways for the two demonstratives. In §6.3, I argue that the origo of DNOM/DLOC2, the apparent medial, is **sociocentric**. Its origo is the interactive dyad composed of speaker and addressee; it indexes referents within the space occupied by the interaction. This space is defined, in neutral conditions, as the smallest possible perimeter which fully encloses the peripersonal space of both the speaker and the addressee(s) (though built perimeters, and perimeters defined by the participants' activities, can expand it). Under my analysis, the deictic content of DNOM/DLOC2 does not convey that the referent is located in the middle distance relative to the origo -- that is, it is not 'medial.' Instead, the deictic content of this demonstrative conveys that the referent is located inside of the sociocentric space, meaning that the items are actually **proximal** demonstratives.

In §6.4, I propose a more traditional analysis for DNOM/DLOC3, the apparent distal. I claim that the speaker is the only origo for this demonstrative, and that its deictic content conveys that the referent is outside the speaker's peripersonal space. On this analysis, DNOM/DLOC3 is a true **egocentric distal** and the inverse of DNOM/DLOC1, the egocentric proximal.

The rest of this chapter is organized as follows. §6.2 summarizes key concepts in analyses of medial and distal demonstratives. §6.3 introduces the data on the apparent 'medial' demonstrative of Ticuna, DNOM/DLOC2, and lays out the arguments (pre-summarized above) that it is actually a sociocentric proximal demonstrative. §6.4 turns to the apparent 'distal' demonstra-

tive, DNOM/DLOC3, and provides the evidence that it is a true egocentric distal. §6.5 reviews the arguments and considers their impact on theories discussed in §6.2.

6.2 Concepts in the study of medial and distal demonstratives

This section introduces key claims in the literature about medial and distal demonstratives, covering first the literature on medials, then that on distals.

6.2.1 Medial demonstratives

I am aware of only one piece of literature which discusses the deictic content of medial demonstratives: Levinson et al. (2018). Older typological studies of deixis, such as Fillmore (1973) and Anderson and Keenan (1985), report that some languages have medial demonstratives, and characterize 'medials' as conveying that the referent is in the middle distance relative to the origo -- neither close to nor far from them. Because this spatial deictic content involves reference to distance and not exclusively location, the category of medial (as defined in the older literature) is inherently distance-based. More recent literature, including the newer psychologically oriented literature reviewed in §3.5, generally says nothing about medials. This simply reflects that the languages which those sources are concerned with -- Yucatec Maya, Dutch, English, and Turkish, among others -- do not have any demonstratives that appear to be medial.

What Levinson et al. (2018) claim about medials is simple. The authors of this collection argue that medial demonstratives do not exist. Summarizing the results of the Demonstrative Questionnaire for the 15 languages in the collection, Levinson (2018a) produces six different figures and tables documenting the spatial oppositions found in each language. Although more than half of the languages in the sample have three or more demonstratives, the term 'medial' fails to appear even a single time in the figures and tables. Rather, Levinson (2018a:24) concludes that 'there are grounds to be suspicious of reports of "medial" terms...it seems likely that many of these [3-term demonstrative systems, AHS] are actually two terms with clear codings for proximal and distal, and then a third term that is unmarked.'

Levinson's paradigm example of a demonstrative that appears to be medial, but is actually unmarked (i.e. has no spatial deictic content), comes from Lavukaleve (Terrill 2018). This Papuan language has three nominal demonstratives. One, *ho-*, is a speaker-proximal demonstrative, used for referents in contact with the speaker's body or within their close personal space. Another, *hea-*, is a speaker-distal demonstrative, used for referents that are 'a significant distance out of normal conversation space' (Terrill 2018:215). The third item, *hoi-*, initially appears to be a medial (Terrill 2018:212). Results of the Demonstrative Questionnaire, however, show that it can be used for referents located anywhere in space, provided that the referent is not on the speaker's body (which requires the proximal) or 'far away in the distance' (Terrill 2018:215), which requires the distal. Terrill takes this as evidence that the item is in fact spatially neutral. Its apparent medial value comes only from contrast with the speaker-proximal and -distal.

Levinson (2018a:37) also suggests that some apparent medial demonstratives may actually be distals, picking up their apparent medial value from contrast with 'far distal' demonstratives. While there are no unambiguous examples of this type of system in the Levinson et al. (2018) volume, Meira (2018) does consider a distal vs. far distal analysis for the two non-proximal demonstratives of Tiriyó. On this analysis, the apparent 'distal' of Tiriyó is a spatially marked far distal, conveying that the referent is both outside the speaker's close personal space and saliently far away. The apparent medial, on the other hand, is an unmarked distal, conveying only location outside the speaker's close personal space. Meira (2018) ultimately rejects this analysis in favor of a Terrill (2018)-style vague analysis of the medial. Nevertheless, Levinson (2018a) suggests that it may be appropriate for apparent medials in other systems.

In sum, Levinson's conclusion is that no apparent medial actually encodes that the referent is in the middle distance relative to the origo. Instead, all apparent medials are either completely unmarked items (have no spatial deictic content) or unmarked distals contrasting with far-distals. In §6.3, I show that the data from Ticuna confirms this hypothesis only in part. The apparent medial of this language, like all of the apparent medials in Levinson et al. (2018), is not actually medial. On the other hand, the Ticuna 'medial' **does** have marked spatial deictic content.

6.2.2 Distal demonstratives

Distal demonstratives are generally analyzed in contrast to (speaker-)proximal demonstratives. As a consequence, the three most important ideas about distal demonstratives in the literature are simply the converse of the ideas about proximal demonstratives reviewed in Chapter 3.2.

6.2.2.1 Spatial analyses of distals

One set of ideas about distal demonstratives treats the origo of the items as egocentric, defined by the location of the speaker. These analyses propose that (some) distals encode that the referent is 'far' from the speaker. When the notion of 'far' is made more precise, it is always treated as meaning that the referent is outside of a perimeter projected from the body of the speaker. This perimeter can be the peripersonal space (Coventry et al. 2008); the speaker's current engagement area or here-space (Enfield 2003); or a socioculturally defined space, such as the geographic area within which the speaker routinely travels (Hanks 1990).

Another set of ideas about distals treats their origo as sociocentric. Under these analyses, (some) distals encode that the referent is 'far' from a space defined jointly by the locations of the speaker and addressee. The difference in predictions between this style of analysis and an egocentric analysis depends crucially on the location of the addressee (Jungbluth 2003). To understand the difference between theories, consider the two configurations of speaker, addressee, and referent shown in Figures 6.1 and 6.2. In both of these configurations, I have defined and drawn the sociocentric space as **the smallest possible perimeter which still fully encloses the peripersonal spaces of speaker and addressee**. I maintain this definition of sociocentric space throughout the chapter, except where explicitly stated otherwise.

Figure 6.1: Extension of sociocentric space when speaker and addressee are side-by-side

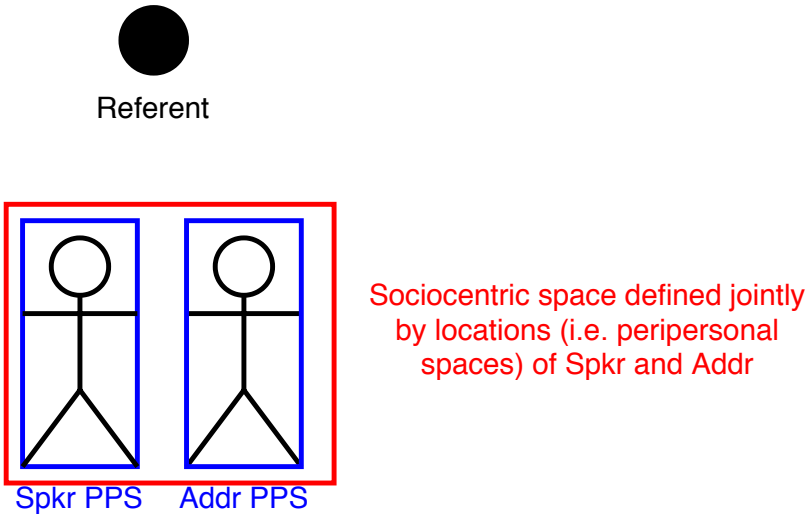
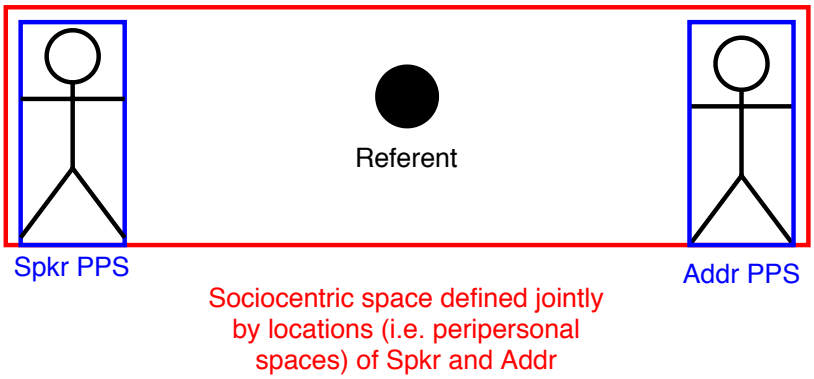


Figure 6.2: Extension of sociocentric space when speaker and addressee are face-to-face



In Figure 6.1, the speaker and addressee are very close together, close enough that their reaching spaces (represented by the blue rectangles) adjoin. Their sociocentric space (represented by the red rectangle) is tightly focused on the participants' peripersonal spaces, and includes only a very minimal amount of additional space beyond them (i.e. the minimal area between the participants). In the type of configuration represented by Figure 6.1, there are few differences between the predictions of an egocentric analysis of distals and those of a sociocentric analysis. This is because, in a side-by-side configuration like this one, the extension of the speaker's peripersonal space and the extension of the sociocentric space are similar. As a consequence, all referents outside of the sociocentric space -- such as the referent in Figure 6.1 -- are also outside of the speaker's peripersonal space. Likewise, most referents outside of the speaker's peripersonal space are also

outside of the sociocentric space.[1] This overlap leaves the analyst largely unable to determine whether a particular use of the distal in a side-by-side configuration involves a sociocentric or an egocentric origo.

In Figure 6.2, the speaker and addressee are separated, far enough apart that their reaching spaces (represented by the blue rectangles) do not overlap. Their sociocentric space (represented by the red rectangle) is large, including not only the participants' peripersonal spaces, but also the substantial area that separates them. In this kind of configuration, the predictions of egocentric and sociocentric analyses diverge. Because of the larger size of the sociocentric space, a referent can be inside the sociocentric space, like the referent in Figure 6.2, and still be outside the peripersonal space of both participants.

Egocentric theories predict that in a configuration like Figure 6.2, the speaker will still be able to index the referent with the distal, since it is outside of their peripersonal space. Sociocentric theories, on the other hand, predict that the speaker will not be able to use the distal in a configuration like Figure 6.2. This is because, even though the referent is outside the speaker's peripersonal space, it is still inside the sociocentric space. The referent therefore does not meet the deictic requirements of a sociocentric distal, which requires that the referent be **outside** of the sociocentric space.

As with the proximals, egocentric and sociocentric theories of distals compete to explain specific demonstratives, not to explain entire demonstrative systems. Just as one demonstrative system can contain both egocentric and sociocentric proximals, one system can also contain both egocentric and sociocentric distals. For example, Hanks (1990:400) analyzes one of the locative demonstratives of Yucatec, *tol o?*, as an egocentric distal, and another, *té?el o?*, as a sociocentric distal.

6.2.2.2 Psychological analyses of distals

The third and final set of prominent ideas about distals denies that they have any encoded spatial deictic content. Authors like Piwek et al. (2008), for instance, analyze proximal demonstatives as encoding that the referent has high perceptual-cognitive accessibility. Distals, correspondingly, encode that the referent has low perceptual-cognitive accessibility. Under these analyses, a referent can have low accessibility, and therefore be indexed with the distal, for a number of reasons: because it is relatively far from the speaker, because it is not visually salient to the addressee, or because it has not been recently mentioned in the discourse.

Accessibility analyses of distals have the advantage of explaining why distal exophoric demonstratives in some languages (such as English) can also be used as anaphors, since referents last mentioned at a large textual distance -- like referents that are far from the speaker in spatial terms -- have low accessibility. On the other hand, these theories, like accessibility analyses of proximals, remove information about space and the body from the semantics of demonstratives. As a result, they make the prediction that distal exophoric demonstratives should **always** be ac-

[1] 'Most' because referents located outside the speaker's peripersonal space, but inside the addressee's peripersonal space or in the small area between speaker and addressee, **are** inside the sociocentric space.

ceptable as anaphors. As I show in Chapter 7, this prediction is false for Ticuna; it is also false for many other languages that have dedicated anaphoric demonstratives (Levinson 2018a:37).

6.3 The apparent medial demonstrative is sociocentric, not medial

6.3.1 Introducing DNOM/DLOC2, the apparent medial

On first look, DNOM/DLOC2 appears to be a medial egocentric demonstrative. Factors which suggest a medial semantics for the item include speakers' metalinguistic comments and some results of the Demonstrative Questionnaire.

In the domain of metalinguistic comments, when I asked elicitation consultants to give vernacular definitions of DNOM/DLOC2, speakers sometimes said that it meant the referent was *ʎai¹ʔka²=i̵¹ra¹* (near:LOC=sorta) 'sort of nearby.' Given that consultants also often said that DNOM/DLOC1 means the referent is *ʎai¹ʔka²* 'near' and DNOM/DLOC3 that it is *ɟa²ʔĩ̵⁴* 'far,' this seems to place DNOM/DLOC2 as the center point on a scale of three degrees of distance from the speaker.

On the issue of the Demonstrative Questionnaire results, the only two scenes of the task where more than one participant volunteered DNOM2 were scene 14 and scene 17 (discussed further below). These scenes both involve the discourse participants standing at the ends of a large, rectangular cleared space -- at the same end in scene 14, at opposite ends in scene 17 -- with the demonstrative referent in the center of the space. In both of these scenes, the referent is in the middle distance relative to the speaker. The use of DNOM2 in these scenes can therefore be taken as evidence that it is medial.

While this small quantity of elicited data is consistent with an analysis of DNOM/DLOC2 as medial, the larger conversational corpus, as well as more detailed analysis of the results of the Demonstrative Questionnaire, fails to support a medial semantics for the item. Instead, what more comprehensive data shows is that DNOM/DLOC2 is a **sociocentric proximal demonstrative**, encoding that the referent is inside of the space occupied by the interaction. This analysis correctly predicts that the spatial extension of DNOM/DLOC2 will be radically different depending on whether the addressee and speaker are face-to-face or side-by-side. A medial analysis, on the other hand, falsely predicts that the spatial extension will be static regardless of the location of the addressee.

In the following, I provide evidence for the sociocentric proximal analysis of DNOM/DLOC2 first from experimental data, then from the conversational corpus.

6.3.2 DNOM/DLOC2 in the Demonstrative Questionnaire

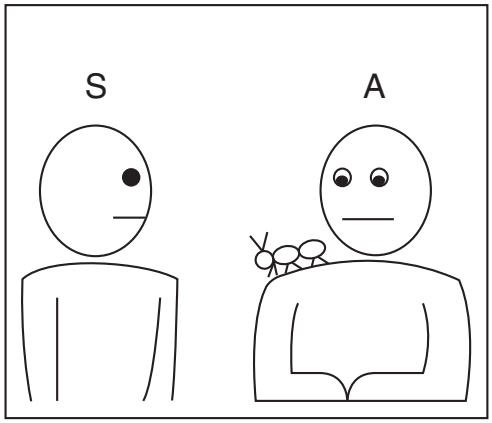
The first pieces of evidence for a sociocentric proximal analysis of DNOM/DLOC2 come from the Demonstrative Questionnaire.

In the Demonstrative Questionnaire, there were just two scenes where more than one participant volunteered DNOM2, and just three scenes where more than one participant volunteered

DLOC2. The scenes with more than one volunteered token of DNOM2 are 14 and 17; the scenes with more than one volunteered token of DLOC2 are scenes 5, 14, and 17. Among these, just one scene displays moderate agreement (as defined in §2.1.2) on DNOM/DLOC2 in volunteered forms. In contrast to all of the other demonstratives, there were no scenes where participants displayed high agreement on the item.

Scene 5 is the first Demonstrative Questionnaire scene which elicited more than one volunteered token of DNOM/DLOC2. In this scene, shown in (75), speaker and addressee are seated side-by-side. The speaker indexes a place on the addressee's shoulder, but without manually pointing at it.[2] Three of five participants in the DLOC version of the questionnaire volunteered DLOC2 in this scene, displaying moderate agreement. In the DNOM version, no participant volunteered DNOM2, but seven of nine participants who provided a judgment found it acceptable.

(75) Demonstrative Questionnaire Scene 5



ŋe²ʔã⁴ *na⁴rɨ³to¹ʔtʃa¹ɨ̃¹.*

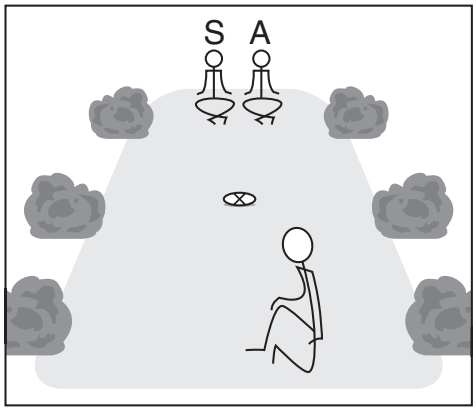
ŋe²ʔã⁴	na⁴rɨ³=	to¹	=tʃa¹ɨ̃¹
DLOC2:LOC	3.R=	sit(R)	=PROSP

'It (a horsefly) wants to sit there (DLOC2).'
(ECP: 2017.1.110)

Scene 14 is the next scene with more than one volunteered token of DNOM/DLOC2. In this scene, speaker and addressee stand side-by-side at one end of a large cleared space. The demonstrative referent is located in the middle of the space, visible to both participants, as shown in (76). In the DNOM version of the questionnaire, four of 10 participants volunteered DNOM2 in this scene, and in the DLOC version, two of five participants volunteered the item. Neither of these represents even moderate agreement by the standards given in §2.1.2.

[2]Recall from Chapter 5 that I prevented participants from pointing by asking them to hold a large piece of plastic in both hands. Since the engagement of the hands is known to affect the extension of the peripersonal space (§3.4.3), immobilization of the hands potentially decreases the extension of the speaker's peripersonal space in this scene.

(76) Demonstrative Questionnaire Scene 14



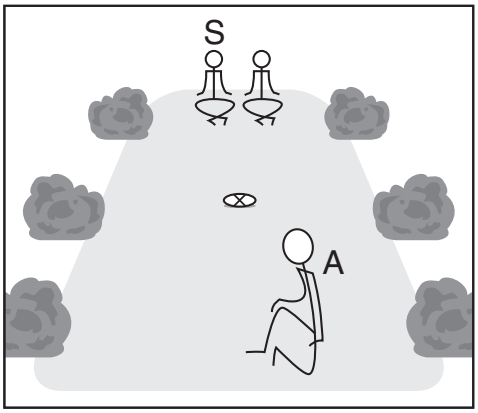
ɟi²a² *pe⁴ʔtʃi¹, ku³¹rɨ³ ni⁴¹ʔĩ⁴?*

ɟi²a²	pe⁴ʔtʃi¹	ku³¹rɨ³	ni⁴¹= ĩ⁴
DNOM2(III)	basket(III)	2SG.AL.POSS	3.I= COP(I)

'That (DNOM2) basket, is it yours?'
(LWG: 2017.1.172)

Scene 17 is the third and last scene with more than one volunteered token of DNOM/DLOC2. In this scene, speaker and addressee are in the same large cleared space as in scene 14. The speaker stands at one end of the space, and the addressee at the other end, face-to-face with the speaker. The referent is in the center of the space, visible to both participants, as shown in (77). In the DNOM version of the questionnaire, three of 10 participants volunteered DNOM2 in this scene, and in the DLOC version, two of five participants volunteered DLOC2.

(77) Demonstrative Questionnaire Scene 17



ku³¹rɨ³ ɟi¹ʔĩ¹ʔ a⁴ *ɟi²a⁴* *bu³e³ta³re⁴?*

ku³¹rɨ³ ɟi¹ʔĩ¹ʔɨ̃⁴ a⁴ ɟi²a⁴ bu³e³ta³re⁴
2SG.AL.POSS 3.SC.COP DET(II) DNOM2(II) clay.pot(II)

'Is that (DNOM2) pot yours?'
(ABS: 2017.2.32)

Only a sociocentric proximal analysis of DNOM/DLOC2 can account for the response pattern across all three of these scenes.

An egocentric medial analysis accounts for the use of DNOM/DLOC2 in scenes 14 and 17, where the referent is in the middle distance relative to the speaker. But it does not account for the use of DLOC2 in scene 5, since there the referent is next to the speaker, not in the middle distance from them.

A sociocentric proximal analysis, on the other hand, accounts for all three scenes. In scenes 5 and 17, the referent is located between the speaker and addressee, within the sociocentric space as defined in §6.2. Because the speaker's hands are immobilized in order to prevent pointing, the referent is not within the speaker's reaching space -- the zone where DNOM/DLOC1 is preferred. Thus, DNOM/DLOC2 is correctly predicted to be acceptable.

Scene 14 does present an apparent problem for the sociocentric proximal analysis. In this scene, speaker and addressee are together, and the referent is not between them. If we define the sociocentric space as in §6.2, as the smallest possible perimeter that encloses the peripersonal space of both speaker and addressee, then the referent is not inside the sociocentric space in this scene. This incorrectly predicts that DNOM/DLOC2 should be impossible.

To avoid this prediction, we must adopt a broader definition of the sociocentric space as potentially defined **either** by the smallest possible perimeter that fully encloses the peripersonal space of all participants, **or** by an actual built perimeter that fully encloses them. The referent in scene 17 is inside of an actual built perimeter -- the boundaries of the cleared space -- with the participants. As such, it is inside a **broad sociocentric space**, defined jointly by the participants'

locations and by the built perimeter.

In the next section, I will show that most uses of DNOM/DLOC2 in the conversational corpus index referents that are within the **narrow sociocentric space**, that is, located between the speaker and the addressee(s). At the same time, a minority of uses of the item are like scene 14, indexing referents that are not between the speaker and addressees, but only located with them inside of a salient perimeter (inside the broad sociocentric space).

This pattern shows that that the spatial deictic content of sociocentric deictics, unlike that of egocentric and altercentric ones, does not exclusively concern location relative to peripersonal space. Rather, the spatial deictic content of DNOM/DLOC2 conveys the location of the referent relative to the space occupied by the interaction. This **necessarily** includes the participants' peripersonal spaces and the narrow sociocentric space which they define, but can **potentially** also include additional spaces delimited by a built perimeter or a zone of joint activity.[3]

6.3.3 DNOM/DLOC2 in face-to-face conversation

The sociocentric proximal analysis predicts that, when speaker and addressee are face-to-face, DNOM/DLOC2 will be acceptable for referents located anywhere between the participants. Provided that the referent remains inside the sociocentric space, its distance from the speaker should not affect the acceptability of DNOM/DLOC2. If the predictions of this sociocentric analysis are correct, then DNOM/DLOC2 will emerge as very similar to the speaker- and addressee-proximals, DNOM/DLOCs 1 and 5. Like them, its spatial deictic content will concern location relative to a perimeter, not distance.

By contrast, an egocentric medial analysis predicts that DNOM/DLOC2 will not be sensitive to the location of the addressee. If the item is a medial, it should always index referents located in the middle distance from the speaker. Thus, DNOM/DLOC2 should be unacceptable for referents located very close to the speaker (less than middle distance) or very far from them (more than middle distance). If these predictions prove correct, then DNOM/DLOC2 will be the only demonstrative in the Ticuna system with spatial deictic content that concerns distance.

Data from conversation bears out only the predictions of the sociocentric proximal analysis. Conversational tokens of DNOM/DLOC2 in contexts where speaker and addressee are face-to-face show that the item can index referents located anywhere inside the sociocentric space -- from very close to very far from the speaker -- and not only referents in the middle distance. This finding allows us to maintain an exclusively location-based analysis of the demonstrative system, rather than appealing to distance to explain the apparent 'medial' DNOM/DLOC2.

[3]My definition of the (narrow) sociocentric space does not yield any a priori reason why it should be more sensitive to built and activity perimeters than the egocentric or altercentric space. However, this kind of increased sensitivity to built and activity perimeters is found for sociocentric demonstratives across languages. For Yucatec Maya, Hanks (1990:424,428-429) observes that the space indexed by sociocentric proximals more readily expands and contracts with built perimeters than the egocentric proximal space. Likewise, for Peninsular Spanish, Jungbluth (2003) suggests that the extension of the sociocentric space is partially determined by the direction of the addressee's gaze. If we view mutual gaze between addressee and speaker as a kind of joint activity, Jungbluth's example is another case where activity perimeters define the extension of a sociocentric form.

Evidence that DNOM/DLOC2 can index referents inside the sociocentric space and **very close** to the speaker -- that is, in the speaker's peripersonal space -- appears in (78). Figure 6.3 shows the participants in this example, who are in a kitchen. The key participants here are A, the older woman in the sleeveless white blouse at the back of the shot, and B, the young woman breastfeeding next to her. A lives in the house where the participants are, and B lives nearby and often visits. Prior to this time in the recording, B has been visiting socially with guests (including the woman in the foreground) and A has been cooking. They are both resting from those tasks at the moment of this excerpt.

Immediately prior to the excerpt in (78), A produces two turns of baby talk (consisting of items that the transcription consultant did not recognize as words) to B's infant son. Then, in lines 1 and 2 of the excerpt in (78), A comments on the infant's haircut, which has been a topic of much discussion earlier in the day. She specifically points out (using DLOC1) that the infant's bangs are falling onto his forehead. B agrees with her in line 3 by issuing a presentative construction using DNOM2 as the predicate. Her token of DNOM2 refers to the infant's bangs. There is no substantive uptake of B's turn in line 3 by A because the participants are distracted by activity outside the kitchen.

Figure 6.3: Participants in (78) at onset of line 3

(78) 20180628 3:10

1. A: *ɲu̱¹ʔma⁵ ni⁴¹ʔĩ⁴ i⁴ tɨ³¹ma²ka¹tɨ¹wa⁵ na¹ʌu³gɨ⁵ʔ*
   ɲu̱¹ʔma⁵ ni⁴¹ʔĩ⁴ i⁴ tɨ³¹ma² +ka¹tɨ¹ =wa⁵ na¹= ʌu³ =gɨ⁴ =ʔĩ⁴
   now FOC DET(IV) 3(I) +forehead =ALL 3.A.SC= arrive(A) =PL =SUB
   'Now they're (baby's bangs) getting to his forehead.'
   ((A leaning over baby in B's lap and gazing at head))
   ((B stroking baby's hair with index finger of left hand and gazing at action))

2. A: *tɨ³¹ma²e²ru⁴ nu⁵a² na⁴ʌu³*
   tɨ³¹ma² +e²ru⁴ nu⁵a² na⁴= ʌu³
   3(I) +head DLOC1:ALL 3.A= arrive(A)
   'His head, it's getting to here.'
   ((actions same as line 1))

3. B: *ŋe³a² gɨ⁴ ɟi¹ʔĩ⁴*
   ŋe³a² =gɨ⁴ ɟi¹ʔĩ⁴
   DNOM2(IV) =PL FOC.SC
   'There (DNOM2) they are.'
   ((B extending baby's arm))
   ((A and B still gazing at baby))

The baby's bangs, the referent of DNOM2 in line 3 of (78), are very close to the speaker, B. The referents are also very close to the addressee, A, since she is bending over the infant as shown in Figure 6.3. In fact, the referents appear to be within peripersonal space for both participants, since B is able to touch them in line 1 and A is able to touch them a moment earlier in the recording.

No matter our definition of 'middle distance,' the referent of DNOM2 in line 3 of (78) is clearly too close to be construed as 'in the middle distance' relative to the speaker. However, the referent is located between A and B, inside the sociocentric space. This location inside the sociocentric space, not the (very small) distance between the speaker and the referent, is what makes the use of DNOM2 here possible.

Now, as evidence for the converse proposition that DNOM2 can index referents that are inside the sociocentric space and **far** from the speaker, consider the excerpt in (79). Figure 6.4 shows the participants in this excerpt. The main participants are DGG, the man in white at the mid right of the frame, and his daughter RGW, who is off camera at the top left of the frame (seated on a table). RGW and her husband (the man lying on the floor at left), along with their daughter-in-law AYM (in blue at center), are on a social visit to DGG's home. Immediately prior to the excerpt, RGW has been telling DGG that she left a hat of hers at the house some time before. DGG claims that the hat was still there at her last visit, and that she could have found it if she had looked for it.

When DGG tells RGW that the hat was at his house all along, she responds with the turn in line 1 of (79). DGG reacts to this by issuing the turn in line 2. In this turn, he points to a spot on

the wall of the house at the left front of the shot -- across the room from him, and next to RGW -- and indexes it with DLOC2 *ŋe²ʔa⁴*.

In line 3, RGW issues a content question, which initiates repair of DGG's turn from line 2. In line 4, DGG therefore reformulates his turn from line 2 in a slightly more precise form. He indexes the same location as in line 2. This time, however, he describes the referent location using DNOM2 plus the part term *+pe̯¹ʔe³* 'front,' rather than DLOC2 alone. (The change from DNOM to DLOC in the repaired turn is syntactically motivated: DLOCs never act as the possessors of part terms such as *+pe̯¹ʔe³*.) In line 5, RGW reacts to DGG's turn from line 4 with an interjection conveying surprise.

Figure 6.4: Participants in (79) at onset of line 2

(79) 20170527a 6:31

1. (RGW:) *bai⁵¹ nɨ³¹ʔɪ̃³- nɨ³¹ʔɪ̃³ tʃa¹ʍa⁵ʔɪ̃⁴*
   bai⁵¹ nɨ³¹ =ʔɪ̃³ tʃa¹= ʍa̯¹ =ʔɪ̃⁴
   not.at.all 3 =ACC 1SG.A.SC= know(A) =SUB
   'I had no idea.'

2. DGG: *ŋe²a⁴ ã⁴ma⁴ a³rɨ¹ ɟi¹ʔĩ¹ʔ na¹ʔɨ³¹ʔ=*
ŋe²a⁴ =ã⁴ma⁴ a³rɨ¹ ɟi¹ʔĩ¹ʔɨ̃⁴ na¹= ɨ⁴³ =ʔɨ̃⁴
DLOC2:LOC =Ã⁴MA⁴ INFO FOC.SC 3.A.SC= put:InamSgO =SUB
'It was THERE (DLOC2), you know.'
((DGG index-finger pointing as shown in Figure 6.4))
((DGG gazing at pointing target))

3. (RGW:) *ʎe¹ʔɨ̃⁴ ɟi¹ʔĩ¹ʔɨ̃⁴?*
ʎe¹ʔɨ̃⁴ ɟi¹ʔĩ¹ʔɨ̃⁴
where?(IV) FOC.SC
'Where?'

4. DGG: (1.2) *ŋe³a² ã⁴ma⁴pɐ̨¹ʔe³wa⁵*
ŋe³a² =ã⁴ma⁴ +pɐ̨¹ʔe³ =wa⁵
DNOM2 =Ã⁴MA⁴ +tip/front =ALL
'On the front (end) of that one (DNOM2).'
((DGG pointing with ASL letter B handshape and gazing at target as in line 2))

5. (RGW:) *kɨ¹ʔɨ³?*
kɨ¹ʔɨ³
INTJ:astonished
'REALLY?!'

The tokens of DLOC2 in line 2 and DNOM2 in line 4 of (79) are coreferential. Their referent is a place on the opposite wall of the house from the speaker, DGG. It is far from the speaker by any standard, located at least 2m beyond his reach. In comparative terms, the referent of DNOM/DLOC2 is also farther away from the speaker than any other possible referent within the room where the conversation takes place (since it is on one wall of the room, and he is seated near the other). Given the vector of DGG's pointing gesture, the referent appears to be located near the head of the addressee, RGW. As such, the referent location here is within the addressee's peripersonal space, and therefore also within the sociocentric space.

What the acceptability of DNOM/DLOC2 in (79) shows is that referents which are far from the speaker -- well beyond reaching space -- can still be indexed with DNOM2, provided that they are within the sociocentric space (including the peripersonal space of the addressee). Combined with the evidence from (78), this eliminates an analysis of DNOM/DLOC2 as conveying that the referent is in the 'middle distance' relative to the speaker. There is no principled construal of 'middle distance' under which both the referent in (78) and the referent in (79) are in the middle distance relative to the speakers: in (78) the referent is a few centimeters from the speaker's body, and in (79) it is at least 2m away. What licenses the use of DNOM/DLOC2 in these examples is not

the distance or location of the referent relative to **the speaker**, but the location of the referent **within the sociocentric space**.

6.3.4 DNOM/DLOC2 in side-by-side conversation

The sociocentric proximal analysis cleanly accounts for about four-fifths of the tokens of DNOM/DLOC2 in the conversational corpus where the speaker, addressee, and referent can all be identified. In the other one-fifth of the analyzable tokens of DNOM/DLOC2, though, the sociocentric proximal analysis proposed above is questionable. In this minority of tokens, the speaker and addressee are located side-by-side, and the speaker uses DNOM/DLOC2 to index a referent which is not located in their own reaching space, the addressee's reaching space, or between them.

The exceptional side-by-side tokens of DNOM/DLOC2 appear to contradict the sociocentric proximal analysis proposed above. To accommodate them without change to the sociocentric core of the analysis, I apply the concept of a **broad sociocentric space**, defined either by a (built) perimeter that encloses the discourse participants or by the zone of participants' joint activities. This concept is independently necessary to account for the effects of built perimeters on the use of DNOM/DLOC2 in the Demonstrative Questionnaire (§6.3.2).

One representative token of DNOM/DLOC2 which initially appears to contradict the sociocentric proximal analysis appears in (80). Figure 6.5 shows the participants in this example. They are AYM (the woman lying on the floor), her husband EWI (the man at front right), and KGW (the woman sitting on the bench), who is closely related to both AYM and EWI. AYM and EWI are on a social visit to KGW at KGW's house. Immediately prior to the excerpt, AYM has been complaining to KGW that she has a sore inside of her mouth. KGW suggests that they treat the sore by applying hot ashes from her cooking fire (at back left of the frame) to it, followed by commercial medicine. Although AYM's facial expression suggests she is skeptical about this treatment, KGW begins acting to assemble the equipment for it.

In line 1 of the excerpt in (80), KGW yells to her daughter (in an adjoining room) to bring her a commercial ointment. In line 2, EWI reminds her (in Spanish) that she wil also need a mirror to apply the treatment to AYM's mouth. In line 3, KGW therefore yells another request to the daughter, this time asking for a mirror. After requesting these objects, KGW repeats to AYM her advice to use ashes on the wound. She indexes the ashes with DNOM2 in line 3 of the excerpt. In line 4, KGW then demonstrates how AYM should apply the ashes, making an iconic gesture.

Figure 6.5: Participants in (80) at onset of line 4

(80) 20170527b 8:02

1. KGW: [very loud] *Andrea! e³ĩ¹ka⁵ʔ, clotrimasol nu²a² na¹ʎe⁴³*
   Andrea! e³ĩ¹ka⁵ clotrimasol nu²a² na¹= ʎe⁴³
   pers.name INTJ:IMP Sp:clotrimazole DLOC1:LOC IMP.A= transport:InamSgO(A)
   'Andrea! Come on, bring the clotrimazole here.'
   ((KGW gazing through open doorway in foreground))

2. EWI: *tu espejo*
   (Spanish) 'Your mirror?'
   ((EWI gazing at KGW))

3. KGW: [loud] *m³¹, ɲu¹ʔũ⁴tʃi⁵ ɟi³¹ʔe²ma⁴ espejito nu²a² na¹ʎe⁴³*
   m³¹ ɲu¹ʔũ⁴tʃi⁵ ɟi³¹ʔe²ma⁴ espejito nu²a² na¹=
   INTJ also DNOM5(I) Sp:mirror:DIM(I) DLOC1:LOC IMP.A=
   ʎe⁴³
   transport:InamSgO(A)
   'Mm, bring the mirror here too.'
   ((AYM and KGW gazing at each other))

4. KGW: (1.5) *ŋe³a² ma⁴ã²i⁵ra¹*
ŋe³a² =ma⁴ã² =i⁵ra¹
DNOM2(IV) =COM/INST =first
'First with that stuff (DNOM2).'
((KGW index pointing with right hand at fire as shown in Figure 6.5))
((KGW gazing at pointing target, then at AYM))
((AYM and EWI gazing at KGW))

5. KGW: *ɲa⁴a² di¹ʔ*
ɲa⁴a² diʔ
DNOM1(IV) PRES
'Like this, look.'
((KGW makes an iconic gesture: dabbing inside of mouth with index finger of right hand))
((KGW gazing at AYM))
((AYM and EWI gazing at KGW))

KGW and her addressee AYM are essentially side-by-side in (80). The referents of DNOM2 in line 4 are the ashes in KGW's cooking fire at the back left of the frame. These referents are not in either participant's peripersonal space, nor are they located between the participants. Instead, the ashes are a meter or two beyond the reach of the speaker, KGW, and a similar distance from the addressee, AYM. This means that they are not within the narrow sociocentric space, as defined exclusively by the participants' locations, at the moment that KGW utters the DNOM2 token in line 4.

On a broader definition of the sociocentric space, however, the ashes in (80) **are** within the sociocentric space. This is true whether we allow sociocentric space to be defined only by built perimeters, or also by the spatial extension of participants' joint activities.

To see how a definition of sociocentric space hinging on **built** perimeters accounts for this example, consider the arrangement of the room in Figure 6.5. The speaker, KGW, and addressee, AYM, are both located at the edges of the usable space in the room: AYM near the left wall, and KGW near the back wall. The walls of the room therefore define a built perimeter that tightly encloses the participants on two sides. If we treat the back wall of the room (and not the edge of the participants' reaching space) as defining the forward extension of the sociocentric space, then the referents are within it.

To see how a definition hinging on **activity** perimeters accounts for (80), a new piece of information is necessary. Throughout the recording from which (80) is drawn, KGW and AYM are engaged in a joint task of cooking something on the fire, using the pot seen at the back left of Figure 6.5. For the entire 12-minute recording, including the time prior to this excerpt, the participants (especially KGW) frequently walk back and forth from their locations in Figure 6.5 to monitor the fire. This places the fire within the spatial extension of a joint task involving both participants. Consequently, if we treat the zone of KGW and AYM's joint cooking activity as

defining the forward extension of their sociocentric space, then the referents are again within it.

Figures 6.6 and 6.7 display these different possible analyses of the extension of the sociocentric space in (80). Figure 6.6 diagrams the extension of the sociocentric space if it is defined exclusively by the participants' locations. As the figure shows, on this analysis the referent is outside of the sociocentric space (and DNOM2 should be unacceptable).

Figure 6.6: Sociocentric space of the participants in (80), if defined **only** by participants' locations

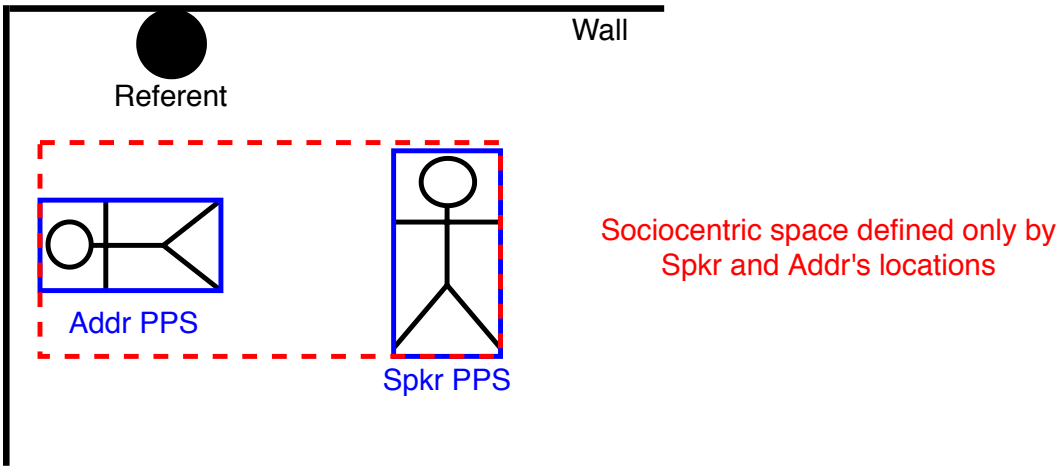
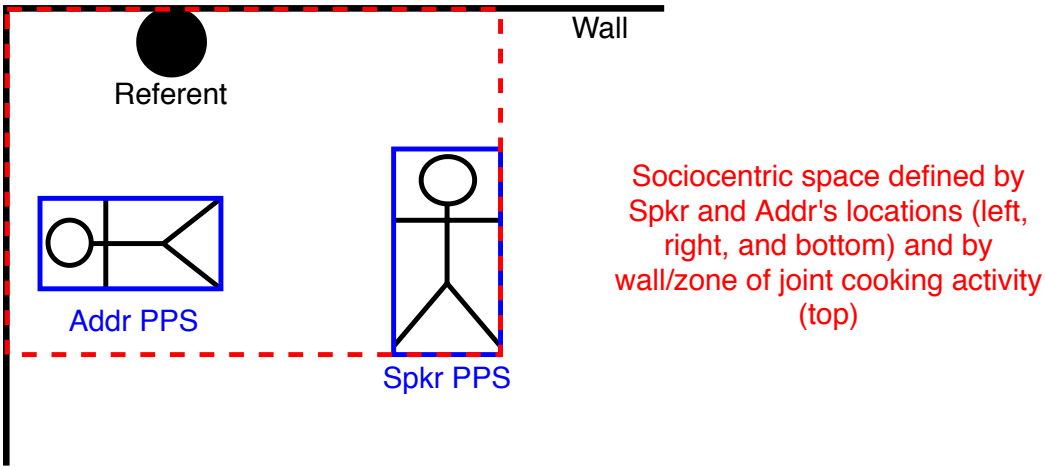


Figure 6.7 diagrams the extension of the sociocentric space if it is defined jointly by (a) the participants' locations and (b) the built perimeter or zone of joint activity that encloses them. As this figure shows, this broader definition results in a metrically very small change in the forward boundary of the sociocentric space. That change, however, is sufficient to include the referent in the sociocentric space and account for the use of DNOM2.

Figure 6.7: Sociocentric space of the participants in (80), if defined by participants' locations **and** by built/activity perimeters



All of the other exceptional side-by-side tokens of DNOM/DLOC2 in the conversational corpus are susceptible to the same kind of analysis as (80). These uses of the item uniformly index referents that -- even though they are not located between the participants -- **are** inside of a salient built space with the participants, inside the participants' zone of ongoing activity, or (in most cases) both.[4] As a result, I conclude that DNOM/DLOC2 always indexes a referent located inside of the sociocentric space. This space is by default defined narrowly, as the smallest perimeter which fully encloses the discourse participants (Figure 6.6). In contexts that involve a built perimeter or joint activity with a larger spatial extension, the sociocentric space can also be defined more broadly, to include all of the space circumscribed by the built perimeter or occupied by the activity (Figure 6.7).

6.4 The distal demonstrative is a true egocentric distal

6.4.1 Introducing DNOM/DLOC3, the apparent distal

DNOM/DLOC3 is essentially the complement of the speaker-proximal, DNOM/DLOC1. Like DNOM/DLOC1, DNOM/DLOC3 is egocentric, taking the speaker as its sole origo. The deictic content of the item, like the deictic content of DNOM/DLOC1, concerns the location of the referent inside the speaker's peripersonal space. DNOM/DLOC1 encodes that the referent is **inside** this space; DNOM/DLOC3 that it is **outside**.

Speakers have clear metalinguistic intuitions that DNOM/DLOC1 and DNOM/DLOC3 are antonyms. Participants consistently volunteered that the two demonstratives were opposites and that DNOM/DLOC1 conveys that the speaker is touching the referent or has it near them, while DNOM/DLOC3 conveys that the referent is far away.

For example, on June 23, 2018, I conducted an experiment with EFG, a 29-year-old college-educated man, that involved pointing at visible and invisible referents located at various distances and indexing them with demonstratives (reported in Skilton and Peeters 2019). As I transitioned from the experiment procedure to a post-test, EFG said 'Can I tell you something?' and then produced the comments in (81), speculating on the purpose of the experiment. Note that EFG volunteered these comments even though (by design) nothing in the task he had just completed involved metalinguistic questions about demonstratives; the comments do **not** come from an elicitation session.

(81) EFG, 20180623

1. EFG: *kʉ̱¹ʔa⁵ tą̱²ʔa⁴kɨ⁴ru⁵ʔɪ̃¹↘*
   kʉ̱¹ʔa⁵ tą̱²ʔa⁴kɨ⁴ =ru⁵ʔɪ̃¹
   EPIST.POSS what? =NMLZ:agent/instrument
   'What this must be for-'

[4]The only exceptions to this involve uses of DLOC2 to index referents located on the same side of a landmark as the speaker. Those are part of a larger paradigm of deictically unusual landmark-oriented uses of DLOCs. I do not discuss this paradigm for reasons of space.

2. AHS: *ẽ ɲu̱¹ʔma⁵ tɨ³¹ʔĩ⁵ na⁴ŋẽ²ʔma⁴ i⁴ wɨ⁴³ʔi⁴ i⁴ prueba*
'Um now it's time for us to do a test.'

3. EFG: *dɨ¹ʔ, dɨ¹ʔka⁴ dɨ¹ʔ*
dɨ¹ʔ dɨ¹ʔka⁴ dɨ¹ʔ
PRES PRES PRES
'Hey, hey pay attention.'

4. EFG: *e³rɨ⁴ na¹ʎai¹ka²ma⁴gu² ni⁴¹ʔĩ⁴* ***ɲa⁴a²*** *ɲa⁴a²gɨ⁵ʔĩ⁴ ɨ¹kɨ²=*
e³rɨ⁴ na¹= ʎai¹ka²ma⁴ =gu² ni⁴¹ʔĩ⁴ **ɲa⁴a²** ɲa⁴a²gɨ⁴ =ʔĩ⁴ ɨ¹kɨ²
INFO 3.A.SC= near:LOC =SUB FOC **DNOM1(IV)** QUOT.IMPERS.SC =SUB INFO
'OK, when it's NEARBY, you say **"this" (DNOM1)**.'

5. EFG: *e³ga⁴ na¹ɟa²ʔĩ⁴gu² ni⁴¹ʔĩ⁴* ***ɟe³a²*** *ɲa⁴a²gɨ⁵ʔĩ⁴, kɨ²a⁴na⁴?*
e³ga⁴ na¹= ɟa²ʔĩ⁴ =gu² ni⁴¹ʔĩ⁴ **ɟe³a²** ɲa⁴a²gɨ⁴ =ʔĩ⁴ kɨ²a⁴na⁴
if 3.A.SC= far:LOC =SUB FOC **DNOM3(IV)** QUOT.IMPERS.SC =SUB INTJ:tag
'And when it's FAR AWAY, you say **"that" (DNOM3)**, right?'

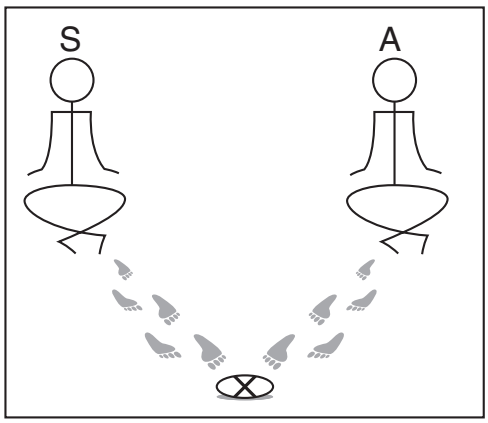
In the following two sections, I demonstrate that data from both the Demonstrative Questionnaire task (§6.4.2) and conversation (§6.4.3) bears out speakers' metalinguistic comments about DNOM/DLOC3, showing that this demonstrative is minimally different from DNOM/DLOC1. I focus especially on showing that the origo of DNOM/DLOC3 is egocentric (like DNOM1), not sociocentric (like DNOM2) or addressee-centered (like DNOM5).

6.4.2 DNOM/DLOC3 in the Demonstrative Questionnaire

There were four scenes of the DNOM version of the Demonstrative Questionnaire, and six of the DLOC version, where participants displayed moderate or high agreement on DNOM/DLOC3 in their volunteered forms. These scenes can be divided into ones showing high agreement on DNOM/DLOC3, where at least 80% of participants volunteered the item, and ones showing moderate agreement, where 60-79% of participants volunteered it.

The first high agreement DNOM/DLOC3 scene is scene 12. In this scene, speaker and addressee are seated together. The referent is about five paces away in front of them, visible to and equidistant from both discourse participants, as shown in (82). Nine of 10 participants in the DNOM version of the task, and four of five participants in the DLOC version, volunteered DNOM/DLOC3 in this scene.

(82) Demonstrative Questionnaire Scene 12



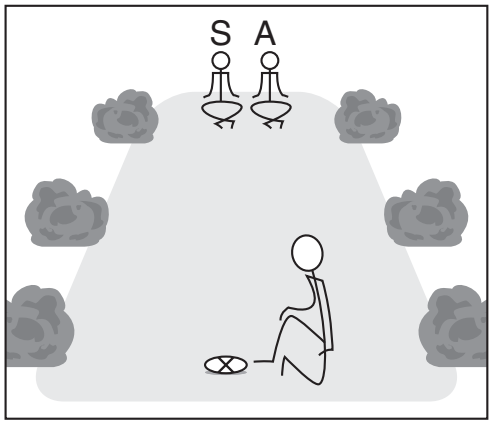
ɟe³a² *ta³ru⁵ rɨ¹, ku³¹rɨ³ ni⁴¹ʔĩ⁴?*

ɟe³a²	ta³ru⁵	rɨ¹	ku³¹rɨ³	ni⁴¹= ĩ⁴
DNOM3(IV)	fire.fan(IV)	TOP	2SG.AL.POSS	3.I= COP(I)

'That (DNOM3) fire fan, is it yours?'
(KSC: 2018.1.44)

The second high agreement scene is scene 13. In this scene, speaker and addressee are standing together at one end of a large cleared space. The referent is at the other end of the space, visible to and equidistant from both participants (83). Eight of 10 participants volunteered DNOM3 in the DNOM task for this scene, and five of five participants volunteered it in the DLOC version.

(83) Demonstrative Questionnaire Scene 13



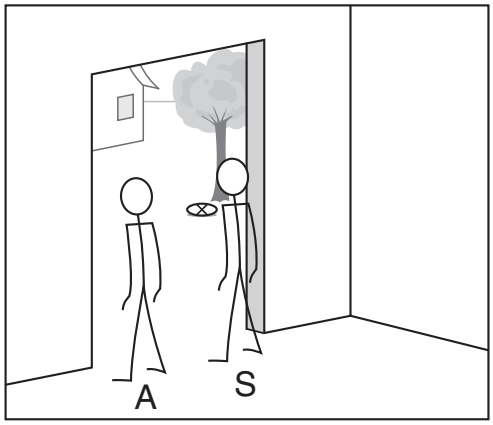
gu²a⁴ pa³ne⁴ra¹ rɨ¹ɛ̰¹ʔna⁵ ku³¹rɨ³ ni⁴¹ʔĩ⁴?

gu²a⁴ pa³ne⁴ra¹ rɨ¹ɛ̰¹ʔna⁵ ku³¹rɨ³ ni⁴¹= ĩ⁴
DNOM3(II) metal.pot(II) ALT 2SG.AL.POSS 3.I= COP(I)

'Is that (DNOM3) pot yours?'
(ECP: 2017.2.45)

The third high agreement scene is scene 21. As in scenes 12 and 13, speaker and addressee are together. They are standing in the doorway of a built space. The referent is outside the doorway, several paces away. It is in line with the speaker's location (on their side of the doorway), not the addressee's, but is visible to both participants (84). Eight of 10 participants volunteered DNOM3 in this scene, and five of five volunteered DLOC3.

(84) Demonstrative Questionnaire Scene 21



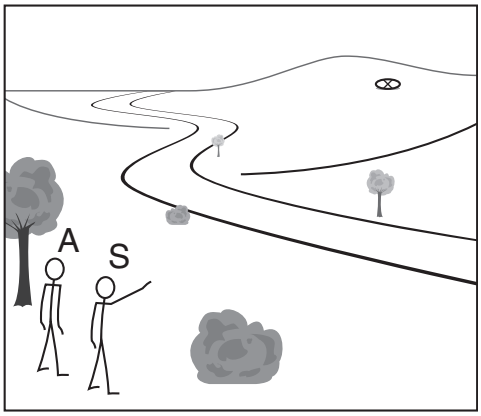
ku³¹rɨ³ ni⁴¹ʔĩ⁴ i⁴ ɟe³a² *pa³ka³ra⁴?*

ku³¹rɨ³ ni⁴¹= ĩ⁴ i⁴ ɟe³a² pa³ka³ra⁴
2SG.AL.POSS 3.I= COP(I) DET(IV) DNOM3(IV) lidded.basket(IV)

'Is that (DNOM3) basket yours?'
(SSG: 2017.2.187)

The fourth high agreement scene, and the last that displays high agreement on both DNOM3 and DLOC3, is scene 24. The speaker and addressee are again together outdoors. The speaker points out a visible landmark on the horizon, located hundreds of meters away (85). Eight of 10 participants volunteered DNOM3 in this scene, and four of five volunteered DLOC3.

(85) Demonstrative Questionnaire Scene 24



gu²a⁴ nai³¹gu² tʃa³ʔĩ²na⁴gɨ⁴ wɨ⁴³ʔi⁴ ga⁴ ʎu¹ne³ʔĩ⁴gu².

gu²a⁴	nai³¹	=gu²	tʃa³=	ĩ²	+na⁴gɨ⁴	wɨ⁴³ʔi⁴	ga⁴	ʎu¹ne³ʔĩ⁴
DNOM3(II)	tree	=LOC	1SG.A=	climb(A)	+DIR:upward:SgS	one	DET.REMPST	day

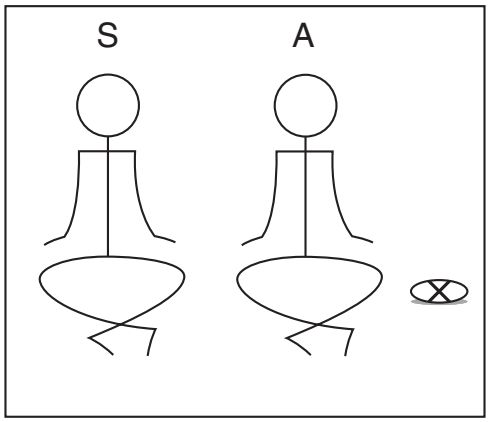
=gu²
=LOC

'One day I climbed that (DNOM3) tree.'
(ECP: 2017.1.183)

The final two scenes with high to moderate agreement on this item involve referents that are not visible to the speaker. Because of the visibility requirements of DNOM3 (Chapter 4), the DNOM in this pair is not acceptable in these scenes and was not consistently volunteered or accepted in the original (DNOM) version of the Demonstrative Questionnaire. DLOC3, on the other hand, does not have visibility requirements -- none of the DLOCs do -- and therefore was volunteered in invisible scenes as well as the visible ones.

The first of the two DLOC3-only scenes is scene 10. In this scene, the speaker and addressee are seated side-by-side. The referent is on the far side of the addressee's body from the speaker. The addressee can easily see and reach the referent, but the speaker cannot (86). Three of five participants volunteered DLOC3 in this scene, showing moderate agreement on the item. The two speakers who did not volunteer DLOC3 both volunteered DLOC5, the addressee-centered locative demonstrative.

(86) Demonstrative Questionnaire Scene 10



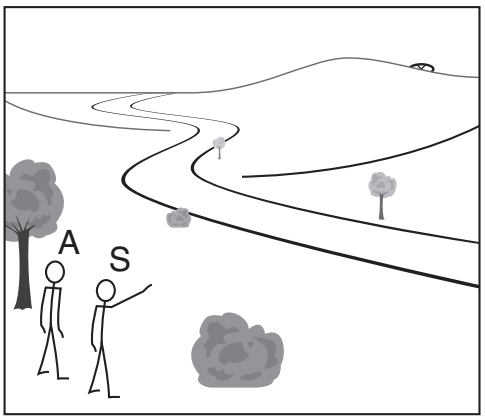
ɟe²ʔa⁴ na³ʔi⁴³.

ɟe²ʔa⁴ na³= i⁴³
DLOC3:LOC IMP>3OBJ.A= put:InamSgO(A)

'Put it there (DLOC3).'
(ECP: 2017.2.110)

The second DLOC3-only scene is scene 25. This scene is identical to scene 25 except that the referent is invisible. Speaker and addressee stand together; the speaker points out a landmark that is hundreds of meters away, beyond the horizon and therefore invisible. Four of five participants volunteered DLOC3 in this scene, showing high agreement.

(87) Demonstrative Questionnaire Scene 25



ɟe⁵a², *Galilea=wa⁵ tʃa³ʔũ⁴³.*

ɟe⁵a²	Galilea	=wa⁵	tʃa³=	ũ⁴³
DLOC3:ALL	G	=ALL	1SG.A=	come/go:SgS(A)

'I went there (DLOC3), to Galilea.'
(ABS: 2017.2.91)

The DNOM/DLOC3 high agreement scenes (that is, all but scene 10) have three properties in common.

First, the referent is always **outside of the speaker's peripersonal space**. In some high agreement scenes, such as scenes 12 and 21, the referent is only a few meters beyond the speaker's reach; in others, such as scenes 13 and 24, it is tens to hundreds of meters away. This shows that the deictic content of DNOM/DLOC3 concerns not the **distance** of the referent from the speaker, but the **location** of the referent outside the speaker's peripersonal space. If the deictic content of DNOM/DLOC3 concerned distance, the item would become more frequent in the data as the distance of the referent from the speaker increased. Rather than this linear relationship, we find a categorical relationship. Referents inside the speaker's peripersonal space are indexed with DNOM/DLOC1 (Chapter 5), while referents outside are indexed with DNOM/DLOC3 (modulo visibility and the use of sociocentric and addressee-centered demonstratives).

Second, in all of the high agreement scenes, the referent of DNOM/DLOC3 is also located outside of the narrow sociocentric space as defined in §6.3.2. Scene 10, which displays moderate agreement on DLOC3, is the only exception: there the referent is inside the addressee's peripersonal space, and therefore inside the narrow sociocentric space. But since either egocentric or sociocentric analyses are possible for all of the high agreement scenes, this response pattern leaves uncertain whether the origo of DNOM/DLOC3 is egocentric or sociocentric. Conversational data, however, clarifies that it is egocentric (§6.4.3).

Third, in all of these scenes, the speaker and addressee have identical spatial and perceptual relations to the referent. Spatially, the referent is equidistant from the participants in every

high agreement scene; perceptually, both participants have the same ability to see the referent. Scene 10 is again the only exception. As with the issue of sociocentricity, this leaves uncertain whether DNOM/DLOC3 requires symmetrical spatial-perceptual relations to the referent by both participants (which would be consistent with a sociocentric origo) or does not (consistent with an egocentric origo). Conversational data is again crucial here, showing that DNOM/DLOC3 does not require symmetrical relations to the referent.

6.4.2.1 Contrast does not affect the acceptability of DNOM3

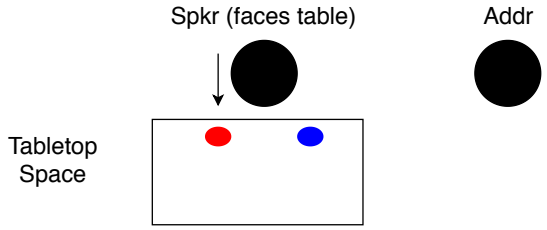
Before I turn to conversation, I adduce one additional piece of evidence that DNOM/DLOC3 requires location outside the peripersonal space. This evidence comes from the use of DNOM3 in contrastive object reference. (Uses of DLOC3 in contrastive place reference show the same patterns.)

In some languages, including English, contrast improves the acceptability of distal demonstratives for referents within the speaker's peripersonal space. For example, an English speaker with two minimally different marbles in front of them -- within their peripersonal space -- might point to one and say *This marble is blue,* then point to the other and say *That marble is red.* Contrast does **not** have this effect in Ticuna. DNOM3 cannot be used within the speaker's peripersonal space even in contrastive contexts.

To test the acceptability of DNOM3 in contrastive reference to objects within peripersonal space, I set up the contrastive arrays shown in (88) and (89) with three consultants. In the array in (88), the speaker has two referents within their peripersonal space that contrast minimally in color. In (89), there are three minimally contrasting referents. The referents are arrayed from left to right at equal distance from one another and from the speaker's body. In each array, I asked each of the three consultants to refer to each marble in turn and state its color. Consultants were required to refer to the referents in each of the two possible orders in the array in (88), and in four of the six possible orders in the array in (89).

Across the three participants and eighteen total trials of contrastive reference in the arrays in (88) and (89), the **only** demonstrative volunteered was DNOM1 *ɲa⁴a²*. Despite the salient contrast, DNOM3 was never volunteered. Only one consultant, LWG, provided judgments as well as volunteered forms. However, she rejected DNOM3 in both arrays (when asked to judge sentences using DNOM1 for the first mentioned referent(s) and DNOM3 for the last referent). The sentences in (88) and (89) show sample volunteered forms and rejected forms from LWG.

(88) Context:

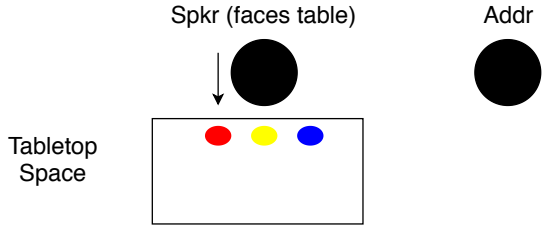


da³¹ʔe² rɨ¹ ta⁴ɟau⁵ʔra¹pi̯¹ʔi³, rɨ¹ ✓*da³¹ʔe²ã⁴ma⁴ / #gu³¹ʔe²* *to¹gu³ʔe¹ rɨ¹ ta⁴dau⁴ʔra¹pi̯¹ʔi³.*

da³¹ʔe² rɨ¹ ta⁴= ɟa̯u¹ =ʔɨ¹ra¹ +pi̯¹ʔi³ rɨ¹ ✓da³¹ʔe² =ã⁴ma⁴ /
DNOM1(I) TOP 3(I).A= blue/green(A) =sorta +CLF:sphere and ✓DNOM1(I) =Ã⁴MA⁴ /
#gu³¹ʔe² to¹gu³ʔe¹ rɨ¹ ta⁴= dau⁴ =ʔɨ¹ra¹ +pi̯¹ʔi³
#DNOM3(I) other(I) TOP 3(I).A= red(A) =sorta +CLF:sphere

'This one (DNOM1), it's sort of blue, and this other one (✓DNOM1 / #DNOM3), it's sort of red.'
(LWG: 2018.1.134)

(89) Context:



da³¹ʔe² rɨ¹ ta⁴dau⁴ʔra¹pi̯¹ʔi³, da³¹ʔe² rɨ¹ ta⁴de⁴ʔe¹ra¹pi̯¹ʔi³, ✓*da³¹ʔe² / #gu³¹ʔe²* *rɨ¹ ta⁴ɟau⁵ʔra¹pi̯¹ʔi³.*

da³¹ʔe² rɨ¹ ta⁴= dau⁴ =ʔɨ¹ra¹ +pi̯¹ʔi³ da³¹ʔe² rɨ¹ ta⁴= de⁴ʔ =ʔɨ¹ra¹
DNOM1(I) TOP 3(I).A= red(A) =sorta +CLF:sphere DNOM1(I) TOP 3(I).A= yellow(A) =sorta
+pi̯¹ʔi³ ✓da³¹ʔe² / #gu³¹ʔe² rɨ¹ ta⁴= ɟa̯u¹ =ʔɨ¹ra¹ +pi̯¹ʔi³
+CLF:sphere ✓DNOM1(I) / #DNOM3(I) TOP 3(I).A= blue/green(A) =sorta +CLF:sphere

'This one (DNOM1), it's sort of red, this one (DNOM1), it's sort of yellow, and this one (✓DNOM1 / #DNOM3), it's sort of blue.'
(LWG: 2018.1.134)

I take participants' failure ever to volunteer DNOM3 in the contexts in (88) and (89), along with LWG's rejection of the item in these contexts, to show that DNOM/DLOC3 is not acceptable for referents within peripersonal space even in situations of contrast. With this result in mind, I now turn to the conversational data on the item.

6.4.3 DNOM/DLOC3 in conversation

6.4.3.1 The origo of DNOM/DLOC3 is egocentric

In the Demonstrative Questionnaire, all of the high agreement scenes for DNOM/DLOC3 involve reference to an object that is located both outside the speaker's peripersonal space and outside the sociocentric space. As a result, this data leaves unclear whether DNOM/DLOC3 is an egocentric distal demonstrative or a sociocentric one. If the item is an egocentric distal, it should be acceptable for referents located anywhere outside the speaker's peripersonal space, including between the participants or in the addressee's peripersonal space. If the item is a sociocentric distal, on the other hand, it should not be acceptable for referents in those locations.

Conversational data resolves this ambiguity, showing that the origo of DNOM/DLOC3 is egocentric. Speakers can use the items to index referents located on or near the addressee's body, as well as for referents located between speaker and addressee. These uses would be impossible if DNOM/DLOC3 was a sociocentric distal, since referents in these locations are within the sociocentric space.

As evidence that DNOM/DLOC3 can index referents **in the addressee's peripersonal space**, look to (90). This example is repeated from (60) in Chapter 5. Figures 6.8 and 6.9 show the participants in it. They are RGW, seated on a table at the left edge of the frame; AYM, seated on the floor at the back of the frame with her toddler; and DGG, at the right edge of the frame. Recall from the discussion surrounding this excerpt in (60) that in this recording, RGW and AYM are on a social visit to DGG at his home, and AYM is trying to make change for 80 soles (a fairly large amount of money) for DGG.

Before the excerpt begins, AYM is looking through her purse for change for DGG. She is handling paper money as she attempts to find the correct quantity. In line 1, RGW issues the first turn in the excerpt, pointing out the value of the bills that AYM is handling. She indexes them with DNOM3, used as the predicate in a presentative construction. In line 2, RGW issues another very similar turn, again pointing out the value of the bill that AYM is handling. She still uses a presentative construction, but this time the predicate is DNOM5, not DNOM3.

Figure 6.8: Participants in (90) at onset of line 1; repeated from Figure 5.3

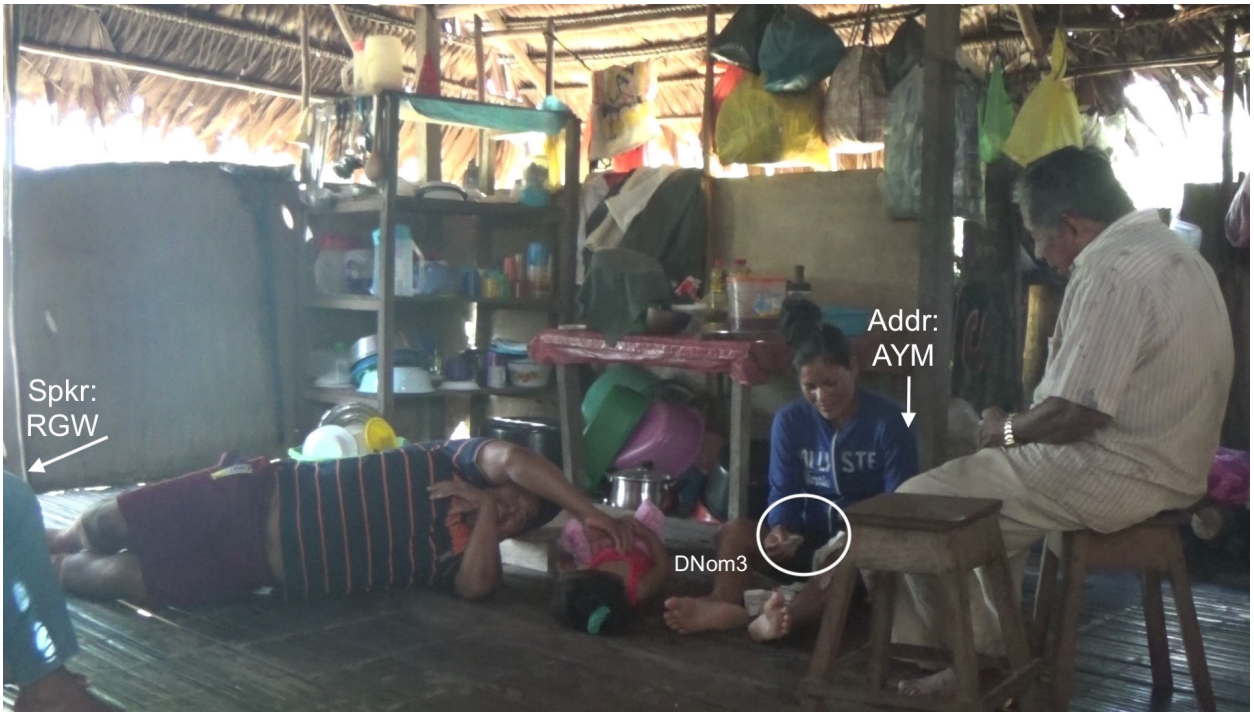


Figure 6.9: Participants in (90) at onset of line 2; repeated from Figure 5.4

(90) 20170527 34:10; repeated from (60)

1. (RGW:) *dɨ¹ʔ, gu³¹ʔe² a³rɨ¹ ti⁴¹ʔĩ⁴ a⁴ veinte*
   dɨ¹ʔ gu³¹ʔe² =a³rɨ¹ ti⁴¹= ĩ⁴ a⁴ veinte
   PRES DNOM3(I) =INFO 3(I).I= COP(I) DET(I) Sp:20
   'Look, there's (DNOM3) (some) 20s.'
   ((AYM handling two 20-sol notes, as shown in Figure 6.8))

2. (RGW:) *ɟi³¹ʔe²ma⁴ ti⁴¹ʔĩ⁴ a⁴ noventa*
   ɟi³¹ʔe²ma⁴ ti⁴¹= ĩ⁴ a⁴ noventa
   DNOM5(I) 3(I).I= COP(I) DET(I) Sp:90
   'There's (DNOM5) 90.'
   ((AYM handling a 50-sol note as shown in Figure 6.9))

RGW, seated mostly off camera at the far left, is the speaker of both turns in (90), and AYM, seated at center, is the addressee. The referents of RGW's token of DNOM3 in line 1, and also the referents of her token of DNOM5 in line 2, are located in AYM's hands at the moment that RGW produces the DNOM tokens. This means that the referents are inside the addressee's peripersonal space, and therefore also inside the sociocentric space. Since DNOM3 is still acceptable in reference to them in line 1, it cannot be a sociocentric distal. It can only be an egocentric distal, encoding that the referent is beyond the speaker's peripersonal space.

Recall from §6.4.2 that speaker and addressee have symmetrical relations to the referent in all of the DNOM3 high agreement scenes of the Demonstrative Questionnaire. As such, it is also important in (90) that the speaker and addressee have different spatial and perceptual relations to the referent. In (90), the addressee owns the referents, has the referents within her peripersonal space, and is gazing at and handling them at the moment of speech. The speaker has no ownership claim on the referents, does not have them in her peripersonal space, and is not handling them (though she is, we can infer, gazing at them) at the moment of the excerpt. Since the speaker is still able to use DNOM3 in this context of maximally asymmetrical relations to the referent, it cannot include information about symmetrical access to the referent as part of its deictic content.

In sum, (90) confirms what the data on scene 10 of the Demonstrative Questionnaire suggested in §6.4.2. DNOM/DLOC3 are egocentric distals. Their sole origo is the speaker; they do not encode anything about the location of the referent relative to the addressee, nor about whether the speaker and addressee have symmetrical perspectives on the referent.

It is important that these are type-level claims about what DNOM/DLOC3 encode, not token-level claims about what kinds of referents they are most often used to index. At the token level, DNOM/DLOC3 are in fact rarely used for referents within the sociocentric space. At most 10% of tokens of the items in the conversational corpus index a referent that is in the addressee's

peripersonal space (as in 60) or otherwise inside the sociocentric space. In other words, while DNOM/DLOC3 does not have an encoded sociocentric origo, in usage it is strongly associated with location outside the sociocentric space.

6.4.3.2 The deictic content of DNOM/DLOC3 encodes only location outside the speaker's peripersonal space

In this chapter and Chapter 5, I have argued that three of the four exophoric demonstratives of Ticuna are proximals, analyzing DNOM/DLOC1 as a speaker-proximal, DNOM/DLOC2 as a sociocentric proximal, and DNOM/DLOC5 as an addressee-proximal. This analysis treats the space occupied by the interaction -- the speaker and addressee's peripersonal spaces, and the sociocentric space which they define -- as very highly differentiated in the system of demonstrative reference. The spatial field outside the interaction, on the other hand, is massively underdifferentiated. All spaces not associated with a participant are lumped together into the extension of DNOM/DLOC3. It does not matter whether those spaces are near or far in terms of measurable distance. They can be a few meters away but outside the interaction, or hundreds of meters away (§6.4.2).

The claim that DNOM/DLOC3 includes all space that is not positively associated with a discourse participant makes a testable prediction about the item. If DLOC3 is the only demonstrative that is not proximal, then when speakers make 'throwaway' demonstrative reference (Hanks 1990:425) -- reference to places that are relevant only for the fact that they are not here -- they are predicted to use DLOC3. For example, when speakers announce that they are leaving (without disclosing the destination), or when they tell addressees to back off, they should always use DLOC3, not any other demonstrative. (This prediction is specific to DLOC3, and not to both DLOC3 and DNOM3, because of the DNOM's visibility requirement.)

Conversational data confirms this prediction. Speakers routinely use DLOC3 to index places without conveying any information about where those places are. (91) provides an especially clear example of the throwaway use of the item. Figure 6.10 shows the participants in this example. They are LFG, the young woman at center with the infant, and her brother BFG, the teenage boy at center standing on the ground. Prior to the excerpt, LFG has been scolding BFG for letting some younger children in the household run off with a canoe. Then LFG's husband (off camera) tells her that they need firewood. BFG issues a turn with an interjection conveying total lack of interest. After BFG produces the interjection, LFG changes the topic of her scolding.

LFG's second phase of scolding BFG begins in line 1 of (91), where she tells BFG (using a marked scolding prosody) to look for firewood before going to look for the missing canoe. When BFG does not immediately comply, she issues a second, near-identical imperative in line 2. In line 3 she gives a reason for the request, and in line 4, she repeats it again. In line 5, BFG declines LFG's requests by saying that he is leaving. This turn includes the first of two throwaway uses of DLOC3 in the excerpt. LFG does not accept BFG's claim that he is leaving. Instead, she repeats her imperative again in line 6, and gives a different reason for it in line 7. But the repeated request is still not effective. BFG states again that he is leaving in line 8, making his second throwaway use of DLOC3. He actually leaves approximately 40 seconds later.

Figure 6.10: Participants in (91) at onset of line 8

(91) 20180707 4:39

1. LFG: *ɨ²ʔɨ³wa⁵ ku³¹i⁵ra¹ na¹ʔũ⁴³ʔ=*
ɨ²ʔɨ³ =wa⁵ ku³¹ =i⁵ra¹ na¹= ũ⁴³
firewood =ALL 2SG =first IMP.A= come/go:SgS(A)
'You go get firewood first!'

2. LFG: *ɨ²ʔɨ³wa⁵ na¹ʔũ⁴³ʔ=*
ɨ²ʔɨ³ =wa⁵ na¹= ũ⁴³
firewood =ALL IMP.A= come/go:SgS(A)
'Go get firewood!'

3. LFG: *gu³¹ʔe² tʃo⁴³ʔni⁵ ta⁴ tɨ³¹ʔɨ̃³ tʃa¹me⁴³ʔẽ⁴ʔẽ²ʔ=*
gu³¹ʔe² tʃo⁴³ʔni⁵ ta⁴ tɨ³¹ =ʔɨ̃³ tʃa¹= me⁴³ -ʔẽ⁴ʔẽ³ =ʔɨ̃⁴
DNOM3(I) fish(I) FUT 3(I) =ACC 1SG.A.SC= good(A) -CAUS =SUB
'I have to prepare that fish.'

4. LFG: *ku³¹i⁵ra¹ ɨ²ʔɨ³wa⁵ na¹ʔũ⁴³ʔ*
ku³¹ =i⁵ra¹ ɨ²ʔɨ³ =wa⁵ na¹= ũ⁴³
2SG =first firewood =ALL IMP.A= come/go:SgS(A)
'You go get firewood first!'

5. BFG: (0.7) *ɟe⁵a²ʔã⁴ma⁴ tʃa³ʔũ⁴³*
ɟe⁵a² =ã⁴ma⁴ tʃa³= ũ⁴³
DLOC3:ALL =Ã⁴MA⁴ 1SG.A= come/go:SgS(A)
'I'm going that way (DLOC3).'

6. LFG: *na²ti⁴ri² i¹ki² ku³¹i⁵ra¹ i²ʔi³wa⁵ na¹ʔũ⁴³*
na²ti⁴ri² i¹ki² ku³¹ =i⁵ra¹ i²ʔi³ =wa⁵ na¹= ũ⁴³
but INFO 2SG =first firewood =ALL IMP.A= come/go:SgS(A)
'But like I said you go get firewood first!'

7. LFG: *ma³ pa³pa⁵ ku³¹ma⁴ã² ni³¹ʔĩ³ ti⁴ʔu³ na⁴ʔ ɲu¹ʔre⁵me³na¹ʔã³ nu²a² na¹na¹ʔ=*
ma³ri³ pa³pa⁵ ku³¹ =ma⁴ã² ni³¹ =ʔĩ³ ti⁴= u³ na⁴ʔ ɲu¹ʔre⁵
PERF father(I) 2SG =COM/INST 3 =ACC 3(I).I= say(I) COMP how.many
+me³na¹ʔã³ nu²a² na¹= na⁴ =ʔĩ⁴
+CLF:1D.long DLOC1:LOC 3.A.SC= transport:InamPlO =SUB
'Father already told you how many logs to bring.'

8. BFG: *ɟe²a⁴ã⁴ma⁴ ↘ tʃa³ʔũ⁴³↘*
ɟe²ʔa⁴ =ã⁴ma⁴ tʃa³= ũ⁴³
DLOC3:LOC =Ã⁴MA⁴ 1SG.A= come/go:SgS(A)
'That way (DLOC3)! I'm leaving!'

Between line 5 of (91) and the time when he leaves, there is no point when BFG produces any speech or gesture indicating where he is going -- though he does produce another throwaway use of DLOC3 just before he walks off. Moreover, none of the other discourse participants (who discuss his inappropriate behavior at length after he leaves) make any displays suggesting that they know or think they know where he went. All that they know from BFG's turns in (91) is that he is neither getting the firewood nor at the household.

BFG's throwaway tokens of DLOC3 in lines 5 and 8, then, do not refer to any individuated place or region that could be picked out with a place name, a pointing gesture, or other means of definite place reference. Rather, they are more like indefinites. BFG conveys that he is going somewhere, but he provides the addressee with no information about where. Throughout the conversational corpus, it is consistently DLOC3 that speakers use for this kind of maximally vague demonstrative reference to places. Throwaway reference with DLOC3 can be motivated by lack of interest in cooperating with the addressee, as in (91), but it can also have cooperative motivations. For example, later in the recording from which (91) is drawn, LFG is telling her husband about how a friend came to look for him earlier that day. She quotes herself saying to the friend first, 'I don't know where he is,' and second, 'He paddled off there (DLOC3),' with no gesture and no other speech fixing the DLOC reference. Where all a speaker knows about a place is that it is not here,

throwaway DLOC3 is the most informative way they can index it.

Throwaway uses of DLOC3, with their various motivations, combine with the Demonstrative Questionnaire data to show that this demonstrative has the widest spatial extension in the system. Other demonstratives divide up the space occupied by the interaction into speaker's, addressee's, and joint spaces. DNOM/DLOC3, on the other hand, simply indexes everything that is beyond the speaker's peripersonal space (and, in the case of DNOM3, visible to the speaker). It is not sensitive to the location of the addressee or the spatial boundaries of the interaction, it does not convey where the referent is, and it does not even require that the speaker can identify the referent.

6.5 Conclusion

This section relates the findings on the apparent medial and distal in §6.3 and §6.4 to the theories discussed in §6.2. The findings on the apparent medial, DNOM/DLOC2, are consistent with Levinson's (2018a) claim that medial demonstratives do not exist, but inconsistent with his claim that apparent medials are actually spatially unmarked. The data on the apparent distal, DNOM/DLOC3, supports a spatial analysis of the item. It fails to support analyses of distals as conveying perceptual-cognitive accessibility.

6.5.1 DNOM/DLOC2 is not medial, but also is not spatially unmarked

Recall from §6.2.1 that a coordinated study of demonstratives in 15 languages by Levinson et al. (2018) provided no evidence that medial demonstratives exist. Instead, per Levinson (2018a:37), this research indicates that all apparent medials are either (a) spatially unmarked or (b) plain distals, picking up their medial value by contrast with far distals.

As I argued in §6.3, DNOM/DLOC2 would likely be classified as medial in a traditional (i.e. distance-based, egocentric) analysis of the Ticuna deictic system. Speakers' metalinguistic commentary about the item treats it as sharing properties with both the speaker-proximal and speaker-distal demonstratives, and it sometimes does index referents in the 'middle distance' relative to the speaker (for example, in scene 17 of the Demonstrative Questionnaire).

More detailed analysis of the Demonstrative Questionnaire and conversational data, however, shows that DNOM/DLOC2 is not medial. Rather, the item indexes referents that are inside the sociocentric space. In the significant majority of tokens, this means referents located between the speaker and addressee (including referents inside the speaker or addressee's peripersonal space). In a minority of tokens, it means referents located inside a built perimeter with the discourse participants, and/or inside the space occupied by their joint activity. In either kind of use, the referent of DNOM/DLOC2 can be extremely close to the speaker, as in (78), or quite far from them, as in (79). The referent is not required to be in the middle distance relative to the speaker, defeating an egocentric medial analysis.

The finding that DNOM/DLOC2 is not medial supports Levinson's generalization that there are no true medials. My analysis of the item as a sociocentric proximal, however, is not consistent with his suggestion that apparent medials have no or little spatial deictic content. On my socio-

centric proximal account, the spatial deictic content of DNOM/DLOC2 is similar to that of the egocentric and addressee-centered proximal demonstratives. The two non-sociocentric proximals convey that the referent is within one participants' peripersonal space; the sociocentric proximal conveys that the referent is within the space jointly occupied by both participants. These meanings are of equal informativity, positioning the apparent medial and the two proximals as equally marked.

Since I analyze DNOM/DLOC2 as a sociocentric proximal, it fits neatly into the analogy between proximal demonstratives and local pronouns drawn in Chapter 5. On this analogy, DNOM/DLOC1 is equivalent to the 1SG pronoun, since it indexes (objects in) the space occupied by the speaker, and DNOM/DLOC5 to the 2SG pronoun, indexing (objects in) the space occupied by the addressee. DNOM/DLOC2 indexes the space occupied jointly by speaker and addressee (and potentially other participants). Therefore it is equivalent to a 1INCL (i.e. 1+2 or 1+2+3) pronoun.

Finally, the examples of DNOM/DLOC2 in this chapter have illustrated that it is acceptable for referents located in the speaker's peripersonal space, as well as for referents located in the addressee's peripersonal space. To be sure, in the scenes of the Demonstrative Questionnaire where DNOM/DLOC2 is most natural, the referent is not within peripersonal space for either participant (§6.3.2). Nevertheless, the conversational data cited in this chapter shows that speakers do sometimes use the item for referents within their own peripersonal space, as in (78), or within the addressee's peripersonal space, as in (75) and (79). In contrast to the extended uses of DNOM/DLOCS 1 and 5 discussed in the last chapter, there is no evidence that these uses of DNOM/DLOC2 for referents within peripersonal space require a marked attentional context.

Therefore, in the lexical hierarchy of demonstratives developed in the previous chapter, I propose that DNOM2 is violably ranked below DNOM1 and addressee-centered DNOM5. This ranking is intended to capture (a) via the existence of a ranking, the token-level generalization that DNOM2 **typically** indexes referents outside the participants' peripersonal spaces, and (b) via the violability of the ranking, the type-level generalization that DNOM2 **can** also index referents within those spaces. Figure 6.11, which appears following the discussion of the hierarchical ranking of DNOM/DLOC3, shows the ranking graphically.

6.5.2 DNOM/DLOC3 encodes location relative to ego, not distance or accessibility

As I outlined in §6.2, two kinds of analyses compete to explain the deictic content of distals. Spatial analyses state that the deictic content concerns the location of the referent in space relative to the origo (whether that is described as 'distance' or as 'location'). Accessibility analyses treat the deictic content as conveying that the referent has low perceptual-cognitive accessibility for the origo.

The Demonstrative Questionnaire and conversational data on the Ticuna distal, DNOM/DLOC3, is consistent only with a spatial analysis. Accessibility analyses make a variety of incorrect predictions about the item. First, if DNOM/DLOC3 conveys only low perceptual-cognitive accessibility of the referent, then it should be acceptable for invisible referents (since invisibility is presumably

a paradigm case of low accessibility). This is false: DNOM3 is unacceptable with invisible referents (Chapter 4). Second, under a low accessibility analysis, DNOM/DLOC3 should be acceptable for referents located anywhere in space, provided that they are not highly perceptually or cognitively salient to the speaker. This is also false: DNOM/DLOC3 is restricted to referents that are outside the speaker's peripersonal space (§6.4.2). Third and last, if the item conveyed only low accessibility, it should be acceptable in anaphora (to referents last mentioned at a long textual distance) as well as in exophoric deixis. This prediction is also incorrect. DNOM/DLOC3 is used only in exophoric deixis, and is unacceptable in anaphora (Chapter 7).

Among the various possible spatial analyses of distals, DNOM/DLOC3 specifically calls for an egocentric, peripersonal space-based analysis. The origo of DNOM/DLOC3 is egocentric, not sociocentric, because the item can be used to index referents that are inside the sociocentric space (§6.4.3). The deictic content conveys that the referent is located outside the speaker's peripersonal space, that is, beyond their reach. It does not convey that the distance from the speaker to the referent is large. If such distance-based analysis were appropriate, we would expect a linear relationship between the distance of the referent from the speaker and the proportion of use of DNOM/DLOC3. Instead, we find a categorical relationship, supporting an analysis based on location relative to reaching space.

My egocentric distal analysis renders DNOM/DLOC3 minimally different from DNOM/DLOC1. It treats the two items as sharing the same origo and differing only in whether they encode location inside (DNOM/DLOC1) or outside (DNOM/DLOC3) the peripersonal space of that origo. This analysis is highly consistent with speakers' metalinguistic comments about the item. In comments like those shown in (81), participants consistently articulated an intuition that DNOM/DLOC1 and DNOM/DLOC3 are opposites. They did not articulate comparable intuitions about any other pair of items. Reflecting these intuitions, my analysis therefore draws an equivalence between DNOM/DLOC1 and DNOM/DLOC3 -- the items' shared origo -- which does not exist between any other two items in the deictic system.

The egocentric distal analysis also gives DNOM/DLOC3 some place in the analogy between demonstratives and pronouns. DNOM/DLOC3 can index (objects in) any space outside the speaker's own reaching space, including in the space occupied by the addressee. Therefore, it is equivalent to an underspecified 2/3 pronoun (not to a third-person pronoun, which would exclude the addressee's space). While underspecified 2/3 pronouns may not be common in spoken languages, they are attested in signed languages, including ASL.[5]

Last, I consider the ranking of DNOM/DLOC3 relative to other demonstratives. At a type level, DNOM/DLOC3 can index referents located within the sociocentric space, including in the addressee's peripersonal space. But at a token level, as I observed in §6.4.3.1, almost all uses of DNOM/DLOC3 in conversation index referents outside the sociocentric space (i.e. not in the addressee's peripersonal space, and not between speaker and addressee). Moreover, as we saw in the Demonstrative Questionnaire data in §6.4.2, participants display high agreement on DNOM/DLOC3

[5]See Meier (1990) for the classic version of the claim that ASL does not distinguish second- and third-person pronouns, or the works reviewed in Cormier et al. (2013:236-237) for more recent analyses of the 2/3 distinction in signed languages.

only in scenes where the referent is outside the sociocentric space. For referents within the sociocentric space, they display at best moderate agreement -- and that only for one scene in the DLOC version of the task, scene 10 (86).

To account for this data, I propose that DNOM3 is violably ranked below DNOMs 2 and 5 in the lexical hierarchy of demonstratives given in Chapter 5. Because this item indexes visible referents beyond the speaker's peripersonal space, it potentially competes with DNOM2 to index referents that are located in the sociocentric space, but outside the speaker's peripersonal space. Likewise, DNOM3 potentially competes with with addressee-centered DNOM5 in reference to objects that are located outside peripersonal space for the speaker, but within peripersonal space for the addressee. As outlined above, speakers prefer DNOM2 and DNOM5 over DNOM3 in both kinds of competition -- showing that DNOM3 is ranked below the other two items. However, their preference is not so strong as to completely exclude DNOM3 from indexing referents in the characteristic spaces of DNOMs 2 and 5. Examples like (60) are still possible, even though they are token-infrequent. Thus, the ranking of DNOM3 below the other (non-speaker-proximal) demonstratives is violable.

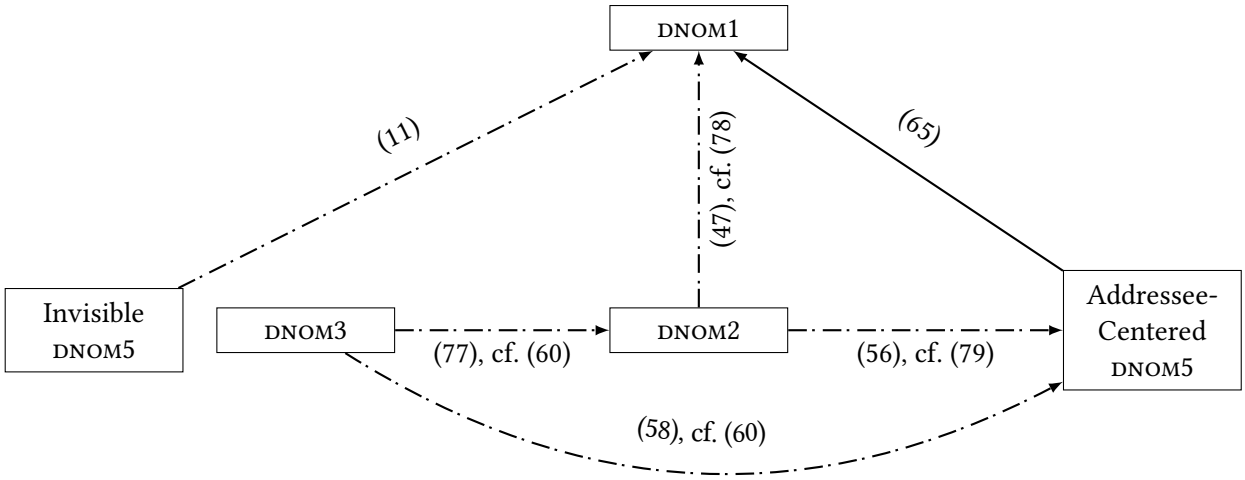
Figure 6.11 sums up the complete lexical ranking of root exophoric DNOMs proposed in this chapter and in §5.3.3. As in the earlier versions of this figure (Figures 5.7 and 5.8), a arrow connecting two demonstratives indicates that one (the source of the arrow) is ranked below the other (the goal of the arrow). If the arrow is solid, the ranking is not violated except in pragmatically very marked situations; if the arrow is broken, the ranking can be violated in pragmatically unmarked contexts. If two demonstratives are not connected by an arrow, it is because their deictic content is incompatible, meaning that they intrinsically cannot compete (e.g. DNOMs 2 and 3, because of their visibility requirements, never compete with invisible DNOM5).

Numerals on the lines in Figure 6.11 are the numbers of examples supporting each ranking. On the figure, in a pair of examples of the form 'X cf. Y,' X is an example where the demonstratives compete and the typically preferred demonstrative wins, while Y is an example where the typically dispreferred demonstrative wins. For example, in the relationship between DNOMs 2 and 3, DNOM2 is violably ranked above DNOM3. (77) is a case of competition between these demonstratives (i.e. reference to an entity inside the sociocentric space, but outside the speaker's peripersonal space) where DNOM2 wins; (60) is a case of competition where DNOM3 wins.

6.5.2.1 Looking ahead

In the last three chapters, I have described the deictic content of exophoric demonstratives in **embodied** and **interactive** terms. The analysis I have proposed is **embodied** because it argues that some deictics convey information about specific senses of the human body, and because it treats spatial deictics as conveying location relative to participants' reaching space (i.e. relative to the maximum extension of their bodies) rather than distance. It is **interactive** because the sociocentric and addressee-centered origos are defined by the participants' engagement with one another in the interaction, and because spaces defined in the course of the interaction (such as the zone fo the participants' joint activity) can enlarge or move the deictic origos. These qualities of my analysis of exophoric deixis make it coherent with accounts of the phenomenon in fields other

Figure 6.11: Final lexical ranking of DNOMs 1, 2, 3, and 5



than linguistics, such as psychology and linguistic anthropology. At the same time, these qualities also mean that the analysis cannot naturally be extended to endophoric uses, since endophoric uses of demonstratives do not (for example) convey the same sensory information that exophoric ones do.

In the next chapter, I therefore turn to **non-exophoric** uses of demonstratives in anaphora, cataphora, and recognitional reference. I show that Ticuna lexicalizes the exophoric/non-exophoric distinction, with some demonstratives acceptable only in exophoric reference, and others only in non-exophoric reference. In contrast to exophoric demonstratives, non-exophoric demonstratives have no spatial or perceptual deictic content. They convey that the referent is known to both discourse participants, and (for one of the two non-exophoric demonstratives) they can also convey information about the temporal reference of the clause -- but they convey nothing else about the referent.

This sharp contrast between the exophoric and non-exphoric demonstratives makes clear that, in Ticuna, **deixis and anaphora are separate phenomena, and require separate theories**. Deixis is a tool which speakers use to manage their own and their addressees' attention to the world around them. Exophoric demonstratives are specialized for this purpose, and it is because of their role in attention management that they have the embodied and interactive meanings described here. Anaphora, on the other hand, is a tool for tracking referents through a discourse. This task shares little with the task of managing participants' attention to objects in the actual surround. As a result, in Ticuna (and likely in other languages with dedicated anaphoric demonstratives), the anaphoric and deictic systems barely touch.

Chapter 7

Anaphoric and recognitional demonstratives

7.1 Introduction

In the previous three chapters, I examined the spatial, perceptual, and attentional deictic content of Ticuna's four exophoric (deictic) demonstratives. In this chapter, I compare the exophoric demonstratives -- DNOM/DLOCs 1, 2, 3, and 4 -- with their non-exophoric (endophoric and recognitional) counterparts, DNOM/DLOCs 5 and 6.

This comparison reveals that exophoric and non-exophoric demonstrative reference in Ticuna are minimally related. There is a near-complete lexical split between exophoric and non-exophoric demonstratives. Only one of the language's six demonstratives, DNOM/DLOC5, robustly appears in both functions; the other five demonstratives are limited to only exophoric or only non-exophoric reference.

Tracking the lexical split, exophoric and non-exophoric demonstratives also have profoundly different semantic content. While exophoric demonstratives have all the rich deictic content described in Chapters 4 through 6, non-exophoric demonstratives convey nothing about the participants' spatial, perceptual, or attentional relation to the referent. One of the two non-exophoric items, DNOM/DLOC5, conveys only the discourse or world familiarity of the referent. The other, DNOM/DLOC6, conveys familiarity and temporal information about the entire clause (not about the referent).

In the following sections of this chapter, I first lay out key ideas about the contrast between exophoric and non-exophoric uses of demonstratives (§7.2). §7.3 provides the evidence for a lexical split between exophoric and non-exophoric demonstratives in Ticuna. It also shows that, despite this split, exophoric and non-exophoric demonstratives still share syntactic and semantic properties that define them as a single word class. §7.4 examines the content of the two non-exophoric desmonstratives, DNOM/DLOCs 5 and 6. This section demonstrates that both DNOM/DLOC5 (§7.4.1) and DNOM/DLOC6 (§7.4.2) are completely devoid of deictic content as defined in Chapter 3. §7.5 discusses the impacts of this analysis on ideas about the relationship between exophoric and

non-exophoric demonstratives, then concludes.

7.2 Concepts in the study of exophoric vs. non-exophoric demonstratives

There are two ways to understand the relationship between exophoric and non-exophoric uses of demonstratives. One theory of this relationship, which I overview in §7.2.1, treats exophoric and non-exophoric reference as essentially the same phenomenon. This theory has predominated in linguistics and philosophy of language. The other account, discussed in §7.2.2, treats exophoric and non-exophoric reference as distinct. Most psychologically oriented research on demonstratives assumes this theory, but leaves it implicit. Therefore, in the interest of clarity, in §7.2.3 I articulate an explicit functional theory of exophoric and non-exophoric uses of demonstratives as distinct. I then identify predictions of this theory to be tested in the empirical sections of this chapter.

7.2.1 Exophoric and non-exophoric reference as uniform

In both functional-typological and formal linguistics, most authors have adopted the position that exophoric and other uses of demonstratives reflect a single underlying meaning.

Functional and typological authors who take this position include Fillmore (1973), Anderson and Keenan (1985), Enfield (2003), and Diessel (2006), as well as some of the contributors to Levinson et al. (2018). Some of these authors claim that (particular) demonstratives can be used both exophorically and non-exophorically because they have 'neutral' deictic content (Bohnemeyer 2018:193) or no (relational) deictic content (Enfield 2003:86). Others suggest that non-exophoric uses of demonstratives represent metaphorical extensions of the exophoric uses (Lakoff 1974).

Formal semanticists who give a uniform analysis to exophoric and non-exophoric demonstratives include King (2001) and Wolter (2006), both writing on the nominal demonstratives of English. King (2001) argues that the nominal demonstratives are quantifiers, while Wolter (2006) treats them as closely related to definite articles. Both studies are designed specifically to account for non-exophoric (in their terms, non-gestural or 'no demonstration') uses of demonstratives. To account for exophoric uses, they rely heavily on (a) an assumption that all exophoric uses of demonstratives involve manual pointing gestures, and (b) the claim that demonstratives and pointing gestures make separate contributions to fixing the reference of deictic composite utterances.

Across theoretical frameworks, studies that argue for underspecified exophoric/non-exophoric demonstrative meanings tend to share a number of properties. First, all of them concern demonstrative systems (or subparts of systems) that have exactly two terms. Second, all except for Enfield (2003) and Bohnemeyer (2018) are specifically about the nominal demonstratives of English. Third, again except for the Enfield and Bohnemeyer studies, all of these claims are based primarily on work with textual materials (rather than spoken language) or on the authors' own intuitions. They do not routinely draw on observational or experimental spoken language data,

and some are concerned specifically with accounting for constructions that exist only in written registers (e.g. Wolter 2006:ch. 4, on English demonstratives with postnominal modifiers).

In sum, there is substantial agreement among authors within linguistics (and adjacent parts of philosophy) that an underspecified exophoric/endophoric analysis is appropriate for the nominal demonstratives of English, and possibly for some other languages with exactly two nominal demonstratives. On the other hand, there is no evidence that this type of analysis is appropriate for locative demonstratives (including in English) or in any demonstrative system which contrasts more than two terms. There is also minimal evidence that this style of analysis can be usefully applied to observational spoken language data.

7.2.2 Endophoric and non-exophoric reference as distinct

In psychology and psycholinguistics, researchers have examined exophoric and other forms of demonstrative reference separately. Experimental work by authors such as Küntay and Özyürek (2006), Coventry et al. (2008), Piwek et al. (2008), and Peeters et al. (2015) is entirely concerned with exophoric uses of demonstratives. When authors discuss non-exophoric uses of demonstratives at all, it is only to observe their formal differences from exophoric ones (e.g. in the discussions of anaphoric vs. exophoric pointing in Kita 2003) or to draw analogies between anaphora and reference to objects already in joint attention. Analysis of anaphoric uses of demonstratives appears in the extensive psycholinguistic literature on anaphora, rather than in the literature on demonstratives and deixis.

Psychologically oriented authors do not make explicit claims about whether exophoric and other uses of demonstratives arise from the same meaning or lexical item. The separation of deixis and anaphora in psychologically motivated studies, however, suggests implicitly that researchers see the phenomena as distinct.

7.2.3 A maximalist theory: exophoric, endophoric, and recognitional uses as distinct

In the preceding sections, I have assumed a binary classification of demonstrative uses into exophoric uses on one hand, and everything else on the other. This section offers a more detailed classification of the non-exophoric residue, then an explicit proposal for the analysis of exophoric and (two different) non-exophoric uses of demonstratives as pragmatically distinct.

7.2.3.1 Non-exophoric uses: Endophoric vs. recognitional

Most functional classifications of demonstrative uses (e.g. Levinson 1983; Diessel 1999; Levinson 2004a) divide non-exophoric uses of demonstratives into three categories: endophoric, recognitional, and discourse deictic (cf. §1.3.1). First, endophoric uses of demonstratives identify referents that have been mentioned earlier in the discourse (anaphoric) or will be mentioned later in the discourse (cataphoric). Second, recognitional demonstratives identify referents that are mutually known to the speaker and addressee as part of common ground. The canonical recognitional

referent is known **only** through common ground: that is, it is not present in the surround and has not been previously mentioned in the discourse. Third, discourse deictic uses of demonstratives index sections of the discourse or propositions expressed in the discourse.

I adopt this classification with one exception. Rather than treating discourse deixis as a distinct non-exophoric use of demonstratives, I categorize it as a kind of endophoric reference. This classification reflects that both discourse deixis and other forms of endophora involve reference to entities known primarily from the discourse, rather than from the participants' other sources of common ground (such as world knowledge, like recognitionals, or the surround, like exophoric uses).

7.2.3.2 Exophoric, endophoric, and recognitional deixis as joint action

If we view demonstrative reference through the lens of joint action, it is clear that exophoric, endophoric, and recognitional uses of demonstratives have profoundly different communicative functions for the speaker. Each kind of use also places different comprehension demands on the addressee.

When a speaker produces an **exophoric** or deictic demonstrative, they direct the addressee's attention to an entity in the world around them. To comprehend the reference of the speaker's demonstrative, the addressee must search the physical surround of the interaction for possible referents. This search domain -- though it can be narrowed by the deictic content of the speaker's demonstrative and by the speaker's deictic gestures -- is potentially very large. Searching it can call on all of the addressee's sensory and perceptual abilities.

By contrast, when a speaker produces an **endophoric** demonstrative, including a discourse deictic, they identify the referent as previously mentioned (or to be later mentioned) in the discourse. To comprehend the reference of this kind of demonstrative, the addressee must search their cognitive representation of the content of the past discourse (in anaphora) or search the content of the following discourse (in cataphora). Unlike the task of searching the physical surround of conversation for a referent, these tasks call primarily on the addressee's ability to perceive and comprehend language. They involve the addressee's other perceptual capacities only secondarily.

Likewise, when a speaker produces a **recognitional** demonstrative, they identify the referent as mutually known to themselves and the addressee. To comprehend the reference of a recognitional, the addressee needs to search the set of referents which belong to their common ground with the speaker. Like the search domain for comprehension of anaphoric demonstratives, the search domain for comprehension of recognitionals is a set of cognitive representations, not a slice of the physical surround of the interaction. Searching the common ground for the referent therefore calls on the addressee's memory, capacity for inference, and other general cognitive abilities. It does not (unlike comprehension of anaphora) call immediately on the addressee's ability to recall the preceding discourse, nor (unlike comprehension of deixis) on their ability to perceive and process the physical surround of conversation.

Table 7.1 visually represents this approach to exophoric, endophoric, and recognitional uses as maximally distinct.

Table 7.1: Exophoric, endophoric, and recognitional reference, defined in functional terms

Use	Definition	Addr's search domain for Ref	Capacities which Addr potentially uses to search for Ref
Exophoric	Spkr directs Addr's attention to Ref in surround	Surround of interaction	General sensory and perceptual capacity
Endophoric	Spkr identifies Ref as previously mentioned (anaphoric)	Cognitive representation of past discourse (anaphoric)	Language capacity
	Spkr identifies Ref as to be mentioned later (cataphoric)	Cognitive representation of following discourse (cataphoric)	Language capacity
Recognitional	Spkr identifies Ref as mutually known	Cognitive representation of common ground	Memory, inference, other general cognitive abilities

Under the functional analysis represented in Table 7.1, exophoric, endophoric, and recognitional demonstrative reference are minimally related. If we assume that the deictic content of demonstratives is adapted to the comprehension demands which they place on addressees, this predicts that at least some languages will lexicalize the exophoric-endophoric-recognitional split. Where the split is lexicalized only in part, this analysis specifically predicts that non-exophoric demonstratives -- those that direct the addressee to search for the referent in a set of cognitive representations (of the discourse or of the common ground), rather than the physical surround -- will be lexicalized separately from exophoric ones.

In the following sections, I show that the demonstrative system of Ticuna conforms to these predictions. It displays a consistent lexical split between exophoric and endophoric demonstratives. To the extent that recognitional and other non-exophoric, non-endophoric uses of demonstratives exist, they are done with the endophoric lexical items. Exophoric demonstratives, in other words, never shake their orientation to the physical surround. Endophorics never cross into it.

7.3 Lexical split between exophoric and non-exophoric demonstratives

This section demonstrates the near-complete lexical split between exophoric and non-exophoric demonstratives in Ticuna.

First, in §7.3.1, I review all of the major non-exophoric uses of demonstratives described in the literature. For each of the non-exophoric uses, I show that only the non-exophoric demonstra-

tives, DNOM/DLOC5 and DNOM/DLOC6, are acceptable. The exophoric demonstratives, DNOM/DLOCs 1, 2, and 3, are unacceptable and unattested in these functions.

Second, in §7.3.2, I demonstrate that DNOM/DLOC5 and DNOM/DLOC6 are not generally acceptable in exophoric reference. I also claim that -- where DNOM/DLOC5 is acceptable in exophoric reference -- it represents a separate lexical item from non-exophoric DNOM/DLOC5 (as first argued in Chapter 4).

Last, in §7.3.3, I ask whether the exophoric and non-exophoric demonstratives, given the differences highlighted in the preceding two sections, should still be analyzed as representing a single word class. I show that across the exophoric/non-exophoric split, demonstratives (especially nominal demonstratives) still share significant morphosyntactic and semantic properties. These properties justify the analysis of the exophoric and non-exophoric items as subclasses of a single word class.

7.3.1 Non-exophoric uses allow only non-exophoric demonstratives

As discussed in §7.2.3.1, the cross-linguistic literature documents three major non-exophoric uses of demonstratives. These are (a) endophoric reference to individuals and places, (b) endophoric reference to propositions and pieces of discourse (what other authors have called 'discourse deixis'), and (c) recognitional reference. Many languages also display (d) grammaticalized uses of demonstratives as functional elements of specific syntactic constructions -- for example, the existential use of English *there*.

Not all of the cross-linguistically attested uses of demonstratives robustly exist in Ticuna. The uses which do exist, however, are consistently acceptable only with DNOM/DLOC5 and DNOM/DLOC6. DNOM/DLOCs 1, 2, and 3 are not acceptable in non-exophoric use. The sole exception to the ban on exophoric demonstratives in non-exophoric use is that DNOM1 is acceptable in some forms of cataphoric reference to discourse. I now demonstrate this for each category of non-exophoric use, following the order listed above.

7.3.1.1 Endophoric reference to individuals and places

Endophoric reference is divided into anaphora, reference to entities already introduced in the discourse, and cataphora, reference to entities to be introduced (or described in greater detail) later in the discourse. Demonstratives are attested in both kinds of endophoric reference cross-linguistically. For example, the English nominal demonstrative *this* has both anaphoric and cataphoric uses.

To understand endophoric uses of demonstratives, it is necessary to examine discourse contexts which do not meet the deictic requirements of the relevant items. This is because, in discourse contexts that do meet the deictic requirements of a particular demonstrative, second-mention and later uses of that demonstrative are ambiguous. They can be seen as either anaphoric (licensed by the referent being mentioned previously) or deictic (licensed by the relations between the discourse participant and referent). By contrast, if it is known that the discourse context does not meet the deictic requirements of the item, only an anaphoric analysis is possible.

Anaphoric reference to individuals

To exclude cases that are ambiguous between deixis and anaphora, in Ticuna analysis of anaphoric reference to **individuals** (people and objects) must proceed from discourse contexts where the referent is not present anywhere in the physical surround of the conversation. This type of context excludes deictic uses of DNOM1, because the referent is not in the speaker's peripersonal space, and also deictic uses of DNOMs 2 and 3, since the referent is not visible to the speaker. (It is theoretically compatible with the deictic use of DNOM5 for invisible referents, but there is no way to eliminate this possibility while still excluding other nominal demonstratives.) Thus, if a specific nominal demonstrative is possible on the second mention of a referent in this kind of context, we know that that demonstrative can be anaphoric.

In discourse contexts where the referent is not present in the physical surround, DNOM5 is acceptable on the second or later mention of that referent. DNOM1, 2, and 3 are not acceptable. This is shown by the judgments in lines (c) and (e) of (92), each of which represents the second mention of ths referent as an individual in the discourse. In each of these lines, DNOM5 is acceptable introducing the noun *ʌe³ʔtɨ̰¹ɨ³kɨ³* 'young man,' while DNOMs 1, 2, and 3 are unacceptable.[1] DNOM6 would also be acceptable in lieu of DNOM5 in lines (c) and (e) if those clauses had remote past temporal reference (as defined in §7.4.2). However, they do not.

(92) Context: I am visiting you at your house; no one else is there. I tell you about something that happened to me earlier today. I say,

a. *ta²ʔre⁴ ɟa⁴ ʌe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ tʃau¹ɨ̃¹ta¹wa⁵ na⁴ʌu³gɨ⁴.*
ta²ʔre⁴ ɟa⁴ ʌe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ tʃau¹ +ɨ̃¹ta¹ =wa⁵ na⁴= ʌu³ =gɨ⁴
two DET(II) young.man(II) TOP 1SG +RN:at =ALL 3.A= arrive(A) =PL
'Two young men, they came to my place.'

b. *wɨ⁴³ʔi⁴ rɨ¹ ni⁴ʌɨ¹.*
wɨ⁴³ʔi⁴ rɨ¹ ni⁴= ʌɨ¹
one TOP 3.I= fat(I)
'One, he was fat.'

c. ✓*ɟi²ma⁴ / #da²a² / #ɟi²a⁴ / #gu²a⁴* *ʌe³ʔtɨ̰¹ɨ³kɨ³ tʃo³¹ʔna¹ na⁴na³ʔã³ i⁴ wɨ⁴³ʔi⁴ i⁴ po³pe⁴ra¹.*
✓ɟi²ma⁴ / #da²a² / #ɟi²a⁴ / #gu²a⁴ ʌe³ʔtɨ̰¹ɨ³kɨ³ tʃo³¹ =na¹
✓DNOM5(II) / #DNOM1(II) / #DNOM2(II) / #DNOM3(II) young.man(II) 1SG =RCP
na⁴= na³= ã³ i⁴ wɨ⁴³ʔi⁴ i⁴ po³pe⁴ra¹
3.A= 3OBJ.A= give:InamSgO(A) DET(IV) one DET(IV) book(IV)
'That (✓DNOM5, #DNOM1, #DNOM2, #DNOM3) young man gave me a book.'

[1] Note that (92) involves contrast between exactly two discourse-old referents. I have chosen this example specifically because of the contrast, since contrast improves the acceptability of *this* and *here* as anaphors in English. Ticuna does not display the same effect of contrast. Whether contrast is present or not, DNOMs 1, 2, and 3 still cannot act as anaphors, and DNOM5 can.

d. *nai¹ ɟa⁴ ʎe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ ni⁴ʔa¹ʔi⁵tʃi².*
nai¹ ɟa⁴ ʎe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ ni⁴= a¹ =ʔi⁵tʃi²
other(II) DET(II) young.man(II) TOP 3.I= thin(I) =really
'The other young man, he was really thin.'

e. ✓*ɟi²ma⁴ / #da²a² / #ɟi²a⁴ / #gu²a⁴* *ʎe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ tʃo³¹ʔna¹ na³¹ʔka̰¹ na⁴ka¹ i⁴ po³pe⁴ra¹.*
✓ɟi²ma⁴ / #da²a² / #ɟi²a⁴ / #gu²a⁴ ʎe³ʔtɨ̰¹ɨ³kɨ³ rɨ¹ tʃo³¹
✓DNOM5(II) / #DNOM1(II) / #DNOM2(II) / #DNOM3(II) young.man(II) TOP 1SG
=na¹ na⁴³ =ka̰¹ na⁴= ka¹ i⁴ po³pe⁴ra¹
=RCP 3 =PURP 3.A= ask.for(A) DET(IV) book(IV)
'That (✓DNOM5, #DNOM1, #DNOM2, #DNOM3) young man, he asked me for the book.'
(LWG: 2017.4.28, SSG: 2018.4.32)

As well as being rejected as anaphors in constructed examples like (92), DNOMs 1, 2, and 3 are also completely unattested in anaphora (i.e. in second or later mentions, in contexts that do not meet their exophoric deictic requirements) through the entire 12-hour transcribed corpus.

In clauses that do not have remote past temporal reference (as defined in §7.4.2), DNOM5 is the **only** demonstrative that can be used in anaphoric reference to individuals. If the clause does have remote past temporal reference, however, DNOM6 is also acceptable as an anaphor. This is shown by the appearance of DNOM6 in line (b) of (93), drawn from a traditional story. Line (a) of the story introduces the protagonist using a noun phrase headed by the weak quantifier *wɨ⁴³ʔi⁴* 'a/one;' line (b) refers back to the protagonist using a noun phrase headed by DNOM6. Since DNOM6 is never acceptable in exophoric deixis (§7.3.2.2), this use can only be analyzed as anaphoric, not deictic.

(93) Context: Traditional narrative; line a is first sentence

a. *nu⁴kɨ⁴ma⁴ʔi⁵tʃi²ma³ rɨ¹, na⁴ɟe²ʔma⁴ ga⁴ wɨ⁴³ʔi⁴ ga⁴ ɟa³¹tɨ¹ ga⁴ mu¹a³kɨ¹ʔi⁵tʃi²kɨ³.*
nu⁴kɨ⁴ma⁴ =ʔi⁵tʃi² =ma³ rɨ¹ na⁴= ɟe²ʔma⁴ ga⁴ wɨ⁴³ʔi⁴ ga⁴
long.ago =really =INFO TOP 3.A= exist:REMPST DET.REMPST one DET.REMPST
ɟa³¹tɨ¹ ga⁴ Ø= mu⁴ +a³kɨ¹ =ʔi⁵tʃi² =kɨ³
man(II) DET.REMPST 3.A.SC= many(A) +NI:child =really =NMLZ(II)
'Long long ago, there was a man who really had a lot of children.'

b. *rɨ¹ gu²ma⁴ ɟa³¹tɨ¹ rɨ¹ ta²ʔu²kɨ³rɨ³wa⁵ma³ na²a³kɨ¹gɨ⁴ʔɨ̃³ na⁴tʃi³¹bɨ²e³ʔɛ̃⁴ʔɛ̃³.*
rɨ¹ gu²ma⁴ ɟa³¹tɨ¹ rɨ¹ ta²ʔu²kɨ³rɨ³wa⁵ =ma³ na² +a³kɨ¹ =gɨ⁴ =ʔɨ̃³ na⁴= tʃi³¹bɨ²
and DNOM6(II) man TOP NEG.CIRC.POSS =INFO 3(II) +child =PL =ACC 3.A= eat(A)
-e³ -ʔɛ̃⁴ʔɛ̃³
-PL -CAUS
'That (DNOM6) man, he couldn't feed his children.'
(LWG: tak 0:18)

Remote past temporal reference does not affect the acceptability of nominal demonstratives other than DNOM6. DNOM5 remains acceptable as an anaphor in clauses with remote past temporal reference, and DNOMs 1, 2, and 3 remain unacceptable as anaphors.

While DNOMs 5 and 6 are the only demonstratives that can be used in anaphoric reference to individuals, they are not the only nominal modifiers that appear in anaphoric noun phrases. Besides DNOM5/6, anaphoric nouns can also be modified by pronouns, by other nominal modifiers such as quantifiers, or by determiners only.

Anaphoric reference to places

While nominal demonstratives are used for anaphoric reference to people and objects, locative demonstratives are used for anaphoric reference to **places**. Parallel to the use of DNOM5 as an anaphor for individuals, it is DLOC5 that is used as the anaphor for places. DLOC6 can also be used as a place anaphor in clauses with remote past temporal reference.

(94) provides an example of the use of DLOC5 as a location anaphor. In line 1, the speaker introduces a location, the city of Fortaleza in coastal Brazil (thousands of kilometers away from the discourse participants, who are in Cushillococha), using its proper name. In line 2, the speaker refers to Fortaleza again, but this time uses DLOC5. This use can only be analyzed as anaphoric, not as deictic. The sole deictic use of DLOC5 is to index the addressee's peripersonal space and points within it (Chapter 5), and the referent here is far outside the addressee's personal space.

(94) Context: 'Whenever my daughter and her husband go to buy inventory for their store...'

a. *ĩ³¹a¹ne¹ ɟa¹ Fortaleza=wa⁵ na⁴ʔĩ⁴³.*

ĩ³¹a¹ne¹ ɟa¹ Fortaleza =wa⁵ na⁴= ĩ⁴³
town(III) DET(III) F =ALL 3.A= come/go:PlS(A)
'They go to the city of Fortaleza.'

b. *rɨ¹ ŋe⁵ma² kɨ²a⁴na⁴ ta²na⁴ɟa³ta⁴e¹gɨ⁵ʔĩ⁴ i⁴ na³¹ʔpɨ¹ʔɨ³.*

rɨ¹ [ŋe⁵ma²] kɨ²a⁴na⁴ ta²= na⁴= ɟa³= ta⁴e¹ =gɨ⁴ =ʔĩ⁴ i⁴
and [DLOC5:ALL] INTJ:tag some(IV)= 3(V).A.SC= AM= buy(A) =PL =SUB DET(IV)
na⁴³ +ʔpɨ¹ʔɨ³
DEF.POSS +manufactured.goods(IV)
'They go [there (DLOC5)] (i.e. to Fortaleza) to shop for it, the stuff.'

(NWG: ABS-NWG Staged Conversation 1:03)

(95) displays a parallel example of the use of DLOC6 as a location anaphor in a clause with remote past temporal reference. In line (a) of the example, the speaker introduces a location, the city of Tabatinga in western Brazil (70km from the participants' location), using its proper name. In line (b), the speaker refers to Tabatinga again, but this time uses DLOC6. This anaphoric use (and recognitional uses) represent the only attested use of DLOC6, which has no deictic functions. Temporally, DLOC6 is possible in line (b) because the discourse has remote past temporal reference:

it concerns a date several days before the day of discourse.

(95) Context: 'We came back from Maturá (a place in Amazonas, Brazil)...'

a. *siete horas ni^{41}ʔĩ^{4} ka^{31}, Tabatinga=wa^{5} na^{4} ku^{1}ʎu^{2}ʔ.*

siete horas ni^{41}ʔĩ^{4} ka^{31} Tabatinga =wa^{5} na^{4} ku^{1}= ʎu^{3} =ʔĩ^{4}
Sp:seven Sp:hours FOC INFO T =ALL COMP 2SG.A.SC= arrive(A) =SUB
'It takes seven hours, as I was saying, for you to get to Tabatinga.'

b. *rɨ^{1} ɟe^{4}ma^{4} na^{4}ʔĩ^{1}kɨ^{2}, ɟe^{2}ʔma^{4} ta^{3}pe^{43}gɨ^{5}ʔ.*

rɨ^{1} ɟe^{4}ma^{4} na^{4}ʔĩ^{1}kɨ^{2} ɟe^{2}ʔma^{4} ta^{3}= pe^{43} =gɨ^{4} =ʔĩ^{4}
and DNOM6 INFO DLOC6:LOC 1EXCL.A.SC= sleep(A) =PL =SUB
'So we stayed the night there (DLOC6) (i.e. in Tabatinga).'

(NWG: ABS-NWG Staged Conversation 44:40)

The deictic requirements of locative demonstratives are much less stringent than those of nominal demonstratives -- for example, locative demonstratives do not have visibility meanings. This lesser stringency makes it difficult to construct examples like (92) to provide negative evidence showing that DLOCs 1, 2, and 3 cannot be anaphoric.

The positive evidence of the corpus, however, yields no tokens of DLOCs 1, 2, or 3 that clearly fail to meet their deictic requirements. For example, the anaphoric use of English *here* to index a location that has just been referred to, but does not literally include the speaker at the moment of speech, is unattested for DLOC1. In other words, while DLOCs other than DLOC5 and DLOC6 can be used in second and later mentions, those uses are always compatible with a deictic interpretation.

Cataphoric reference to individuals and locations

Demonstratives cannot be used cataphorically in Ticuna except in discourse cataphora (see §7.3.1.2). Uses of nominal demonstratives for cataphoric reference to individuals, like the cataphoric/indefinite use of English *this*, are not attested in the corpus and were rejected by consultants. Uses of locative demonstratives for cataphoric reference are also unattested.

7.3.1.2 Endophoric reference to propositions and sections of discourse

Ticuna speakers often use demonstratives to make reference to the discourse itself -- whether to propositions expressed in the discourse, or to sections of the discourse as actions. This use of demonstratives is sufficiently routine that some forms of demonstratives used in discourse/propositional endophora have grammaticalized into conjunctions. Additionally, the system of endophoric reference to discourse includes the only case in the language where a demonstrative other than DNOM/DLOC5 or DNOM/DLOC6 can be used in a way that is not clearly exophoric.

Given these properties, endophoric reference to discourse deserves at least as much attention here as endophoric reference to individuals. I therefore provide a detailed description of both anaphoric and cataphoric reference to discourse and propositions.

Anaphora to propositions and sections of discourse

DNOM5 and DNOM6 are the demonstratives used for propositional and discourse **anaphora**. DNOM5 is used for propositional anaphora in clauses with any temporal reference, while DNOM6 appears as a propositional anaphor only in clauses with remote past temporal reference. DNOMs 1, 2, and 3 never appear as propositional anaphors, and consultants reject them in that function in elicitation.

(96) provides an elicited example of propositional anaphora with DNOM5. In line (a) of this example, the speaker expresses the proposition that Juan got married last year. In line 2, they state that they and the other interlocutors are talking about that proposition. Line (b) characterizes the subject of the conversation using the propositional anaphoric expression *ŋe³ma²=tʃi¹ga³* (DNOM5=about) 'about that,' where DNOM5 refers to the proposition expressed in line (a).

(96) Context: Our friend Juan was a bachelor for many years, until he finally got married at this time last year. I come into your house and see that you and all of your household members are laughing and smiling. I ask what you're talking about. You say (a) and then (b).

a. *ʌu³pe⁴tɨ³kɨ³ ɟa⁴ tau¹ne³kɨ³gu², rɨ¹ Kʷa³ɨ̃¹ rɨ¹ na⁴ʔã³mą̲¹.*
Ø= ʌu³pe⁴tɨ¹ =kɨ³ ɟa⁴ tau¹ne³kɨ³ =gu² rɨ¹ Kʷa³ɨ̃¹ rɨ¹ na⁴= ã³
3.A.SC= pass(A) =NMLZ(II) DET(II) year(II) =LOC TOP Kʷ TOP 3.A= have.inal(A)
+mą̲¹
+NI:wife
'Last year, Juan, he got married.'

b. *ɲų̲¹ʔma⁵ rɨ¹, ŋe³ma²tʃi¹ga¹ ti⁴de⁴³a²gɨ⁴.*
ɲų̲¹ʔma⁵ rɨ¹ ✓ŋe³ma² =tʃi¹ga¹ ti⁴= de⁴³a² =gɨ⁴
now TOP ✓DNOM5(IV) =about 1EXCL.I= talk(I) =PL
'Now, we are talking about that (DNOM5).'

(LWG: 2018.1.52-53; SSG; YCG)

(97), drawn from a locality description interview, provides a parallel example to (96) of propositional anaphora with DNOM6 in a remote past clause. In line (a), the speaker expresses the proposition that Pastor Valencia Peña, the founder of the elementary school in Cushillococha, died. In line (b), the speaker says that new teachers began working at the school after Valencia Peña's death. He characterizes the time of this event using the propositional anaphoric expression *ɟe⁴ma⁴=we⁵na²* (DNOM6=after) 'after that,' where DNOM6 *ɟe⁴ma⁴* refers to the proposition expressed in line (a).

(97) SSG Locality Description 9:48

a. *kɨ³ ɟe⁴ma⁴ã¹kɨ² na⁴ɟu² ga⁴ ʎu⁵e³ẽ⁴ẽ³ta⁴e³ru⁵ĩ¹ ga⁴ Pastor Valencia Peña.*
kɨ³ ɟe⁴ma⁴ã¹kɨ² na⁴= ɟu² ga⁴ ʎu̯¹ -e³ -ẽ⁴ẽ³ -ta⁴e³ =ru⁵ĩ¹
INTJ thus:REMPST 3.A= die(A) DET.REMPST learn -PL -CAUS -ANTIPAS =NMLZ:agent
ga⁴ Pastor Valencia Peña
DET.REMPST PVP
'So in that way the teacher Pastor Valencia Peña died.'

b. *rɨ¹ ɟe⁴ma⁴ we⁵na¹ e²na⁴na³ʔɨ²gɨ⁴ ga⁴ ɟi²ma⁴ no³¹ri⁵ nɨ³¹ʔĩ³ tʃi¹ʔu²kɨ³.*
rɨ¹ ɟe⁴ma⁴ =we⁵na¹ e²= na⁴= na³= ɨ²gɨ⁴ ga⁴ ɟi²ma⁴ no³¹ri⁵
and DNOM6(IV) =after VCL= 3.A= 3OBJ.A= begin(A) DET.REMPST DNOM5(II) earlier
nɨ³¹ =ʔĩ³ tʃi¹= u³ =kɨ³
3 =ACC 1SG.I.SC= say(I) =NMLZ(II)
'And after that (DNOM6) they began, those (teachers) that I was just talking about.'

Diachronic trends also support the conventionality of DNOM5 and DNOM6 as propositional anaphors. Ticuna has a large inventory of conjunctions, interjections, adverbs, and discourse markers which are transparently related to (derived forms of) DNOM5 and DNOM6. The table in (98) provides a non-exhaustive list of these items. All are involved either in anaphora proper or in clause-linking constructions (which have significant properties in common with propositional anaphora), showing that the use of DNOMs 5 and 6 as propositional anaphors has a significant history in the language.

(98) Lexical items morphologically related to DNOM5 *ŋe³ma²* and DNOM6 *ɟe⁴ma⁴*

Related to DNOM5 *ŋe³ma²* Temporally unmarked	Related to DNOM6 *ɟe⁴ma⁴* Remote past temporal reference only	Gloss
Conjunctions and interjections		
ŋe⁴ʔgu²ma³	*ɟe⁴ʔgu⁴ma⁴*	'if/when; at that time (temporal anaphor); that (propositional anaphor)'
ŋe³ma²ʔ	(no counterpart)	'yes' (answer to polar questions)
ŋe³ma²ã¹kɨ²	(no counterpart)	'yes' (answer to polar questions)
Adverbs		
ŋe³ma²ã¹kɨ²	*ɟe⁴ma⁴ã¹kɨ²*	'like that (manner anaphor); do that (VP anaphor)'
ŋe³ʔwa⁵ka²	*ɟe⁴ʔwa⁵ka²*	'immediately before/after; recently'
Discourse markers		
ŋe³ma²ku̯¹, =e³ku̯¹	*ɟe⁴ma⁴ku̯¹, =ɟe⁴ka⁴*	'so'
e³rɨ⁴	*ɟe⁴rɨ⁴*	'because'

By contrast to the wide inventory of anaphoric items derived from DNOM5 and DNOM6, there are no discourse markers, conjunctions, or other grammatical devices for discourse coherence derived from DNOMs 1, 2, or 3. There are also no comparable devices derived from DLOCs.

Cataphora to propositions and sections of discourse

While DNOM5 and DNOM6 are used to refer to propositions expressed in the preceding discourse, it is DNOM1 that acts as the language's discourse cataphor. In this function, DNOM1 can index either the ongoing discourse as a whole (which is technically not a cataphoric use) or forthcoming sections of the discourse. This is the only case in the language where a DNOM or DLOC other than DNOM/DLOC5 and DNOM/DLOC6 is used in a function that is not obviously exophoric.

An example of DNOM1 indexing **the discourse as a whole** appears in (99). In this example, taken from a recording of a church service, the speaker is giving a Christian sermon about a missionary trip which she took to a Ticuna town in Brazil. She describes in great detail a conversation with another missionary in the Brazilian town, in which the missionary told her that she should begin to preach more publicly (as she is doing in this recording). After describing the conversation, the speaker says (99). The token of DNOM1 in this example, quantified by *gu⁵ʔɨ̃⁴ma³* 'all,' refers generally to everything which the speaker has said in her sermon. It is therefore not strictly cataphoric, since it does not refer only to the forthcoming discourse.

(99) 20170604 31:11
Context: 'Through her, the Holy Spirit told me what to say (i.e. today).'
ŋe³ma¹kɑ̨¹ ni⁴¹ʔɨ̃⁴ gu⁵ʔɨ̃⁴ma³ i⁴ **ɲa⁴a²** *pe³¹ma⁴ã² nɨ³¹ʔɨ̃³ tʃi¹ʔu³ʔã⁴tʃi⁵ʔ.*

ŋe³ma¹	=kɑ̨¹	ni⁴¹ʔɨ̃⁴	gu⁵ʔɨ̃⁴ma³	i⁴	**ɲa⁴a²**	pe³¹	=ma⁴ã²	nɨ³¹ =ʔɨ̃³
DNOM5(IV)	=PURP FOC	all(IV)		DET(IV)	**DNOM1(IV)**	2PL	=COM/INST	3 =ACC

tʃi¹=	u³	=ʔã⁴tʃi⁴ =ʔɨ̃⁴
1SG.I.SC=	say(I)	=ACHV =SUB

'It's because of that that I am telling you all of **this (DNOM1)**.'

A more canonically cataphoric example of DNOM1 appears in (100). In this example, as in all clear examples of cataphoric DNOM1 in the conversational corpus, the cataphoric token of DNOM1 appears together with the presentative interjection *dɨ¹ʔ(ka⁴)*. The collocation of cataphoric DNOM1 and the presentative interjection forms a 'discourse directive' (Hanks 1990:277). It draws the addressee's attention to the forthcoming discourse as a whole, but does **not** (unlike discourse anaphoric uses of DNOM5 and DNOM6) refer to any specific proposition expressed in the forthcoming discourse.

(100) is drawn from the same social visit between senior man DGG, his daughter RGW, and RGW's daughter-in-law AYM which was excerpted in Chapters 5 and 6. Just prior to this example, RGW has been complaining about chronic pain in her hands and saying that biomedical treatments do not help. DGG suggests that she should treat the pain by avoiding exposing her

hands to heat (a treatment from traditional medicine). RGW appears to read this as criticism. Overlapping with DGG's suggestion, she issues several turns claiming that she **has** tried avoiding heat, and that it is effective. DGG does not display any verbal or visual signals of recipiency of these turns.

In line 1, RGW issues the last of her several turns about the heat-avoidance treatment. DGG shows no uptake, just as he showed no uptake of the preceding turns. In line 2, RGW produces a turn consisting only of DNOM1, the presentative interjection, and a pulmonic ingressive sound. In line 3, DGG reacts to the turn in line 2 with an interjection displaying his recipiency (his first turn in 20 seconds). In line 4, RGW repeats the same assertion which she made in line 1 and prior.

(100) 20170527a 13:55

1. RGW: *ŋe³ma²kɑ̰¹ e³kɑ̰¹ wa³¹ʔi⁵ ni⁴¹ʔĩ⁴ ĩ¹kɨ²ⁱ⁴ tʃau¹ʔkɑ̰¹ ta³¹a¹ne¹tʃi¹gɨ¹ʔɨ¹ra³ʔĩ⁴, pa² pa³*
ŋe³ma² =kɑ̰¹ e³kɑ̰¹ wa³¹ʔi⁵ ni⁴¹ʔĩ⁴ ĩ¹kɨ²ⁱ⁴ tʃau¹ =kɑ̰¹ Ø=
DNOM5 =PURP INFO INTJ:hedge FOC INFO DET(IV) 1SG =PURP 3.A.SC=
ta³¹a¹ne¹ =tʃi¹gɨ¹ =ɨ¹ra¹ =ʔĩ⁴ pa² pa³
heal(A) =DISTRIB =sorta =SUB VOC father:VOC
'Well actually it's because of that (avoiding heat) that I've been gradually getting a little better, dad.'

2. RGW: *ɲa⁴a²* *dɨ¹ʔ* [((ingressive))]
ɲa⁴a² dɨ¹ʔ
DNOM1(IV) PRES
' Here it is (DNOM1), listen up,'

3. DGG: [*m³¹*]
'Mmm'

4. RGW: *kɨ⁵¹, tʃau¹ʔkɑ̰¹ ta³¹a¹ne³ʔĩ⁴, ta⁴ma³ pa³ʔa¹ de⁴³ʔa⁵ʔĩ³ tʃa³dau⁴³*
kɨ⁵¹ tʃau¹ =kɑ̰¹ Ø= ta³¹a¹ne¹ =ʔĩ⁴ ta⁴ma³ pa³ʔa¹ de⁴³ʔa⁵
really 1SG =PURP 3.A.SC= heal(A) =SUB NEG quickly/early water
=ʔĩ³ tʃa³= dau⁴³
=ACC 1SG.A= touch.to.manipulate(A)
'Really, I'm getting better, (it's because) I don't touch (hot) water early in the morning.'

The token of DNOM1 in line 2 of (100), like all discourse cataphoric uses of DNOM1 in the corpus, is the predicate of a presentative construction. As for any presentative, its discourse function is to draw attention to a referent in the environment -- in this case, to the forthcoming part of the discourse in line 4. That the discourse directive is successful in this function can be seen from

DGG's interjection in line 3. While RGW's several previous turns do not receive any uptake from him, the discourse directive, which asks for his attention explicitly, does.

This presentative function sets discourse directive DNOM1 apart from discourse/propositional anaphoric uses of DNOM5 and DNOM6. DNOM5 and DNOM6 can refer to the preceding discourse as a whole, but they can also refer to **specific propositions** expressed in the preceding discourse. We saw this narrowly propositional use of DNOM5 and DNOM6 in (96) and (97), where the items expressed topic relations (96) or temporal relations (97) between successive clauses.

By contrast to propositional anaphoric DNOM5 and DNOM6, discourse directive DNOM1 draws the addressee's attention to **the forthcoming discourse as a whole**. The corpus contains no examples where discourse-oriented DNOM1 clearly indexes a specific proposition in the forthcoming discourse, and speakers are reluctant to accept sentences, like (101), where DNOM1 is used as a propositional cataphor. Instead, cataphoric reference to specific propositions in the discourse is done with pronouns. For example, in (101), a cataphoric third-person pronoun *nɨ³¹ʔɨ̃³*, coreferential with the proposition expressed by the complement clause, appears immediately before the verb.

(101) *nɨ³¹ʔɨ̃³ tʃa³ʍa̱¹ i⁴ ʔɲa⁴a²: ni⁴³do³ra³ ɟa⁴ Ka³ru¹.*

nɨ³¹	=ʔɨ̃³	tʃa³=	ʍa̱¹	i⁴	ʔɲa⁴a²	ni⁴³=	do³ra³	ɟa⁴	Ka³ru¹
3	=ACC	1SG.§.A=	know	DET(IV)	?DNOM1(IV)	3.I=	lie(I)	DET(II)	K

'I know ?this (DNOM1): Carlos is a liar.'
(LWG: 2017.2.49)

As with the discourse anaphors, there is diachronic evidence for the use of DNOM1 as a discourse (directive) cataphor. This evidence comes from the quotative verb, which is used to open and close quotations (and much less often, as a general deictic verb 'do like this/that'). While the paradigm of the quotative verb is extremely irregular, all 16 items of the paradigm incorporate the syllable *ɲa⁴* (identical to the first syllable of the class IV form of DNOM1) as the first syllable of the stem. The phone /ɲ/ is vanishingly rare in Ticuna, and outside of the quotative and DNOM1, the syllable *ɲa⁴* otherwise exists only as verb meaning 'throw.' DNOM1 is therefore the only plausible diachronic source for the *ɲa⁴* syllable of the quotative, indicating that the discourse cataphoric/directive use of the item is historically old.

7.3.1.3 Recognitional reference to individuals and places

Recognitional reference is accomplished in Ticuna with DNOM/DLOC5 and DNOM/DLOC6. Recognitional uses of DNOM/DLOC6, like all other uses of the item, are acceptable only in clauses with remote past temporal reference. DNOM/DLOCs 1, 2, and 3 are unattested and rejected in recognitional contexts.

An example of recognitional reference to individuals with DNOM5 appears in (102). This example, like (100), is drawn from the conversation between DGG, RGW, and AYM. At the point in the conversation when (102) appears, DGG has been telling an extended story about an old man

whose home he lived in as a child. He issues several turns about the old man's daytime sleepiness. AYM then takes the floor with the turn in line 1 of (102), comparing her own sleepiness to the man's. Then she issues the turn in line 2 of (102), saying that she is sleepy because she is taking 'those (DNOM5) vitamins.'

(102) 20170527a 10:30

1. AYM: *tʃau¹ru⁵ɨ̃¹ i⁴ ɲu̱¹ʔma⁵ na⁴ʔ tʃa³pe³¹ʔwa̱¹e³ʔi⁵tʃi²*
   tʃau¹ =ru⁵ɨ̃¹ i⁴ ɲu̱¹ʔma⁵ na⁴ʔ tʃa³= pe⁴³ =wa̱¹e³ =ʔi⁵tʃi²
   1SG =like DET(IV) now COMP 1SG.A= sleep(A) =HABIT =really
   'Like me now, I'm always so sleepy'

2. AYM: *na⁴ʔ* ⌜*ŋe³ma²*⌝ *vitamina i⁵tʃa¹ga¹gɨ⁵ʔɨ̃⁴wa⁵*
   na⁴ʔ ⌜ŋe³ma²⌝ vitamina i⁵= tʃa¹= ga¹ =gɨ⁴ =ʔɨ̃⁴
   COMP ⌜DNOM5(IV)⌝ Sp:vitamin(IV) VCL= 1SG.A.SC= swallow(A) =PL =NMLZ(IV)
   =wa⁵
   =ALL
   'It's from taking ⌜those (DNOM5)⌝ vitamins'

The token of DNOM5 in line 2 of (102) is not anaphoric, since the vitamins have not been mentioned anywhere in the preceding discourse. The token is also not the addressee-centered use of the item (the vitamins are not in the peripersonal space of AYM's addressees) or the invisible use (they are not located out of sight in the surround of the conversation). Rather, it can be analyzed only as recognitional: the existence of AYM's vitamins is presumably mutually known to her and to her addressees, since they are close relatives.

A recognitional reference to an individual with DNOM6 appears in (103). This example is drawn from a locality description interview. Immediately prior to the example, I ask the interviewee, SSG, about a large flood which occurred in the area several decades before. He describes the extent of the flood by saying that the central plaza of Caballococha (the highest point for several kilometers around) was flooded. In line (a) of (103), SSG states that the plaza flooded (metonymically using the proper name of the town to refer to the plaza, which is common). In lines (b) and (c), he states more specifically that the place where I live (located in the plaza) and the place where the local Franciscan nuns live (located in the plaza but not in the church) also flooded. In lines (d), he completes the list of places which flooded with the noun phrase *gu²ma² iglesia* 'that (DNOM6) church.' This refers to the central Catholic church of Caballococha, located in the plaza adjacent to the places referred to in lines (b) and (c).

(103) SSG Locality Description 29:21

a. *wɨ⁴³ʔi⁴gu² tą̲²ʔa² Ko³we⁴na²ʔɨ̃³ na⁴ʎu³¹ʔu²tʃi⁴ʔẽ⁴ʔẽ³, kɨ²a⁴na⁴,*
wɨ⁴³ʔi⁴gu² tą̲²ʔa² Ko³we⁴na² =ʔɨ̃³ na⁴= ʎu³¹ʔu²tʃi⁴ -ʔẽ⁴ʔẽ³ kɨ²a⁴na⁴
almost Caballococha =ACC 3.A= be.submerged(A) -CAUS INTJ:tag
'Caballococha (i.e. the plaza of Caballococha) almost flooded, you know.'

b. *rɨ¹ ŋe²ʔma⁴ ɲų̲¹ʔma⁵ e²ku¹pe³¹ʔɨ̃⁴wa⁵,*
rɨ¹ ŋe²ʔma⁴ ɲų̲¹ʔma⁵ e²= ku¹= pe⁴³ =ʔɨ̃⁴ =wa⁵
and DLOC5:LOC now VCL= 2SG.A.SC= sleep(A) =NMLZ(IV) =ALL
'It (i.e. the floodwater) was to where you live now,'

c. *ɲų̲¹ʔma⁵ monja=gɨ⁴ e²pe⁴³gɨ⁵ʔɨ̃⁴wa⁵, rɨ¹...*
ɲų̲¹ʔma⁵ monja =gɨ⁴ e²= Ø= pe⁴³ =gɨ⁴ =ʔɨ̃⁴ =wa⁵ rɨ¹
now Sp:nun =PL VCL= 3.A.SC= sleep(A) =PL =NMLZ(IV) =ALL and
'Where the nuns live now, and...'

d. *rɨ¹ na⁴ʎu³¹ ga⁴ gu²ma², gu²ma² iglesia.*
rɨ¹ na⁴= ʎu³¹ ga⁴ gu²ma² iglesia
and 3.A= be.submerged(A) DET.REMPST DNOM6(III) Sp:church(III)
'And the (DNOM6) church flooded.'

The token of DNOM6 in line (d) of (103) is not anaphoric, since it is the first mention of the Catholic church in the discourse. The token also does not represent bridging (use of anaphors to refer to parts of a previously mentioned whole): the places listed in lines (b) and (c) are not in a part-whole relation with the church. Instead, the reference in line 4 is recognitional. As the single most important landmark in the Caballococha/Cushillococha region, the referent is mutually known to SSG and me, his addressee (and also to everyone else familiar with the town). It therefore makes an easy object of recognitional reference.

7.3.1.4 Grammaticalized uses

The syntax of Ticuna displays many constructions which involve functional elements phonologically and morphologically identical to demonstratives. As in English, there is a connection between demonstratives and existential constructions: the two existential verbs are identical to DNOM5 and DNOM6, and the two locative copula verbs ('be in a place') are identical to DLOC5 and DLOC6. And also as in English and many other languages (Diessel 1999:120-135), there is a syntactic connection between demonstratives and relative clauses. For example, the free relative construction involves an element identical to DNOM5 or DNOM6 appearing as a complementizer introducing the relative clause. Likewise, relative clauses which lack an overt nominal head are typically headed by DNOM/DLOC5 or DNOM/DLOC6 instead. Some of these grammaticalized items (like the existential verbs) continue to display the noun class agreement and case properties of their demonstrative sources, while others (like the complementizer in the free relative construc-

tion) no longer display them.

All of the grammaticalized uses of demonstratives involve (forms derived from) DNOM/DLOC5 and DNOM/DLOC6. Except for the quotative verb, described in §7.3.1.2, there are no functional elements which are identical to or appear to be derived from DNOM/DLOCs 1, 2, 3, or 4. That is, Ticuna displays the same pattern of grammaticalization of demonstratives into other functional elements as has been described for other languages (Diessel 1999:ch. 6; Diessel 2006:474-475), but **only** for the non-exophoric demonstratives. The contemporary exophoric demonstratives do not participate in the pattern. In the synchronic frame of this study, I take this as evidence of the rigidly exophoric status of the exophoric demonstratives. In a diachronic frame, it could be taken as evidence that grammaticalized uses of demonstratives -- for example, in relative clauses -- arise from non-exophoric uses rather than exophoric ones.

I assume that grammaticalized uses of DNOM/DLOC5 and DNOM/DLOC6 make no pragmatic contribution. Therefore, I do not attempt to account for these uses in the analysis of the non-exophoric demonstratives developed in §7.4.

7.3.2 Exophoric uses exclude non-exophoric demonstratives

The two primarily non-exophoric demonstratives, DNOM/DLOC5 and DNOM/DLOC6, have different possibilities for exophoric use. DNOM/DLOC5 has two exophoric uses (§7.3.2.1), while DNOM/DLOC6 can never be used exophorically (§7.3.2.2). The relationship between the two demonstratives provides evidence that the exophoric uses of DNOM/DLOC5 represent separate lexical items from the non-exophoric uses (§7.3.2.3).

7.3.2.1 Exophoric use of DNOM/DLOC5 is limited

As described in Chapters 4 and 5, DNOM5 has, in addition to the non-exophoric uses documented above, two acceptable exophoric uses. DLOC5 shares one of the two exophoric uses of DNOM5, but not the other.

DNOM5 and DLOC5 share an exophoric use as **addressee-centered** demonstratives (Chapter 5). In addressee-centered exophoric use, DNOM5 typically indexes a referent that is on the addressee's body or within their peripersonal space, while DLOC5 indexes the addressee's peripersonal space and points within it.

DNOM5 also has an exophoric use as an **invisible** demonstrative (Chapter 4). In invisible exophoric use, DNOM5 indexes a referent that the speaker does not see at the moment of speech. The referent of invisible DNOM5 can be located anywhere in space; the speaker can perceive it via a non-vision sense at the moment of speech, or can fail to perceive it via any sense. DLOC5 does not have a corresponding invisible use -- part of a larger pattern where visibility is encoded only in nominal, not in locative, demonstratives.

DNOM/DLOC5 are not acceptable in exophoric use outside of addressee-centered and invisible contexts. As I argued in Chapter 4, this suggests that the addressee-centered and invisible uses represent distinct, homophonous lexical items. I take this maximalist analysis of DNOM/DLOC5 a

step further in §7.3.2.3, where I argue that the non-exophoric uses of DNOM/DLOC5 represent a separate lexical item from the exophoric ones.

7.3.2.2 Exophoric use of DNOM/DLOC6 is banned

DNOM/DLOC6 appears to be synonymous with DNOM/DLOC5, except that it is limited to clauses with remote past temporal reference. It appears in anaphora to individuals and places, discourse anaphora, recognitional reference, as the morphological base of discourse markers, and as the source of function words such as the existential verb. In all of these uses, DNOM/DLOC6 is syntactically and semantically identical to DNOM/DLOC5 except for the restriction to remote past clauses.

Unlike DNOM/DLOC5, however, DNOM/DLOC6 has no exophoric uses, even in clauses with remote past temporal reference. It was never volunteered in the Demonstrative Questionnaire (including when I used frame sentences with remote past temporal reference), nor was it regularly judged acceptable -- even in contexts designed to maximize the acceptability of an exophoric use.

Because exophoric reference represents the only use where DNOM5 and DNOM6 do not alternate, I demonstrate the contrast in (104) and (105). The context in (104) involves reference to an object that the addressee is holding (within their peripersonal space) in a clause with remote past temporal reference. Deixis to a referent that the addressee is handling strongly favors the use of addressee-centered DNOM5. If DNOM6 were simply the remote past counterpart of DNOM5 in **all** of its uses, we would expect both DNOM5 and DNOM6 to be acceptable in (104). However, only DNOM5 is acceptable -- showing that DNOM6 does not share the exophoric addressee-centered use of DNOM5.

(104) Context: It is June. I am holding a weathered and dirty hat. You point at the hat and tell me,
ʎu³pe⁴ti³ki³ ɟa⁴ pe⁴ta³tʃi¹ga¹gu² ri¹, tʃa³na³ɟa¹ʔu² [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] na⁴³pa⁴te²e³.

Ø=	ʎu³pe⁴ti¹	=ki³	ɟa⁴	pe⁴ta³	+tʃi¹ga¹	=gu²	ri¹	tʃa³= na³=
3.A.SC=	pass(A)	=NMLZ(II)	DET(II)	fiesta(II)	+celebration	=LOC	TOP	1SG.A= 3OBJ.A=
ɟau¹ʔ	[✓i⁴ ŋe³ma²]		/	[#ga⁴ ɟe⁴ma⁴]		na⁴³		+pa⁴te²e³
wash(A)	[✓DET(IV) DNOM5(IV)]		/	[#DET.REMPST DNOM6(IV)]		DEF.POSS		+hat(IV)

'Last Independence Day (July 28), I washed [that (✓DNOM5 / #DNOM6)] hat (near you).' (ECP: 2017.2.67)

Parallel to (104), the context in (105) involves deixis to a hidden object in a clause with remote past temporal reference. Deixis to a referent that is present in the surround, but which the speaker does not see, is one of the most reliable ways to elicit invisible exophoric DNOM5. If DNOM6 alternated with the invisible exophoric use of DNOM5, it would be acceptable in (105). But as in (104), only DNOM5 is acceptable, indicating that DNOM6 also fails to share the exophoric invisible use of DNOM5.

(105) Context: I have a shirt hidden in a bag next to me. I know that it is there, but I cannot see it.
✓ɟi²ma² / #gu²ma² *dau⁵ʔɨ̃²* *rɨ¹, mu¹kɨ³ma³* *ɟa⁴* *tau¹ne³kɨ³* *na³¹ʔkɑ̰¹* *tʃa³ta⁴e³.*

✓ɟi²ma²	/	#gu²ma²	dau⁵ʔɨ̃²	rɨ¹	mu¹kɨ³ma³	ɟa⁴	tau¹ne³kɨ³	na⁴³	=kɑ̰¹
✓DNOM5(III)	/	#DNOM6(III)	shirt(III)	TOP	many(II)	DET(II)	year(II)	3	=PURP

tʃa³= ta⁴e³
1SG.A= buy/sell(A)

'That (✓DNOM5 / #DNOM6) shirt (invisible), I bought it many years ago.'
(YCG: 2017.3.94)

Exophoric (addressee-centered) DLOC5 behaves exactly the same as exophoric DNOM5: it does not alternate with DLOC6, even in clauses with remote past temporal reference. Thus, neither DNOM6 nor DLOC6 allows any exophoric uses.

7.3.2.3 Exophoric and non-exophoric DNOM/DLOC5 are separate lexical items

The data presented in the two previous subsections, combined with that in §7.3.1, illustrates that there is a near-complete lexical split between exophoric and non-exophoric demonstratives in Ticuna. Exophoric demonstratives are restricted to exophoric use only (§7.3.1), except for the (marginal) discourse directive use of DNOM1. Likewise, one of the two non-exophoric items, DNOM/DLOC6, is restricted to non-exophoric use only (§7.3.2.2). The only demonstrative that consistently appears in both exophoric and non-exophoric function is DNOM/DLOC5.

I argued in Chapter 4 that the two exophoric functions of DNOM/DLOC5 represent two distinct, homophonous lexical items. The only possible alternative to this analysis is an analysis of exophoric DNOM/DLOC5 as vague -- that is, as a maximally semantically light demonstrative conveying only familiarity or only the underspecified exophoric meaning DEM. I rejected the vague analysis in Chapter 4 on the grounds that it overpredicts the acceptability of DNOM5 in exophoric contexts that do not involve invisible or addressee-centered reference.

Following the same reasoning which I applied to the exophoric functions in Chapter 4, I propose that the non-exophoric uses of DNOM/DLOC5 represent a third, homophonous lexical item, distinct from both of the two exophoric lexical items. This leads to the analysis of the nominal demonstrative system shown in Table 7.4.

Under the analysis shown in Table 7.4, there are **seven**, not five, DNOMs which can index people and objects. Each DNOM lexical item has exactly one phoricity value, and each exophoric DNOM has unique spatial and perceptual deictic content.

Table 7.4: Nominal demonstratives: meaning analysis treating DNOM5 as three homophonous lexical items

Demonstrative	Phoricity	Spatial Deictic Content	Perceptual Deictic Content	Temporal Content
DNOM1 *ɲa⁴a²*	Exophoric	Within reach for Spkr (1SG)	∅	
DNOM2 *ŋe³a²*	Exophoric	Between Spkr and Addr (1INCL)	[+visible]	
DNOM3 *ɟe³a²*	Exophoric	Not within reach for Spkr (2/3)	[+visible]	
DNOM5 *ŋe³ma²* - Item 1	Exophoric	Within reach for Addr (2SG)	∅	
DNOM5 *ŋe³ma²* - Item 2	Exophoric	∅	[-visible]	
DNOM5 *ŋe³ma²* - Item 3	Non-Exophoric			∅
DNOM6 *ɟe⁴ma⁴*	Non-Exophoric			[+remote past]

The apparent disadvantage of this analysis is that it represents DNOM5, which in terms of form appears to be one lexical item, as three homophonous lexical items. But is this a real weakness? I suggest not, for two reasons.

First, even the most minimalist analysis would need to posit the existence of multiple lexical items that are surface-identical to DNOM5 in the grammar of Ticuna. For example, one of the two existential verb roots is phonologically identical to DNOM5 (§7.3.1.4), and so is the verb root meaning 'ask for (a person).' These items are clearly not demonstratives on syntactic criteria -- for example, they can take verbal morphology and DNOMs cannot. Consequently, even an analysis indifferent to pragmatics would need to treat DNOM5 as reflecting at least two distinct but homophonous lexical items.

Second, speakers' metalinguistic commentary about DNOM5 suggests that an analysis involving multiple lexical items accords better with their intuitions than an analysis involving one item. YCG volunteered an explicit metalinguistic comment to this effect, saying (during the Demonstrative Questionnaire task) that DNOM5 'has many meanings.' Other consultants made comments which, though less metalinguistic than YCG's, suggest the same intuition. For example, when SSG carried out the Demonstrative Questionnaire task, he volunteered DNOM3 *ɟe³a²* in scenes 9 and 21. When I asked him to judge the acceptability of DNOM5 *ŋe³ma²* in these scenes, he rejected it in both cases. When he rejected it in scene 9, he commented that it is appropriate in speaking of a referent that is not present (representing the invisible use, or perhaps the recognitional). But when he rejected DNOM5 in scene 21, he commented that it is appropriate for something the addressee is touching (representing the addressee-centered use). Consultants did not make comments of this type on any other demonstrative.

The only alternative to the homophony analysis is a vague analysis, treating the exophoric

and non-exophoric uses of DNOM5 as one lexical item underspecified for phoricity. I reject this analysis for several reasons. In the domain of pragmatics, any vague analysis of the item predicts that DNOM5 should always be acceptable in exophoric reference. It is not (Chapter 4). In the domain of syntax, a vague analysis predicts that exophoric and non-exophoric DNOM5 should display the same syntactic behavior. This is also false: non-exophoric DNOM5 cannot appear as the predicate of a presentative construction (also Chapter 4). Intermediate between the two domains, a vague analysis cannot capture the temporal relationship between DNOM5 and DNOM6. A homophony analysis allows us to treat DNOM6 as a near synonym of non-exophoric DNOM5 restricted to contexts of remote past temporal reference (following the actual distribution of the items and speakers' intuitions about their synonymy). A vague analysis, on the other hand, would depict DNOM5 and DNOM6 as unrelated: DNOM5 as a phoricity-vague demonstrative, and DNOM6 as an exclusively non-exophoric one.

For all of these reasons, I reject an analysis of DNOM5 as vague, and instead adopt the analysis of DNOM5 as three lexical items, shown in Table 7.4.[2]

7.3.3 Exophoric and non-exophoric demonstratives are a single word class

The claim that exophoric and non-exophoric demonstratives are lexically distinct raises the question of whether they represent a single word class.

From a pragmatic perspective, exophoric and non-exophoric demonstratives have almost nothing in common that distinguishes them from other noun phrase elements. They direct the addressee to search different domains -- the surround of interaction for exophoric demonstratives, their cognitive representations (of the common ground or of the preceding discourse) for non-exophoric ones. The two kinds of demonstratives also convey different information about the demonstrative referent. Exophoric demonstratives convey information about the referent's location in space and the sense which the speaker uses to perceive it. Non-exophoric ones, by contrast, convey only the (world or discourse) familiarity of the referent.

[2]Diachronically oriented readers may be curious about whether the three lexical items represented by DNOM5 were historically phonologically distinct, then merged, or whether they represent the outcome of a series of semantic shifts. Since Ticuna is an isolate, and I have no data about variation in the demonstrative system between dialects of the language, it is impossible to answer this question based on concrete comparative data. To speculate, however, I would suggest that the oldest among the three uses of DNOM5 is the addressee-centered exophoric use. This use gave rise, through separate semantic shifts, to the invisible exophoric use and the non-exophoric use.

The shift from addressee-centered to non-exophoric took place because of stereotypical associations between proximity to the addressee (in spatial terms) and familiarity to the addressee. Similar shifts of addressee-proximal to anaphoric are attested in the demonstrative systems of number of Bantu languages (Larry Hyman p.c., March 2019), for example Lingala (Meeuwis and Stroeken 2012).

The shift from addressee-centered to invisible took place because of the existence of a large class of bridging contexts, like (33) in Chapter 4, where a referent is invisible to the speaker specifically because it is being blocked from their gaze by the addressee's body. Such bridging contexts could potentially also support grammaticalization from invisible to addressee-centered. Paradigmatic structure, though, suggests that the addressee-centered use is older. The addressee-centered use of DNOM5 is also found in the DLOC paradigm, and the invisible exophoric use is not.

Despite these pragmatic differences, exophoric and non-exophoric demonstratives still represent a single word class on morphosyntactic criteria. Recall from Chapter 2 that all six surface DNOMs display shared initial and final syllables and use tone to mark noun class agreement in Classes II, III, IV, and V. All six DNOMs (with the partial exception of DNOM4) also display the same syntactic position relative to other elements of the noun phrase, appearing between quantifiers and possessors. These morphosyntactic properties are shared by all of the DNOMs, exophoric and non-exophoric alike, and are not shared by any other noun phrase constituent. Likewise, all six surface DLOCs exhibit shared initial and final syllables, and mark the syntactic contrast between locative and allative case forms exclusively through laryngeal features. These properties, like the shared morphosyntactic properties of the DNOMs, are common to all DLOCs and are not shared by any other noun phrase constituent or class of adjuncts.

Exophoric and non-exophoric DNOMs also have a narrowly semantic property in common. They all behave as strong on tests of the weak/strong contrast in quantifiers.

There is a well-established contrast across languages between strong and weak noun phrases (Milsark 1974). Strong noun phrases typically include quantificational noun phrases headed by universal quantifiers, such as English *all* and *every*, and determiner phrases headed by definite determiners. Weak noun phrases include quantificational noun phrases headed by cardinal numbers and 'value judgment' quantifiers like English *many*, as well as determiner phrases headed by indefinite determiners.

Two tests reliably diagnose the distinction between strong and weak quantifiers in Ticuna: acceptability in the pivot of an existential construction and acceptability in a special construction for mass and indefinite objects. On both of these tests, all six DNOMs consistently pattern together and with the strong quantifiers.

(106) shows the pattern for acceptability in the pivot of an existential construction. (106a) demonstrates that some quantifiers of Ticuna -- specifically, the numeral *wɨ⁴³ʔi⁴* 'one' and the value judgment quantifier *mu⁴* 'many' -- are acceptable in the pivot of an existential. (106b) demonstrates that other quantifiers, namely the quantifier *wɨ⁴³ʔi⁴ʧi¹gɨ¹* 'every,' are not acceptable in the pivot (even though 'every' is morphologically derived from 'one' by the distributive enclitic *=ʧi¹gɨ¹*). This indicates that the weak/strong quantifier distinction is broadly valid for the language. (106c) shows that all five DNOMs pattern together as unacceptable in the pivot, a behavior which means that -- together with 'every' and 'all' -- the DNOMs are part of the class of strong quantifiers.

(106) Context: I call your store and ask if you have marbles. You reply,

a. Acceptable quantifiers
ta⁴ɟi³¹ʔe²ma⁴ ɟa⁴ [✓pe⁴³tɨ³ka³ / ✓wɨ⁴³ʔi⁴ʔe³ta²ma⁴ ɟa⁴ pe⁴³tɨ³ka³ / ✓mu¹ʔe³ ɟa⁴ pe⁴³tɨ³ka³].
ta⁴= ɟi³¹ʔe²ma⁴ ɟa⁴ ✓pe⁴³tɨ³ka³ / ✓wɨ⁴³ʔi⁴ʔe³ =ta²ma⁴ ɟa⁴ pe⁴³tɨ³ka³ /
3(I).A= exist(A):I DET(I) ✓marble(I) / ✓one(I) =SCALAR.FOC DET(I) marble(I) /
✓mu¹ʔe³ ɟa⁴ pe⁴³tɨ³ka³
✓many(I) DET(I) marble(I)
'(Yes,) there are ✓marbles / ✓exactly one marble / ✓many marbles.'

b. Unacceptable quantifiers
ta⁴ɟi³¹ʔe²ma⁴ ɟa⁴ #wɨ⁴³ʔi⁴ʔe³tʃi¹gɨ¹ ɟa⁴ pe⁴³tɨ³ka³.
ta⁴= ɟi³¹ʔe²ma⁴ ɟa⁴ #wɨ⁴³ʔi⁴ʔe³tʃi¹gɨ¹ ɟa⁴ pe⁴³tɨ³ka³
3(I).A= exist(A):I DET(I) #every(I) DET(I) marble(I)
Attempted: (Yes, there is #every marble.)

c. DNOMS
ta⁴ɟi³¹ʔe²ma⁴ ɟa⁴ [#da³¹ʔe² / #ɟi³¹ʔe² / #gu³¹ʔe² / #ɟi³¹ʔe²ma⁴ / #gu³¹ʔe²ma⁴] pe⁴³tɨ³ka³.
ta⁴= ɟi³¹ʔe²ma⁴ ɟa⁴ #da³¹ʔe² / #ɟi³¹ʔe² / #gu³¹ʔe² / #ɟi³¹ʔe²ma⁴ /
3(I).A= exist(A):I DET(I) #DNOM1(I) / #DNOM2(I) / #DNOM3(I) / #DNOM5(I) /
#gu³¹ʔe²ma⁴ pe⁴³tɨ³ka³
#DNOM6(I) marble(I)
Attempted: (Yes, there is this (#DNOM1) / that (#DNOM2/3/5/6) marble.)

(YCG 2017.3.170; DGG; LWG; ECP)

The mass/indefinite object construction shows the same pattern of acceptability as (106); I do not display the results here in the interest of space. In both tests, all five DNOMs that can index people and objects consistently pattern together and with the strong quantifiers that translate 'every' and 'all.' The weak quantifiers -- numerals and the items that translate 'many' and 'few' -- pattern apart. Since patterning with strong quantifiers on weak/strong tests is a cross-linguistic property of definites, this is a piece of evidence that (from a formal semantic perspective) all of the DNOMs, exophoric and non-exophoric, share the same definiteness meaning component.

7.4 Content of the non-exophoric demonstratives

§7.3 argued that exophoric and non-exophoric demonstratives are lexically distinct in discourse function. This section demonstrates that the two categories of demonstratives are also distinct in terms of **deictic content**. Exophoric demonstratives convey all of the detailed information about the relationship between the discourse participants and referent discussed in Chapters 4 through 6.

Non-exophoric demonstratives, on the other hand, have no deictic content. They convey nothing about the referent but its (discourse or world) familiarity. This familiarity meaning is the only content of non-exophoric DNOM/DLOC5. DNOM/DLOC6 also has temporal content, but this content controls the temporal interpretation of the **clause** and conveys nothing about the **referent**. The temporal content therefore does not represent 'deictic content' on the definiton developed in §3.2. I make these arguments first for DNOM/DLOC5 (§7.4.1), then for DNOM/DLOC6 (§7.4.2).

7.4.1 Non-exophoric DNOM/DLOC5 has no deictic content

The coreference possibilities of DNOM/DLOC5 make clear that the item has no deictic content. A noun phrase headed by DNOM/DLOC5 can be coreferential with an earlier noun phrase modified

by (or consisting of) any deictic demonstrative.

This can be seen from the attested uses of DLOC5 shown in (107) and (108). (107) is from a conversation. In the previous talk, B asks A if A has gone to get firewood. A replies by saying a presentative with DNOM1 in line 1 of (107). B offers a candidate understanding of the presentative in line 2. A corrects him in line 3. In the first part of the turn in line 3, he indexes the location of the firewood with DLOC1 (corresponding to his use of DNOM1 in line 1). In the second part of the turn in line 3, he refers anaphorically to the location with DLOC5. This can only be seen as an anaphoric use because (as line 2 makes clear) the referent location is not near the addressee, B.

(107) 20180628 14:29

1. A: *ɲa⁴a²*
   ɲa⁴a²
   DNOM1
   'Here it is (the firewood).'

2. B: *o³e̯¹ʔna⁵, to²ku³tɨ³wa⁵?=*
   o³e̯¹ʔna⁵ to²ku³tɨ³ =wa⁵
   INTJ:alignment other.side =ALL
   'Oh okay, on the other side?'

3. A: *nu²a²ta²ã⁴, ŋe²ʔma⁴ na⁴ʔɨ⁴³*
   nu²a² =ta²ã⁴ ŋe²ʔma⁴ na⁴= ɨ⁴³
   DLOC1:LOC =SCALAR.FOC DLOC5:LOC 3.A= put:InamSgO
   'Right here (DLOC1), it got put there (DLOC5).'

(108) is drawn from a narrative told in a conversation. The narrator, LFG, quotes someone asking her where her husband is; then she quotes herself saying (107). In the first turn of this example, she refers to the place where her husband went using DLOC3 *ɟe⁵a²*. In the second turn, she refers anaphorically to the same location using DLOC5 *ŋe⁵ma²*. This use can likewise only be anaphoric, since the referent location is not near the addressee of the quoted speech.

(108) 20180707 9:12

1. LFG: *ɟe⁵a²ma⁴ma³ ũ³¹ʔ*
   ɟe⁵a² =ã⁴ma⁴ =ma³ Ø= ũ⁴³ =ʔɪ̃⁴
   DLOC3:ALL =Ã⁴MA⁴ =INFO 3.A.SC= come/go:SgS(A) =SUB
   'He went that way (DLOC3).'

2. LFG: $\boxed{ŋe^5ma^2}$ $ni^{41}\tilde{ʔi}^4$
   $\boxed{ŋe^5ma^2}$ $ni^{41}=\tilde{i}^4$
   $\boxed{\text{DLOC5:ALL}}$ 3.I= COP(I)
   'He's $\boxed{\text{there (DLOC5)}}$.'

The spatial extension of DLOC3 is the complement of the extension of DLOC1. As such, it is unlikely that an item with deictic content could be coreferential with both DLOC1, as in (107), and DLOC3, as in (108). (107) and (108) show that DLOC5, however, **can** be coreferential with either, with no shifts in the location or deictic construal of the referent.

In combination with the examples of non-exophoric DNOM5 and DLOC5 in §7.3.1, this indicates that non-exophoric uses of DNOM/DLOC5 place no requirements on the spatial or perceptual relation between the discourse participants and the referent. The referent of DNOM/DLOC5 can be maximally close to and perceptually accessible for the participants (as in 107) or maximally far away and perceptually inaccessible (as in 94, where the referent of DLOC5 is thousands of kilometers away). All that is required is that the referent is known either from the prior discourse or (as in recognitionals) from the participants' common ground.

7.4.2 DNOM/DLOC6 has temporal indexical content, but no deictic content

DNOM/DLOC6 has exactly the same distribution as non-exophoric DNOM/DLOC5, except that it appears only in clauses with remote past temporal reference. In saying that these two demonstratives have identical distribution, I mean not only that they are syntactically and pragmatically identical, but also that both lack any deictic content. Just like DNOM/DLOC5, DNOM/DLOC6 can index a referent that is within the participants' peripersonal space and highly accessible to them just as easily as it can index a referent that is maximally far and inaccessible.

The sole difference between DNOM/DLOC5 and DNOM/DLOC6 is the restriction of DNOM/DLOC6 to clauses involving remote past temporal reference. This restriction arises from effects of DNOM/DLOC6 on the temporal interpretation of **the entire clause** in which it appears. Except in marginal cases, DNOM/DLOC6 conveys **no** temporal information about the demonstrative **referent**, only about the clause. This is part of the larger generalization that the non-exophoric nominal demonstratives convey nothing about the referent except for its discourse or world familiarity.

In the following sections, I document the effects of DNOM/DLOC6 on the temporal interpretation of main clauses (§7.4.2.1) and subordinate clauses (§7.4.2.2). I then show that DNOM/DLOC6 has no effect on the temporal interpretation of its nominal complement (§7.4.2.3). I describe the marginal cases where DNOM6 **does** convey temporal information about the referent, all of which involve either propositional anaphora or extremely pragmatically marked situations, in §7.4.2.4. I summarize and conclude in §7.4.2.5.

Two points are important as background to all of the following sections. First, other than the temporal requirements of DNOM/DLOC6, there is no evidence of absolute or relative tense anywhere in the grammar of Ticuna. Second, my examples are drawn exclusively from clauses

that do not have aspect marking. Ticuna clauses with no aspect marking are preferentially read as perfective if their verb is dynamic, and imperfective if it is stative. Readers interested in a more detailed discussion of temporal reference in Ticuna, including tenselessness, aspect categories, and interactions between overt aspect marking and the acceptability of DNOM6, are referred to Skilton (2018).

7.4.2.1 DNOM/DLOC6 is acceptable in main clauses only if the main clause has remote past temporal reference

DNOM/DLOC6 is acceptable as an argument (DNOM6) or an adjunct (both items) in a main clause only if the clause has remote past temporal reference. 'Remote past temporal reference' means that the clause must concern a time which is on a calendar day before the day of speech.

The data in (109) illustrates this restriction on the use of DNOM6 in main clauses. All of the utterances in (109) instantiate the recognitional use of DNOM5 and DNOM6, since the demonstrative referent -- the priest -- is mutually known to the participants but has not been mentioned in the preceding discourse. The anaphoric use of DNOM6, as well as both uses of DLOC6, displays exactly the same temporal restrictions as the recognitional use shown in (109).

Within the example in (109), DNOM6 is acceptable (and so is its temporally unmarked equivalent, DNOM5) in the utterances in (109a) and (109b). The clause in (109a) concerns a time one year before the time of the discourse, and the clause in (109b) concerns a time which is one day before the day of discourse. By contrast, DNOM6 is not acceptable in the utterance in (109d) or (109e). Only DNOM5 can be used. These two clauses concern times which are the same as the time of speech (109d) or after the time of speech (109e). The contrast between (a) and (b) on one hand, and (d) and (e) on the other, therefore indicates that DNOM6 can only appear in a clause with **past** temporal reference. DNOM5, by contrast, can appear in a clause with **any** temporal reference.

What shows that DNOM6 specifically requires **remote past** temporal reference is (109c). This utterance concerns a time which is before the time of speech, but on the same calendar day. DNOM6 is unacceptable in this context. If DNOM6 required only that the clause had past temporal reference (i.e. concerned a time before the time of speech), it would be acceptable in (c). The fact that it is unacceptable indicates that the temporal requirement involves both an ordering component (the clause must concern a time in the past) and a remoteness component (the time of the clause must be at least one day before the time of speech).

(109) Context for all of (a-e): I am friends with the local Catholic priest, who is from coastal Brazil. You also know the priest. I tell you,
Temporal reference in the following examples: Set by temporal adverbs in the examples.

a. *ʌu³pe⁴tɨ³kɨ³ ga⁴ tau¹ne³kɨ³gu², [✓i⁴ ŋe³ma²] / [✓ga⁴ ɟe⁴ma⁴] pai³¹ rɨ¹ we⁵na¹ na⁴ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴.*

Ø= ʌu³pe⁴tɨ³ =kɨ³ ga⁴ tau¹ne³kɨ³ =gu², [✓i⁴ ŋe³ma²] /
3.A.SC= pass(A) =SUB(II) DET.REMPST year(II) =LOC, [✓DET(IV) DNOM5(IV)] /
[✓ga⁴ ɟe⁴ma⁴] pai³¹ rɨ¹ we⁵na¹ na⁴= ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴
[✓DET.REMPST DNOM6(IV)] priest(IV) TOP again 3.A= return:SgS(A) Brazil

'Last year, the (✓DNOM5 / ✓DNOM6) priest, he went back to Brazil.'

b. *i̯¹ʔne¹ [✓i⁴ ŋe³ma²] / [✓ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹ na⁴ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴.*

i̯¹ʔne¹ [✓i⁴ ŋe³ma²] / [✓ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹
yesterday [✓DET(IV) DNOM5(IV)] / [✓DET.REMPST DNOM6(IV)] priest(IV) again
na⁴= ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴
3.A= return:SgS(A) Brazil

'Yesterday, the (✓DNOM5 / ✓DNOM6) priest, he went back to Brazil.'

c. *pa³¹ʔma⁴ma³ [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹ na⁴ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴.*

pa³¹ʔma⁴ma³ [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹
morning [✓DET(IV) DNOM5(IV)] / [#DET.REMPST DNOM6(IV)] priest(IV) again
na⁴= ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴
3.A= return:SgS(A) Brazil

'This morning, the (✓DNOM5 / #DNOM6) priest, he went back to Brazil.'

d. *ɲu̯¹ʔma⁵ [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹ na⁴ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴.*

ɲu̯¹ʔma⁵ [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹ na⁴=
now [✓DET(IV) DNOM5(IV)] / [#DET.REMPST DNOM6(IV)] priest(IV) again 3.A=
ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴
return:SgS(A) Brazil

'Right now, the (✓DNOM5 / #DNOM6) priest, he is going back to Brazil.'

e. *mo⁴ĩ²* [✓*i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴]* *pai³¹ we⁵na¹ na⁴ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴.*
mo⁴ĩ² [✓i⁴ ŋe³ma²] / [#ga⁴ ɟe⁴ma⁴] pai³¹ we⁵na¹ na⁴=
tomorrow [✓DET(IV) DNOM5(IV) / #DET.REMPST DNOM6(IV)] priest(IV) again 3.A=
ta⁵e¹gu¹ ta²wa⁵ã⁴ma⁴
return:SgS(A) Brazil
'Tomorrow, the (✓DNOM5 / #DNOM6) priest, he goes back to Brazil.'
(YCG: 2018.1.59-60)

Since all of the utterances in (109) are monoclausal, (109) provides no data about whether DNOM6 requires only that its own clause has remote past temporal reference, or places that requirement on the entire sentence. To determine the syntactic scope of the requirement, we look next to subordinate clauses.

7.4.2.2 DNOM/DLOC6 is acceptable in subordinate clauses only if the subordinate clause has remote past temporal reference

In a subordinate clause -- such as the antecedent of a conditional, a relative clause, or a reason clause -- DNOM/DLOC6 requires only that the **subordinate clause** has remote past temporal reference. The presence of DNOM/DLOC6 in a subordinate clause has no necessary effect on the temporal interpretation of the main clause or other subordinate clauses in the utterance.

I demonstrate the clause-specificity of the temporal requirements of DNOM/DLOC6 with (110). This utterance is biclausal, with a subordinate clause expressing a reason appearing first and introduced by the conjunction *e³rɨ⁴* 'because.' (It is clear that this clause is subordinate to the main clause, rather than representing a separate maximal projection, because it is an island to focus extraction.) The main clause, expressing an event caused by the subordinate clause, appears second. DNOM6, in its recognitional use, appears in the subordinate clause.

(110) Context: You are a teacher. Last Sunday, you asked for some money for the school where you work. You are going to receive the money today, which is Tuesday. You say,
[e³rɨ⁴ ʎu³pe⁴tɨ³kɨ³ ga⁴ ɟi⁵¹ʔɨ³gu² ✓*gu³¹ʔe²ma⁴ di³ẽ³ru¹kɑ̰¹ i⁵tʃa³ka¹]$_{Subordinate}$,*
[ɲu̱¹ʔma⁵ ta⁴ tɨ³¹ʔĩ³ tʃa³ɟa³ɟa²ʔu³]$_{Main}$.

e³rɨ⁴ Ø= ʎu³pe⁴tɨ³ =kɨ³ ga⁴ ɟi⁵¹ʔɨ³ =gu² ✓gu³¹ʔe²ma⁴
because 3.A.SC= pass(A =NMLZ(II) DET.REMPST Sunday(II) =LOC ✓DNOM6(I)
di³ẽ³ru¹ =kɑ̰¹ i⁵= tʃa³= ka¹
money(I) =PURP VCL= 1SG.A= ask.for(A)$_{Subordinate}$

ɲu̱¹ʔma⁵ ta⁴ tɨ³¹ =ʔĩ³ tʃa³= ɟa³= ɟau²ʔ
now FUT 3(I) =ACC 1SG.A= AM= get(A)$_{Main}$

'Because I asked for that (✓DNOM6) money last Sunday, I'll go to pick it up today.'
(LWG: 2018.2.28)

The subordinate clause in (110) has remote past temporal reference, since it concerns a time several days before the day of speech. The main clause, on the other hand, has future temporal reference, concerning a time after the time of speech. If DNOM6 required the entire sentence in which it appeared to have remote past temporal reference, then it would not be acceptable in (110), since only one of the two clauses in this sentence is remote past. That it is acceptable shows that the temporal requirements attach only to the clause where DNOM6 appears.

The same pattern seen for DNOM6 in (109) and (110) also holds for DLOC6 and all of the other items morphologically related to DNOM/DLOC6 (conjunctions, discourse markers, existentials, and so on). DNOM/DLOC6 and related forms always and only require that the time of **their clause** is in the remote past of the time of speech. These items do not affect the temporal reference of other clauses in the sentence, and the temporal reference of other clauses does not affect them. Thus, DNOM/DLOC6 and related forms always require that the time of their clause is in the remote past relative to the time of speech, not simply relative to the time of another clause in the discourse.

Additionally, DNOM/DLOC6 and their derived forms display the same behavior in all types of subordinate clauses. They also display the same behavior regardless of their syntactic position inside the main or subordinate clause, the polarity of the clause, and the presence of other constituents, such as quantifiers, in the noun phrase that contains the demonstrative. The only syntactically motivated exceptions to the temporal requirements involve (a) uses of DNOM/DLOC6 in belief reports and indirect speech reports and (b) uses of DNOM/DLOC6 inside noun phrase islands. These uses, which I do not discuss for reasons of space, involve slightly different temporal requirements than uses in main clauses and other subordinate clauses.

7.4.2.3 DNOM/DLOC6 has no effect on the temporal interpretation of its nominal complement

In several Tupí-Guarani languages, as well in a handful of other South American language families, there are noun phrase markers which control the temporal interpretation of the noun phrase. These markers are usually translated into English as 'former' or 'future.' They appear on a noun phrase and convey that the nominal referent had the property of the noun in the past of the clause time (like 'former teacher'), or that the referent will have the property only in the future of the clause time ('future mother-in-law') (Tonhauser 2007, 2008; Thomas 2012).

Since Ticuna has been in contact with at least two Tupí-Guarani languages, it is reasonable to ask whether the temporal requirements of DNOM/DLOC6 on the clause could arise from effects on the temporal interpretation of noun phrases. This style of analysis would necessarily begin with the claim that DNOM/DLOC6 always has a noun as its complement in the underlying syntactic structure. The analysis would then claim that DNOM/DLOC6 conveys that the demonstrative referent had the property denoted by the underlying noun in the remote past. This temporal meaning would have logical scope only over the noun phrase, but would give rise to a manner implicature leading to a remote past reading for the entire clause.

However, a Tupí-Guarani-style analysis of the temporal meaning of DNOM/DLOC6 is impossible because **DNOM/DLOC6 has no effect on the temporal interpretation of nouns**. Rather, the temporal interpretation of nouns in Ticuna is identical whether the nouns are modified by

DNOM6, by its temporally neutral equivalent DNOM5, or by nothing other than a determiner. It is also identical to the temporal interpretation of nouns in English. While displaying the complete evidence for these claims is beyond the scope of this section, I will illustrate two of the key reasons that a Tupí-Guarani-style analysis is inappropriate.

First, under the hypothetical analysis suggested above, the clause-level temporal requirements of DNOM/DLOC6 are due to manner implicatures, a type of conversational implicature. Conversational implicatures can definitionally be canceled. Therefore, if the Tupí-Guarani style analysis is correct, it should be acceptable to use DNOM/DLOC6 in a non-remote past clause, provided that the property of the noun phrase held of the demonstrative referent **only in the remote past**.

This prediction is false. Even if the property of a noun phrase held only in the remote past, that noun phrase cannot be modified by DNOM6 in a non-remote-past clause. This is shown by (111). This is a monoclausal sentence with future temporal reference. It includes a recognitional reference to a person who was a soldier in the remote past. If DNOM6 conveyed that the demonstrative referent had the noun property in the remote past, it would therefore be acceptable in the noun phrase *ɟe⁴ma⁴ tʃu³ra³ra¹* (DNOM6(IV) soldier(IV)) 'the soldier' in (111). However, it is unacceptable, showing that the clause-level temporal requirements of DNOM6 cannot be canceled.

(111) Context: A man who used to be a soldier has bought a piece of land next to your home. We both know this man. You point out the lot that belongs to the man and tell me,
#ɟe⁴ma⁴ tʃu³ra³ra¹ rɨ¹ nu²a² ta⁴ na⁴ʔɨ²pa⁴ta³.

#ɟe⁴ma⁴	tʃu³ra³ra¹	rɨ¹	nu²a²	ta⁴	na⁴= ɨ²		+pa⁴ta³
#DNOM6(IV)	soldier(IV)	TOP	DLOC1:LOC	FUT	3.A=	make(A)	+NI:house

Attempted: (The (#DNOM6) former soldier will build a house here.)
(LWG: 2018.1.106; YCG)

Second, under the Tupí-Guarani-style analysis, DNOM/DLOC6 should be acceptable **only if** the demonstrative referent had the nominal property in the remote past. It should not be acceptable if the demonstrative referent has acquired the nominal property in the recent past. This prediction is also false. Provided that the clause is remote past, a noun phrase with DNOM6 can denote a referent that acquired the noun property in the recent past (i.e. on the day of speech).

(112) illustrates the evidence for this claim. In this example, the clause has remote past temporal reference -- it concerns the time when the priest was born, which is several years before the time of speech. However, the referent of the noun phrase *gu²ma⁴ pai³¹* (DNOM6(II) priest(II)) 'the priest' has acquired the property of being a priest only on the day of speech. Times earlier on the day of speech count as the recent past for purposes of DNOM/DLOC6. As shown by (109c), a clause that concerns a time on the day of speech cannot contain the items.

(112) Context: We both know a young man who became a priest earlier today. You tell me, *Li³ma¹gu² na⁴bu³¹ ga⁴* ✓*gu²ma⁴* *pai³¹.*

Li³ma¹ =gu² na⁴= bu³¹ ga⁴ ✓gu²ma⁴ pai³¹
L =LOC 3.A= be.born(A) DET.REMPST ✓DNOM6(II) priest(II)

'The (✓DNOM6) priest was born in Lima.'
(SSG: 2018.1.25; LWG; YCG)

If the acceptability of DNOM6 turned on whether the demonstrative referent had the nominal property in the remote past, it would be unacceptable in (112) -- since the referent has acquired the nominal property only in the recent past. In fact, though, DNOM6 is acceptable in (112). Its acceptability shows that the temporal requirements of DNOM/DLOC6 exclusively concern the temporal reference of the clause, **not** the temporal properties of the noun phrase.

7.4.2.4 DNOM/DLOC6 conveys temporal information about the referent only in marginal cases

There are a very small number of contexts where DNOM/DLOC6 can appear in a clause that does not have remote past temporal reference. These contexts fall into two categories: propositional anaphora to propositions about the remote past, and (recognitional and anaphoric) reference to individuals which the speaker last perceived in the remote past. Neither of these marginal uses of DNOM/DLOC6 in non-remote past clauses should affect our larger conclusions about the temporal content of DNOM/DLOC6.

Anaphora to propositions about the remote past

DNOM6 and its derived forms can be used in non-remote past clauses as propositional anaphors referring to a proposition about the remote past. This is shown in (113). (113a) is a monoclausal remote past perfective sentence. (113b) is a monoclausal present imperfective sentence. (113b) contains a propositional anaphor which refers to the proposition expressed by (113a).

(113) Context: Our friend Juan was a bachelor for many years, until he finally got married at this time last year. I come into your house and see that you and all of your household members are laughing and smiling. I ask what you're talking about. You say (a) and then (b).

a. *ʌu³pe⁴tɨ³kɨ³ ɟa⁴ tau¹ne³kɨ³gu², rɨ¹ ɯa³ɨ̃¹ rɨ¹ na⁴ʔã³mą̱¹.*
Ø= ʌu³pe⁴tɨ¹ =kɨ³ ɟa⁴ tau¹ne³kɨ³ =gu² rɨ¹ ɯa³ɨ̃¹ rɨ¹ na⁴= ã³
3.A.SC= pass(A) =NMLZ(II) DET(II) year(II) =LOC TOP Juan TOP 3.A= have.inal(A)
+mą̱¹
+NI:wife
'Last year, Juan, he got married.'

b. *ɲu̱¹ʔma⁵ rɨ¹, ✓ŋe³ma²tʃi¹ga¹ / ✓ɟe⁴ma⁴tʃi¹ga¹ ti⁴de⁴³a²gɨ⁴.*

ɲu̱¹ʔma⁵ rɨ¹ ✓ŋe³ma² =tʃi¹ga¹ / ✓ɟe⁴ma⁴ =tʃi¹ga¹ ti⁴= de⁴³a² =gɨ⁴
now TOP ✓DNOM5(IV) =about / ✓DNOM6(IV) =about 1EXCL.I= talk(I) =PL

'Now, we are talking about that (✓DNOM5 / ✓DNOM6).'

(LWG: 2018.1.52-53; SSG; YCG)

(113b), the clause that contains DNOM6, has present temporal reference. This would normally preclude DNOM6 from appearing in the clause, including as an adjunct. However, DNOM6 is acceptable as part of the adjunct *ɟe⁴ma⁴=tʃi¹ga³* (DNOM6=about) 'about that,' in (113b), because it refers to the proposition expressed in (113a). That proposition concerns the remote past -- a time one year before the time of speech. This remote past temporal reference for the antecedent proposition makes propositional anaphoric DNOM6 acceptable.

Similar to the propositional anaphora use, DNOM6 can also be used in non-remote past clauses (a) to refer to entities that contain propositional content about the remote past (such as books and videos), and (b) in noun phrases denoting remote past time periods. However, I have observed these uses almost exclusively in elicitation. My corpus materials contain a grand total of two uses of DNOM/DLOC6 and its derived forms in non-remote past clauses, compared to over 700 tokens in remote past clauses.

Referents which the speaker last perceived in the remote past

It is acceptable to use DNOM6 in a non-remote-past clause to index a referent which the speaker last perceived in the remote past of the time of speech. (114) provides an example of this structure.

(114) is a biclausal sentence consisting of a main clause and a subordinate purpose clause (the purpose clause consists of all of the material right of the complementizer *na⁴*). Both clauses have future temporal reference, established by the temporal adverb *mo⁴ɨ̃²* 'tomorrow' in the main clause. In pragmatically unmarked situations, DNOM6 is unacceptable in clauses with future temporal reference (cf. 109e), and we would therefore predict it to be unacceptable in either clause of (114). However, as the context establishes, the speaker last perceived the referent of the demonstrative noun phrase *gu²ma² bicicleta* (DNOM6(III) bicycle(III)) 'that bicycle' one year before the time of speech. This most recent perception event took place in the remote past, and therefore DNOM6 is acceptable in the noun phrase denoting the referent.

(114) Context: 'Last year, I went to a place where they sell bicycles. I picked out a bicycle for my sister. But I didn't buy it, and I didn't go back to the store all last year. But...'
mo⁴ɨ̃² ta⁴a³rɨ¹ we⁵na¹ tʃa³ta⁵e¹gu¹ na⁴ na³¹ʔkɑ̨¹ tʃa¹ta⁴e²ʔɨ̃⁴kɑ̨¹ ga⁴ ✓*gu²ma²* *bicicleta.*

mo⁴ɨ̃² ta⁴ =a³rɨ¹ we⁵na¹ tʃa³= ta⁵e¹gu¹ na⁴ na⁴³ =kɑ̨¹ tʃa¹= ta⁴e³
tomorrow FUT again 1SG.A= return:SgS(A) COMP 3 =PURP 1SG.A.SC= buy(A)
=ʔɨ̃⁴ =kɑ̨¹ ga⁴ ✓gu²ma² bicicleta
=SUB =PURP DET.REMPST ✓DNOM6(III) Sp:bicycle(III)

'Tomorrow I will go back to buy that (✓DNOM6) bicycle.' (KSC: 2018.1.71)
Speaker comment: Good because you saw the bicycle last year, but you haven't seen it since then.

The remote perception use of DNOM6 represented by (114) is extremely pragmatically marked. It requires very specific and explicit context about the speaker's perception history of the referent to be accepted, and even with such context, not all consultants consistently found it acceptable. Moreover, I have no unambiguous examples of the remote perception use of DNOM6 in any non-elicited form of data.

While it would be satisfying to explain the clause-level temporal requirements of DNOM/DLOC6 as inferences from a perceptual meaning like that in (114), the facts do not allow it. DNOM/DLOC6 does **not** always require that the speaker last perceived the referent in the remote past. Rather, DNOM/DLOC6 can be, and routinely are, used to index referents which the speaker has seen or otherwise directly perceived on the day of speech. For example, recall the example of recognitional DNOM6 in (103c), where the speaker used recognitional DNOM6 to index the central Catholic church of Caballococha -- a landmark which he had seen several times on the day of speech.

Because of the rarity and extreme markedness of uses of DNOM6 in non-remote past clauses, I treat them as marginal. While these uses show that DNOM6 can **occasionally** be licensed by the temporal properties of its referent, none of them give us a reason to believe that the item **always** conveys temporal properties of the referent. Instead, the simplest explanation of the marginal uses is that they represent lexicalized exceptions to the temporal requirements of DNOM6. As a lexicalization account predicts, all of the marginal uses are specific to DNOM6 (and propositional anaphors derived from it). There is no parallel evidence that DLOC6, or any of the other items morphologically derived from DNOM/DLOC6, can ever be used in a clause that does not have remote past temporal reference.

7.4.2.5 Conclusions on the temporal content of DNOM/DLOC6

In §§7.4.2.1-7.4.2.4, I demonstrated that the acceptability of DNOM/DLOC6 is connected to the temporal reference of the clause. Except in a small number of lexicalized uses, DNOM/DLOC6 appears exclusively in clauses with absolute remote past temporal reference (i.e. concerning times at least one day before the day of speech). Given this restriction, it is clear that DNOM/DLOC6 has some temporal content, and that its temporal content is fairly similar to verbal tense.

The temporal content of DNOM/DLOC6 is, like verbal tense, indexical. It relates the temporal reference of the clause to the time of the speech act. However, the temporal indexical content of DNOM/DLOC6 is profoundly different from the deictic content of exophoric demonstratives -- so different that it is questionable whether both should be given the same label. The deictic content of exophoric demonstratives, as defined in Chapter 3, conveys spatial and perceptual properties of the **referent** in relation to the **discourse participants**. By contrast, the indexical content of DNOM/DLOC6 conveys the ordering of the **time of the clause** containing the element in relation to the **time of speech**, and the distance between those times. Comprehending the deictic content of exophoric demonstratives requires listeners to monitor the other discourse participants and the surround of discourse. Comprehending the temporal content of DNOM/DLOC6, on the other hand, only requires the listener to know what time the discourse is occurring. All that these requirements have in common is that they require access to the properties of the discourse as an event (its time, place, and participants) as well as access to the discourse content. Thus, while it is accurate to label both the temporal content of DNOM6 and the deictic content of exophoric demonstratives as 'indexical,' only the spatial and perceptual content of exophoric demonstratives is deictic.

7.5 Summary and conclusion

In this section, I relate the arguments of this chapter to theories about the relationship between exophoric and non-exophoric uses of demonstratives laid out in §7.2. My findings about the lexical split between exophoric and non-exophoric demonstratives in Ticuna support a theory of deixis (exophoric uses of demonstratives) and anaphoric/recognitional reference (non-exophoric uses) as minimally related phenomena.

7.5.1 Impacts on analyses of exophoric and non-exophoric reference as uniform

As I outlined in §7.2.1, most research on demonstratives by linguists has analyzed exophoric and non-exophoric uses of demonstratives as reflecting a single underlying meaning. This meaning can be described in formal semantic terms as conveying underspecified familiarity, with exophoric uses of demonstratives specifically conveying weak familiarity (that the referent is salient in the surround) and anaphoric uses conveying strong familiarity (that the referent has been previously mentioned). In a typological or cognitive-functional framework, on the other hand, the single meaning underlying both exophoric and non-exophoric uses is characterized as 'definiteness,' 'accessibility,' or the semantic prime DEM. Under either kind of theory, demonstratives may also have deictic content besides familiarity or definiteness. However, that content must be compatible with both exophoric and non-exophoric reference, and it therefore cannot concern information about the physical relations between the discourse participants and the demonstrative referent. For example, suppose that a speaker-proximal demonstrative, such as English *this*, is used both for referents close to the speaker and referents recently mentioned in the discourse.

Under a uniform theory of exophoric and non-exophoric reference, *this* can have a feature [proximal] as part of its deictic content. Its [proximal] feature, though, cannot be defined as involving literal location within the speaker's peripersonal space, since that requirement would be incompatible with non-exophoric uses.

If a uniform theory of exophoric and non-exophoric reference is correct for all demonstrative systems, then **all** demonstratives should be acceptable in both exophoric and non-exophoric reference. This prediction is prima facie false for Ticuna, since the language displays a near-complete lexical split between exophoric and non-exophoric demonstratives. Of the five demonstratives that can index people and objects, three are acceptable only in exophoric reference; one is acceptable only in non-exophoric reference; and just one is robustly acceptable in both kinds of use (§7.3). Ticuna is not only language to display a complete exophoric/non-exophoric lexical split. For example, the nominal demonstratives of Korean display an extremely similar split (Ahn 2017), as do the locative demonstratives of Mayan languages such as Tzeltal (Levinson 2018a:34) and Yucatec (Hanks 1990:448). If all demonstratives were underspecified for phoricity, then exophoric/non-exophoric lexical splits like these would not exist.

Another prediction of the uniform theory is that the **deictic content** of demonstratives always concerns very general properties of the referent, such as the referent's cognitive accessibility or discourse salience. Chapters 4 through 6, as well as §7.4 in this chapter, lay out the evidence that this prediction too is false for Ticuna. Chapters 4 through 6 show that the deictic content of exophoric demonstratives specifically concerns the participants' spatial and perceptual relations to the referent, not more general (and less embodied) relations like accessibility. §7.4 contrasts this rich deictic content with the extremely minimal deictic content of the non-exophoric demonstratives, which convey nothing about the referent except for its discourse or world familiarity. A theory where deictic content always and only concerns accessibility cannot account for the whole of this system. It can perhaps handle the non-exophoric side of the system -- treating the non-exophoric items as conveying low accessibility of the referent -- but it cannot capture the clearly spatial and perceptual deictic content of the exophoric forms.

7.5.2 Impact on analyses of exophoric and non-exophoric reference as distinct

In §7.2.2 and §7.2.3, I outlined an account of exophoric, recognitional, and anaphoric demonstrative reference as representing three distinct phenomena. This theory's hard distinction between exophoric and anaphoric reference has its roots in the treatment of demonstratives in the psychology literature (§7.2.2). I depart from that literature in treating recognitional reference as a separate category, and in making explicit that the contrast between these kinds of reference concerns (a) the domain which the addressee searches in comprehension of the item and (b) the cognitive capacities which they use to conduct their search (§7.2.3).

The tripartite model proposed in §7.2.3 fits the demonstrative system of Ticuna better than a uniform theory. It predicts the existence of lexical splits between exophoric and non-exophoric demonstratives (§7.3). It also predicts the split in content between the two sets of demonstra-

tives (§7.4). Exophoric demonstratives are predicted to convey information which narrows the domain of the addressee's search for the demonstrative referent in the surround -- that is, spatial and perceptual information. Non-exophoric demonstratives, on the other hand, are predicted to convey information about the participants' world familiarity with the referent (for recognitionals) or about when the referent was last mentioned (for anaphors). This study's findings about the detailed deictic content of exophoric demonstratives confirm the first of these predictions. The findings about the very bleached content of non-exophoric items, on the other hand, neither support nor contradict the other predictions.

Despite these strengths, the tripartite model also has a significant weakness. It treats exophoric and non-exophoric demonstrative reference as completely unrelated phenomena. This raises an obvious question: if exophoric and non-exophoric demonstratives are unrelated, then why are they morphosyntactically so similar? We saw in Chapter 1, and in §7.3.3, that the exophoric and non-exophoric demonstratives of Ticuna form a single morphological paradigm, occupy the same syntactic position, and pattern together as strong on the weak/strong quantifier distinction. On all three of these criteria, the exophoric and non-exophoric demonstratives are more similar to each other than to any other category of noun phrase constituents.

Given the morphosyntactic and semantic properties which all demonstratives have in common, it is necessary to acknowledge that exophoric and non-exophoric reference are related. The data in this chapter, however, shows that the relationship between exophoric and non-exophoric demonstratives in Ticuna is **minimal**. It is limited to shared syntactic behavior and the quantificational/definiteness meaning component (shared by strong quantifiers as well as demonstratives) that partially motivates that behavior. Contrary to what studies of the English nominal demonstrative system have suggested, demonstratives **can** be rigidly assigned to only exophoric or only non-exophoric reference.

This possibility of a lexical split between exophoric and non-exophoric forms raises a typological question: Are systems where exophoric and non-exophoric forms overlap (like English) typologically more common than systems where they are distinct (like Ticuna)? Existing typological references are not necessarily capable of answering this question, since they often lack systematic data on anaphoric uses. Newer research, however, provides some relevant data. Of the 15 languages examined in Levinson et al. (2018), only two (Lao and Jahai) display complete overlap between exophoric and non-exophoric demonstratives. Of the other 13, **ten** display at least one exclusively anaphoric demonstrative (data on anaphora is missing for the other three). This suggests that -- especially in languages with relatively large demonstrative systems, the focus of Levinson and colleagues' research -- splits between exophoric and non-exophoric reference may actually be more common than overlap.

Last, for Ticuna the exophoric/non-exophoric split has consequences beyond our understanding of the relationship between exophoric and non-exophoric demonstratives. Precisely because of the split, it is not necessary to analyze the deictic content of the language's demonstratives in terms of very general concepts, like accessibility, that are tractable for analysis of both exophoric and non-exophoric uses. Instead, the deictic content of demonstratives can be described in terms of the **embodied relations** -- in terms of space, perception, or both -- between discourse participants and the objects they reference.

Chapter 8

Conclusions

In this conclusion, I summarize the arguments made in Chapters 2 through 7 (§8.1). I then describe how the findings of the study can inform future cross-linguistic research on deixis and demonstratives (§8.2).

8.1 Summary

This study has argued for a view of exophoric deixis as a **embodied** and **interactive** phenomenon, taking as a case study the demonstrative system of Ticuna. Chapters 1 and 2 respectively introduced the Ticuna language and people (Chapter 1), the language's inventory of demonstratives (Chapter 1), and the methods of this study (Chapter 2). Chapter 3 introduced the concepts that underlie contemporary studies of exophoric deixis across the several disciplines that are interested in the phenomenon.

In saying that deixis is an **embodied** system, I mean to claim that demonstratives encode information about how the demonstrative referent is related to the bodies of the discourse participants -- for example, what sense(s) of the body they can use to perceive it, or whether they can reach it. This claim opposes theories which argue that demonstratives encode more abstract information such as the perceptual-cognitive accessibility of the referent; it also opposes the idea that demonstratives concern the 'distance' from the discourse participants to the referent.

My arguments about embodiment began in Chapter 4. There, I demonstrated that three of the four exophoric nominal demonstratives of Ticuna -- DNOMs 2, 3, and 5 -- convey information about whether the speaker sees the demonstrative referent. I argued at length that this perceptual deictic content specifically concerns **vision, a sense of the human body,** rather than more abstract concepts like epistemic modality or identifiability. This analysis is consistent with a tradition in Americanist linguistics, dating to Boas (1911b), which holds that deictics in many (American) languages convey information about vision. It is also consistent with research (not on demonstratives) which shows that vision is privileged above the other senses in various domains of language structure and use. By contrast, my findings on Ticuna are inconsistent with claims that visibility is not encoded in the demonstratives of any language.

Chapter 5, on the spatial deictic content of speaker- and addressee-proximal demonstratives, likewise highlighted the embodied qualities of those items. I argued that the speaker-proximal demonstratives of Ticuna, DNOM/DLOC1, convey that the referent is (at least partially) within the speaker's peripersonal space, defined as the space which they can reach without moving relative to the ground. Equivalently, the addressee-proximal demonstratives, DNOM/DLOC5, convey that the referent is within the addressee's peripersonal space. This analysis of the deictic content of the demonstratives -- as centered on peripersonal space -- is embodied in a way that analyses based on distance are not. The peripersonal space is defined by the maximum extension of the origo's body, which can also be described as the maximum extension of their sense of touch. As such, a peripersonal space-based analysis treats the origo as an agent who has the capacity to move and reach for referents, while analyses based on distance imagine the origo as a point.

Also in Chapter 5, I began to argue for the idea that deixis is **interactive**. By this, I mean that all aspects of deixis as a system -- the origos of demonstratives, their deictic content, and the conventional ways they are used -- are adapted for the task of managing addressees' attention and actions in face-to-face conversation. This view crucially contrasts with a view of demonstratives as **exclusively egocentric**, conveying only the speaker's construal of the referent relative to themselves.

Chapters 5 and 6 argued for an interactive view of deixis in several ways. In analysis of the deictic origo, an interactive theory predicts that three deictic origos are possible: the speaker, the addressee, and the interactive dyad composed of the two. An egocentric theory, on the other hand, does not predict that participants other than the speaker can project an origo. In Chapters 5 and 6, I demonstrated that Ticuna follows the predictions of an interactive theory. The language does display two egocentric demonstratives, the speaker-proximal DNOM/DLOC1 (Chapter 5) and the speaker-distal DNOM/DLOC3 (Chapter 6). But it also displays an addressee-proximal, DNOM/DLOC5 (Chapter 5), and a sociocentric proximal, DNOM/DLOC2 (Chapter 6), which conveys that the referent is within the space occupied by the interaction. Because of the rich assortment of deictic origos found in the system, I drew an analogy, inspired by Bühler (1982 [1934]), between the demonstratives and the local pronouns. On this analogy, the speaker-proximal DNOM/DLOC1 is equivalent to a 1SG pronoun; the addressee-proximal DNOM/DLOC5, to a 2SG pronoun; the sociocentric proximal to a 1INCL pronoun; and the speaker-distal DNOM/DLOC3, to an underspecified 2/3 pronoun. This analogy is not simply an expository device. We saw, especially in Chapter 5, that the syntax of Ticuna also displays some equivalences between some of the (locative) demonstratives and their counterpart pronouns. Further research should pursue whether demonstratives and local pronouns with similar indexical values consistently pattern together (in syntax or in other domains) across languages.

Chapters 5 and 6 also showed that the actual use of demonstratives in conversation is not determined exclusively by the referent's location in space. Proximal demonstratives can be used for referents beyond the origo's peripersonal space. The contexts that allow these extended uses of proximals hinge, in general, on marked relationships between the **addressee** and the referent. For example, speakers use the speaker-proximal to call new joint attention to a referent that the addressee is disattending, and they use the addressee-proximal to index referents that they are transferring to the addressee. These conventional (though unusual) uses of the proximals

highlight the pervasive influence of the addressee -- their location, their attention state, their actual or anticipated actions -- on demonstrative reference, consistent with a view of deixis as a joint, interactive process. An egocentric approach to deixis cannot make sense of these uses. It predicts that conventional uses of demonstratives will be sensitive only to the relation between the **speaker** and the referent, a pattern which is hardly found in the Ticuna data.

The demonstrative inventory of Ticuna also includes some items that are not deictic (exophoric). Chapter 7 therefore compared the exophoric demonstratives of Ticuna to their nearest neighbors, the non-exophoric demonstratives. This comparison illustrated that deixis and anaphora are profoundly different in Ticuna. They are realized by different demonstratives, with only one demonstrative robustly appearing in both exophoric and non-exophoric (i.e. anaphoric and recognitional) functions. Each of the two classes of demonstratives -- exophoric and non-exophoric -- has content specialized for its discourse function. Exophoric demonstratives convey the rich deictic information discussed above, while non-exophoric demonstratives convey nothing about the referent other than its familiarity (from the discourse or from other sources of common ground). This split indicates that, for Ticuna, theories that treat deictic and anaphoric uses of demonstratives as arising from a single meaning are inappropriate. Instead, deixis and anaphora require separate theories.

Summarizing all of these arguments, Table 8.1 displays the complete analysis of the semantic content of the five nominal demonstratives that can index people and objects. Table 8.2 displays the parallel analysis for the five principal locative demonstratives. Note that these tables exclude DNOM/DLOC4, per the discussion of that item in §1.3.

Table 8.1: Nominal demonstratives: final meaning analysis

Demonstrative	Phoricity	Spatial Deictic Content	Perceptual Deictic Content	Temporal Content
DNOM1 *ɲa⁴a²*	Exophoric	Within reach for Spkr (1SG)	∅	
DNOM2 *ŋe³a²*	Exophoric	Between Spkr and Addr (1INCL)	[+visible]	
DNOM3 *ɟe³a²*	Exophoric	Not within reach for Spkr (2/3)	[+visible]	
DNOM5 *ŋe³ma²* - Item 1	Exophoric	Within reach for Addr (2SG)	∅	
DNOM5 *ŋe³ma²* - Item 2	Exophoric	∅	[-visible]	
DNOM5 *ŋe³ma²* - Item 3	Non-Exophoric			∅
DNOM6 *ɟe⁴ma⁴*	Non-Exophoric			[+remote past] (clausal scope)

Table 8.2: Locative demonstratives: final meaning analysis

Demonstrative	Phoricity	Spatial Deictic Content	Temporal Content
DLOC1 *nu⁵a²*	Exophoric	Within reach for Spkr (1SG)	
DLOC2 *ŋe⁵a²*	Exophoric	Between Spkr and Addr (1INCL)	
DLOC3 *ɟe⁵a²*	Exophoric	Not within reach for Spkr (2/3)	
DLOC5 *ŋe⁵ma²* - Item 1	Exophoric	Within reach for Addr (2SG)	
DLOC5 *ŋe⁵ma²* - Item 2	Non-Exophoric		∅
DLOC6 *ɟe⁵ma²*	Non-Exophoric		[+remote past] (clausal scope)

8.2 Future research

At the most general level, this dissertation is an argument that **deictic content matters**. Linguists have often argued that demonstratives are almost the same as definite articles, encoding little or no descriptive content. This is not true. Exophoric demonstratives in Ticuna, and likely in other languages with large demonstrative systems, actually convey detailed information about the referent. Formally oriented linguists should therefore separate exophoric and non-exophoric reference in their analyses, and consider whether theories that minimize the deictic content of demonstratives are explanatorily adequate for exophoric uses (or only non-exophoric ones). They should also probe what kind of meaning the deictic content of exophoric demonstratives represents, since -- though it is projective -- it does not clearly belong to any of the classes of projective meanings defined in formal pragmatics (§4.4.3.1).

For the reader who is already interested in deixis, this study has a different message. One key part of the message is about the set of **possible deictic origos**. Linguists have historically assumed that the speaker is the only possible origo. But this is an assumption, not a fact. As the deictic system of Ticuna illustrates, the addressee and the interactive dyad can also act as deictic origos (and can appear in the same paradigm as items with egocentric origos). Moreover, the existence of addressee and dyad origos is not just a property of 'exotic' languages or languages with a large number of demonstratives. There is evidence, for example, that the proximal demonstrative of Dutch has a dyadic (sociocentric) origo (Peeters et al. 2015). In sum, there is **no empirical basis** for linguists studying demonstratives, whether in a language documentation setting or in a major world language, to assume that the items are egocentric.

The most important takeaway from this study, however, is about the **deictic content** of demonstratives. For Ticuna, the spatial deictic content of demonstratives **never** concerns distance. It concerns the referent's location relative to a perimeter defined by the peripersonal space of one or more discourse participants. Location inside vs. outside an origo's peripersonal space is a binary construct which is determined by properties of the origo's body (for example, the length of their arms); distance is a continuous variable which is independent of properties of the origo. The nominal demonstratives also have completely non-spatial deictic content: they convey information about the speaker's perceptual (vision) relationship to the referent, which is not

a function of the referent's location in space.

Future research should assess whether, across languages, the spatial deictic content of demonstratives tracks the distance of the referent or the location of the referent relative to the origo's peripersonal space. Initial results of experimental studies of English, Spanish, Dutch, and Ticuna (not reported here) strongly suggest that it is always location relative to the peripersonal space, not distance, which matters in those languages (Coventry et al. 2008; Skilton and Peeters 2019). Data from more unrelated languages is necessary to discover whether this pattern is universal. Correspondingly, for visibility, the descriptive literature on American languages often describes visibility contrasts in demonstratives, but rarely explores them in deail. Future research on visibility in the languages of the Americas should return to the languages which have been described as displaying visibility contrasts, and try to determine whether the apparent visibility meanings are about vision (as Boas argued, and as I argue for Ticuna) or about epistemic modality (as other recent authors suggest).

Finally, I hope that the methods applied in this dissertation will motivate other researchers to study demonstratives using **corpora of informal conversation**, rather than working only from highly controlled data or intuitions. Corpora of face-to-face conversation are immensely valuable in themselves, especially for endangered and less studied languages, and research in pragmatics should always be accountable to conversational data. But beyond these more general motivations, analysis of informal conversation also has a special value for research on deixis. It reveals uses of demonstratives which, because of their attentional or other requirements, may never appear in highly controlled data. If I had not created a corpus of conversation, for example, it is very unlikely that I would have identified the ownership-oriented use of the addressee-proximal demonstrative (Chapter 5).

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Appendix A

Experimental results

The following tables report the complete results of my experiments based on the Demonstrative Questionnaire. Tables A.1 to A.7 report the results of the unmodified task targeting nominal demonstratives. Tables A.8 and A.9 report the results of the task as modified to target locative demonstratives, and Tables A.10 and A.11 report the results of the task when modified to have one or more discourse participants in motion toward the referent.

A.1 Nominal demonstratives

In Tables A.1 to A.7, each row represents the data for one scene of the unmodified Demonstrative Questionnaire, administered to 10 participants as described in Chapter 2. The scene number appears in the far left column. In the center column, a prose description of the scene appears, and in the far right column, there is a diagram representing the scene. The diagrams are taken from the version of the questionnaire published as Wilkins (2018).

In each row, below the prose description of the scene, I give the raw data for the four exophoric DNOMs in that scene. In the top line of the raw data, if at least 6 of 10 participants volunteered the same DNOM in the scene (not counting morphologically complex DNOMs), I designate that demonstrative as the 'Majority Volunteered' form for the scene. Otherwise, I note in the top line that there was no majority volunteered form. Note that the six of 10 threshhold for status as the 'Majority Volunteered' form is the same threshhold which I use, in the text, for identifying scenes as displaying 'moderate' agreement in volunteered data.

Below the 'Majority Volunteered' line, I give the data for DNOM1, DNOM2, DNOM3, and DNOM5 in the scene, in that order. In the data for each DNOM, 'V' should be read as 'volunteered;' ✓ as 'accepted but not volunteered;' # as 'rejected;' and 'ND' as no data (meaning that I did not ask for a judgment, or the participant did not provide a clear judgment when asked). As an example, the data for DNOM5 in scene 2 is written as 'V1, ✓6, #2, ND 1.' This means that one participant volunteered DNOM5 in the scene; six participants accepted the item when asked (but did not volunteer it); two participants rejected the item; and one did not provide a judgment.

In a minority of scenes, one or more participants volunteered a morphologically complex

demonstrative. In these scenes, after the data on DNOMs 1 through 5, I provide data on how many participants volunteered a morphologically complex demonstrative, what form(s) they used, and whether those participants also accepted the root form of that same demonstrative. I abbreviate 'participant' as 'prt.' If there is no 'Complex DNOMs' row in the data table for a particular scene, it means that no participants in the scene volunteered a complex demonstrative.

There were a handful of trials where a single participant volunteered more than one DNOM for the same scene. In these trials, I count all of the volunteered forms as volunteered, regardless of order. The number of volunteered DNOMs therefore adds to more than 10 in some scenes.

The data tables do not include rows for DNOM4 or DNOM6, as they were never volunteered and I did not routinely ask participants to provide judgments on them.

Table A.1: Scenes 1-4 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

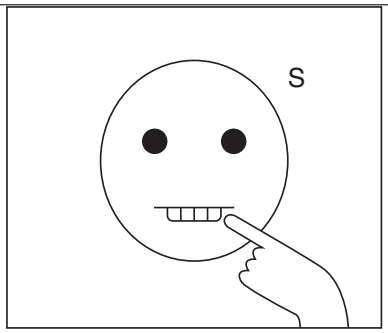
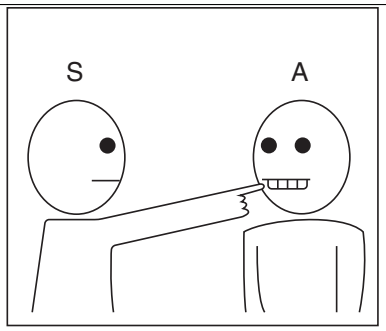
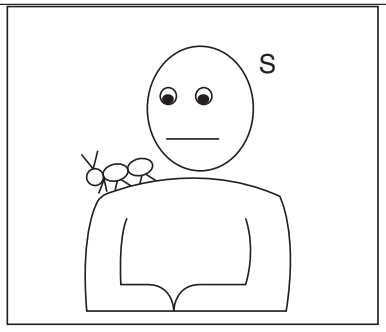
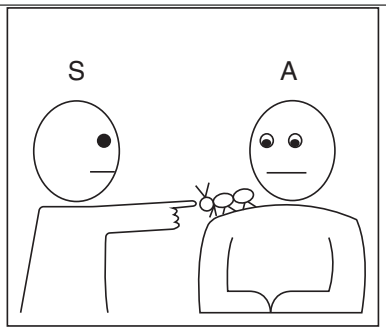
Scene	Description	
1	Spkr points at own teeth Majority Vold. DNOM1 (10/10) DNOM1 V10, ✓0, #0, ND 0 DNOM2 V0, ✓2, #7, ND 1 DNOM3 V0, ✓0, #10, ND 0 DNOM5 V0, ✓9, #0, ND 1	
2	Spkr points at teeth of Addr Majority Vold. DNOM1 (6/10) DNOM1 V6, ✓4, #0, ND 0 DNOM2 V0, ✓7, #2, ND 1 DNOM3 V4, ✓5, #1, ND 0 DNOM5 V1, ✓6, #2, ND 1	
3	Spkr points at own body contact Majority Vold. DNOM1 (9/10) DNOM1 V9, ✓1, #0, ND 0 DNOM2 V0, ✓6, #3, ND 1 DNOM3 V0, ✓4, #6, ND 0 DNOM5 V1, ✓6, #2, ND 1	
4	Spkr points at Addr body contact Majority Vold. no majority DNOM1 V2, ✓8, #0, ND 0 DNOM2 V1, ✓6, #2, ND 1 DNOM3 V4, ✓5, #1, ND 0 DNOM5 V3, ✓2, #4, ND 1	

Table A.2: Scenes 5-8 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

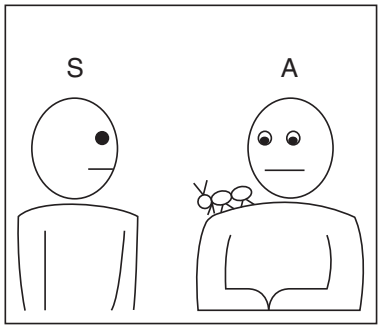
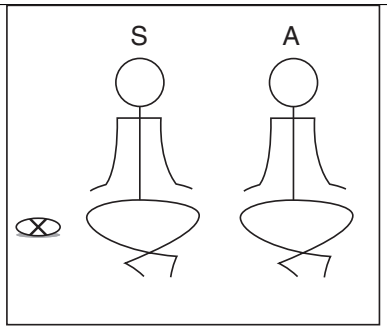
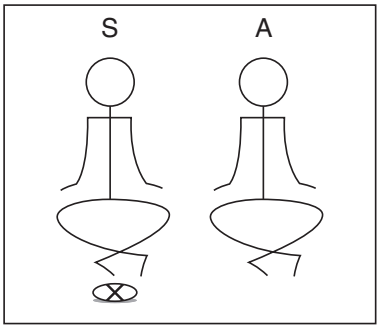
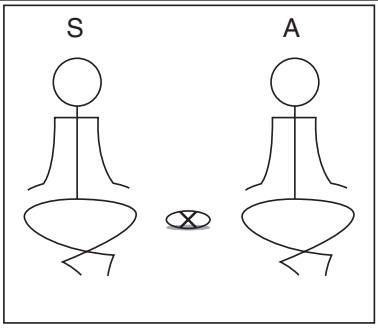
Scene	Description	
5	Spkr indexes Addr body contact without manual point Majority Vold. DNOM5 (9/10) DNOM1 V0, ✓7, #3, ND 0 DNOM2 V0, ✓7, #2, ND 1 DNOM3 V2, ✓6, #2, ND 0 DNOM5 V9, ✓0, #0, ND 1	
6	Spkr and Addr side by side; Ref in reach of Spkr, not in reach of Addr, not visible to Addr Majority Vold. DNOM1 (9/10) DNOM1 V9, ✓1, #0, ND 0 DNOM2 V0, ✓7, #2, ND 1 DNOM3 V0, ✓8, #2, ND 0 DNOM5 V2, ✓4, #3, ND 1	
7	Spkr and Addr side by side; Ref in reach of Spkr, not in reach of Addr, visible to Addr Majority Vold. DNOM1 (10/10) DNOM1 V10, ✓0, #0, ND 0 DNOM2 V0, ✓4, #4, ND 2 DNOM3 V1, ✓5, #4, ND 0 DNOM5 V0, ✓6, #2, ND 2	
8	Spkr and Addr side by side; Ref in reach of Spkr, in reach of Addr, equidistant from Spkr and Addr Majority Vold. DNOM1 (9/10) DNOM1 V9, ✓1, #0, ND 0 DNOM2 V0, ✓5, #4, ND 1 DNOM3 V0, ✓6, #4, ND 0 DNOM5 V0, ✓3, #6, ND 1	

Table A.3: Scenes 9-12 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

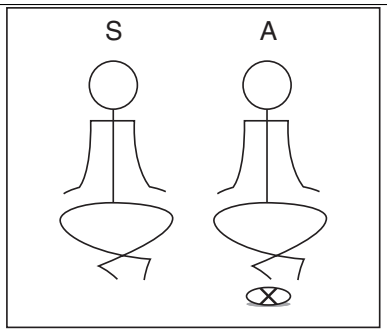
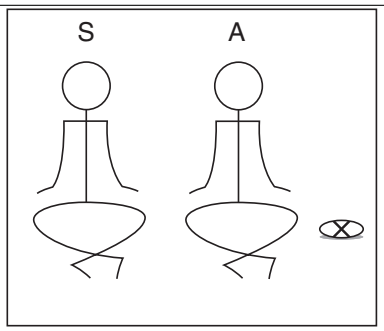
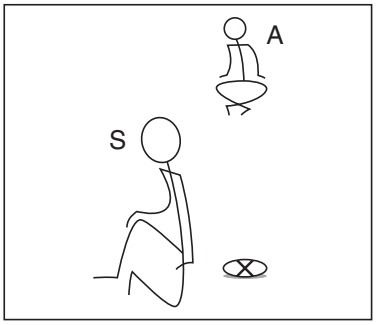
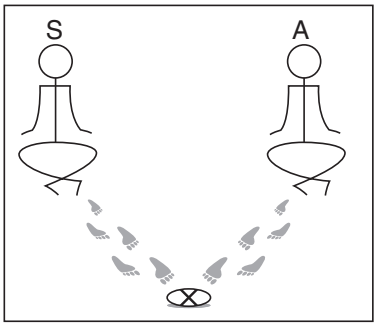
Scene	Description	
9	Spkr and Addr side by side; Ref not in reach of Spkr, in reach of Addr, visible to Spkr Majority Vold. no majority DNOM1 V4, ✓4, #2, ND 0 DNOM2 V0, ✓6, #2, ND 2 DNOM3 V5, ✓1, #3, ND 1 DNOM5 V1, ✓7, #1, ND 1	
10	Spkr and Addr side by side; Ref not in reach of Spkr, in reach of Addr, not visible to Spkr Majority Vold. DNOM5 (6/10) DNOM1 V1, ✓4, #4, ND 1 DNOM2 V1, ✓4, #3, ND 2 DNOM3 V3, ✓3, #2, ND 2 DNOM5 V6, ✓4, #0, ND 0	
11	Spkr and Addr side by side; Ref in reach of Spkr, not in reach of Addr, not visible to Spkr, visible to Addr Majority Vold. DNOM1 (9/10) DNOM1 V7, ✓2, #1, ND 0 DNOM2 V0, ✓4, #5, ND 1 DNOM3 V1, ✓4, #5, ND 0 DNOM5 V1, ✓5, #4, ND 0	
12	Spkr and Addr side by side; Ref not in reach of Spkr, not in reach of Addr, visible to both Majority Vold. DNOM3 (9/10) DNOM1 V1, ✓7, #2, ND 0 DNOM2 V1, ✓7, #1, ND 1 DNOM3 V8, ✓1, #0, ND 0 DNOM5 V0, ✓6, #4, ND 0 Complex DNOMs 1 prt: V DNOM3=$\tilde{a}^4ma^4$, ✓ root DNOM3	

Table A.4: Scenes 13-15 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

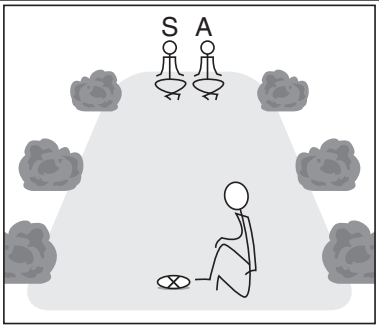
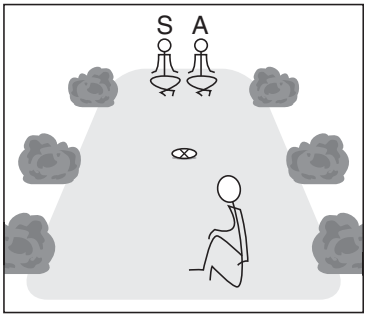
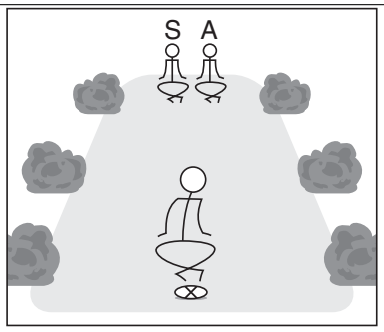
Scene	Description	
13	Spkr and Addr at one end of large cleared space, Ref at other, visible to both Majority Vold. DNOM3 (8/10) DNOM1 V1, ✓3, #6, ND 0 DNOM2 V1, ✓5, #4, ND 0 DNOM3 V5, ✓2, #0, ND 0 DNOM5 V1, ✓7, #2, ND 0 Complex DNOMs 3 prt: V DNOM3=*ã⁴ma⁴*. 1/3 ✓ root DNOM3, 1/3 # root DNOM3, 1 ND.	
14	Spkr and Addr at one end of large cleared space, Ref in middle, visible to both Majority Vold. no majority DNOM1 V3, ✓5, #2, ND 0 DNOM2 V4, ✓5, #1, ND 0 DNOM3 V4, ✓6, #0, ND 0 DNOM5 V0, ✓4, #6, ND 0	
15	Spkr and Addr at one end of large cleared space, Ref at other end, invisible to both Majority Vold. DNOM5 (6/9) DNOM1 V0, ✓3, #7, ND 0 DNOM2 V0, ✓5, #5, ND 0 DNOM3 V1, ✓4, #5, ND 0 DNOM5 V6, ✓2, #2, ND 0 Complex DNOMs 2 prt: V DNOM2=*ã⁴ma⁴*. 2/2 # root DNOM2. 2 prt: V DNOM3=*ã⁴ma⁴*. 2/2 # root DNOM3.	

Table A.5: Scenes 16-19 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

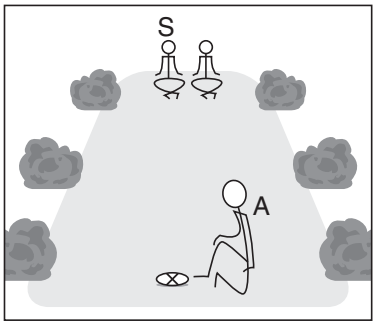
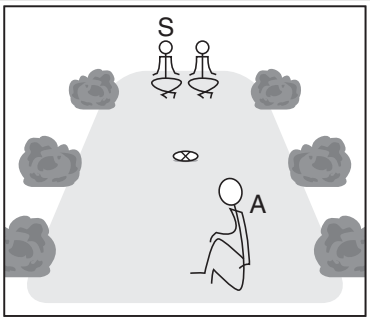
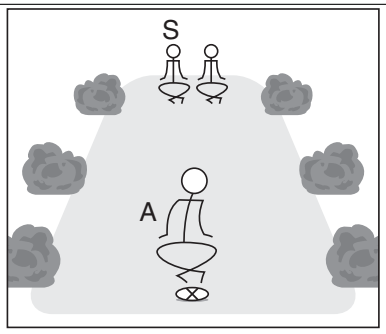
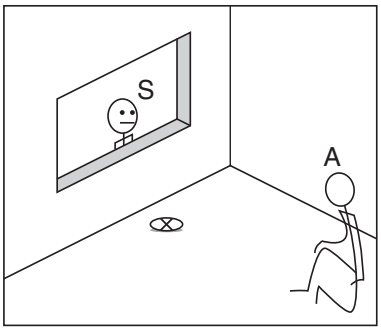
Scene	Description	
16	Spkr at one end of large cleared space, Addr and Ref at other end of cleared space, Ref visible to both Majority Vold. DNOM5 (9/10) DNOM1 V0, ✓4, #6, ND 0 DNOM2 V0, ✓6, #4, ND 0 DNOM3 V1, ✓6, #3, ND 0 DNOM5 V9, ✓1, #0, ND 0	
17	Spkr at one end of large cleared space, Addr at other end, Ref in middle visible to both Majority Vold. no majority DNOM1 V3, ✓5, #2, ND 0 DNOM2 V3, ✓6, #1, ND 0 DNOM3 V2, ✓7, #1, ND 0 DNOM5 V2, ✓5, #3, ND 0	
18	Spkr at one end of large cleared space, Addr at other end, Ref with Addr and not visible to speaker Majority Vold. DNOM5 (9/10) DNOM1 V1, ✓5, #4, ND 0 DNOM2 V0, ✓5, #4, ND 1 DNOM3 V1, ✓6, #3, ND 0 DNOM5 V9, ✓1, #0, ND 0	
19	Spkr outside built perimeter, Addr inside perimeter, Ref inside perimeter closer to Spkr, visible to both Majority Vold. DNOM1 (9/10) DNOM1 V9, ✓1, #0, ND 0 DNOM2 V0, ✓5, #4, ND 1 DNOM3 V1, ✓4, #5, ND 0 DNOM5 V0, ✓2, #6, ND 1	

Table A.6: Scenes 20-22 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

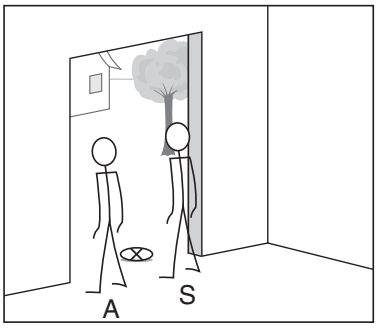
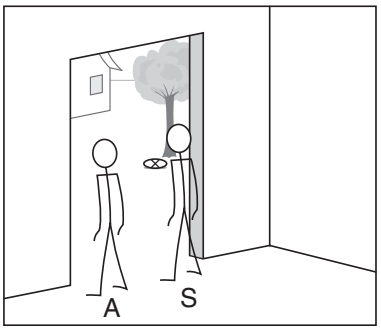
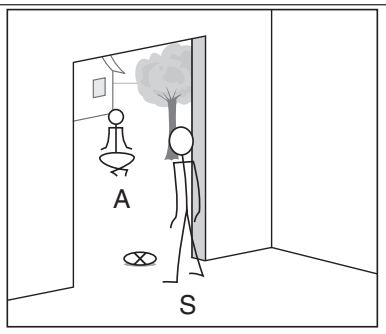
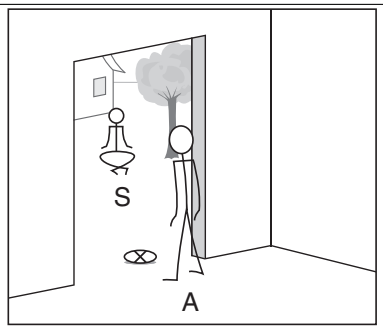
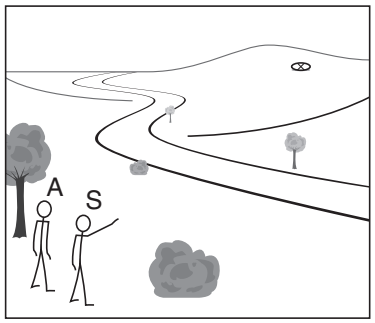
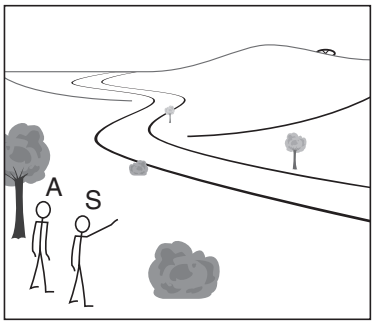
Scene	Description	
20	Spkr and Addr both inside built perimeter, Ref outside perimeter, Ref in reach of and visible to both Spkr and Addr Majority Vold. DNOM1 (6/10) DNOM1 V6, ✓2, #2, ND 0 DNOM2 V0, ✓8, #1, ND 1 DNOM3 V3, ✓3, #3, ND 0 DNOM5 V0, ✓5, #4, ND 1 Complex DNOMs 1 prt: V DNOM3=*ã⁴ma⁴*, ✓ root DNOM3	
21	Spkr and Addr both inside built perimeter, Ref outside perimeter out of reach to both but visible, Ref closer to Spkr (on Spkr's side of space) Majority Vold. DNOM3 (8/10) DNOM1 V1, ✓3, #6, ND 0 DNOM2 V0, ✓6, #2, ND 2 DNOM3 V6, ✓2, #0, ND 0 DNOM5 V1, ✓5, #4, ND 0 Complex DNOMs 2 prt: V DNOM3=*ã⁴ma⁴*. 2/2 ✓ root DNOM3.	
22	Spkr inside built perimeter, Addr outside perimeter, Ref near perimeter but outside, Ref closer to Spkr Majority Vold. DNOM1 (9/10) DNOM1 V9, ✓0, #1, ND 0 DNOM2 V0, ✓8, #2, ND 0 DNOM3 V1, ✓3, #6, ND 0 DNOM5 V0, ✓4, #6, ND 0	

Table A.7: Scenes 23-25 of the Wilkins (1999) Demonstrative Questionnaire, with results for the unmodified questionnaire targeting DNOMs

Scene	Description	
23	Addr inside built perimeter, Spkr outside perimeter, Ref near perimeter but outside, Ref closer to Addr	
	Majority Vold.	no majority
	DNOM1	V1, ✓1, #6, ND 2
	DNOM2	V1, ✓7, #2, ND 0
	DNOM3	V4, ✓1, #3, ND 1
	DNOM5	V3, ✓4, #2, ND 1
	Complex DNOMs	1 prt: V DNOM3=*ã⁴ma⁴*, ✓ root DNOM3
24	Spkr and Addr together at lookout point, Spkr points to visible Ref on horizon	
	Majority Vold.	DNOM3 (8/10)
	DNOM1	V1, ✓3, #6, ND 0
	DNOM2	V1, ✓5, #4, ND 0
	DNOM3	V8, ✓2, #0, ND 0
	DNOM5	V0, ✓8, #2, ND 0
25	Spkr and Addr together at lookout point, Spkr points to invisible Ref beyond horizon	
	Majority Vold.	DNOM5 (8/10)
	DNOM1	V0, ✓1, #9, ND 0
	DNOM2	V0, ✓2, #8, ND 0
	DNOM3	V1, ✓2, #6, ND 0
	DNOM5	V8, ✓2, #0, ND 0
	Complex DNOMs	1 prt: V DNOM3 with the clitic *=ʔi⁵tʃi²* 'really;' ✓ root DNOM3.

A.2 Locative demonstratives

Tables A.8 and A.9 present data from a version of Demonstrative Questionnaire, modified -- as described in Chapter 2 -- to elicit locative rather than nominal demonstratives. This version of the questionnaire was administered to five participants.

These tables are formatted differently from Tables A.1 to A.7. Each row provides the data for one scene. The far left column in each row gives the scene number. If at least three of the five paricipants volunteered the same form in the scene, the second column from left gives that form as the 'majority volunteered' DLOC. Otherwise, the second column from left states that there was no majority volunteered form in the scene.

Following the majority volunteered column, the next four columns give the raw data for DLOCs 1, 2, 3, 4, and 5, followed by the raw data on morphologically complex demonstratives (if anyone volunteered a complex demonstrative in the relevant scene). The abbreviations used for the data here are the same as the ones used in Tables A.1 to A.7. The treatment of trials where the participant volunteered multiple forms is also the same.

Tables A.8 and A.9 do not include a column for DLOC6, since it was never volunteered in the task and I did not routinely ask participants to judge it. They do include a column for DLOC4, as DLOC4 was (occasionally) volunteered in the task, and I asked participants to judge it in every trial.

Table A.8: Results of the Demonstrative Questionnaire modified to target DLOCs: scenes 1-14

Scene	Majority Vold.	DLOC1	DLOC2	DLOC3	DLOC4	DLOC5	Complex DLOCs
1	DLOC1	V5, ✓0, #0	V0, ✓1, #4	V0, ✓0, #5	V0, ✓0, #5	V0, ✓2, #3	
2	no majority	V1, ✓4, #0	V2, ✓3, #0	V2, ✓1, #1	V0, ✓0, #5	V0, ✓4, #1	
3	DLOC1	V4, ✓1, #0	V0, ✓3, #2	V1, ✓0, #2	V0, ✓2, #3	V0, ✓3, #2	
4	no majority	V1, ✓2, #2	V1, ✓4, #0	V2, ✓1, #1	V0, ✓0, #5	V1, ✓3, #1	
5	DLOC2	V0, ✓3, #2	V3, ✓2, #0	V2, ✓2, #1	V0, ✓0, #5	V0, ✓4, #1	
6	DLOC1	V3, ✓2, #0	V1, ✓3, #1	V0, ✓2, #2	V0, ✓1, #4	V0, ✓2, #3	1 prt: V DLOC1=$\tilde{a}^4ma^4$, ✓ root DLOC1.
7	DLOC1	V5, ✓0, #0	V0, ✓3, #2	V0, ✓0, #5	V0, ✓1, #4	V0, ✓2, #3	
8	DLOC1=$\tilde{a}^4ma^4$	V2, ✓2, #0, ND 1	V0, ✓3, #2	V0, ✓1, #3	V0, ✓2, #4	V0, ✓2, #3	3 prt: V DLOC1=$\tilde{a}^4ma^4$; 1/2 ✓ root DLOC1; 1/2 ND root DLOC1.
9	DLOC1	V2, ✓2, #0, ND 1	V0, ✓3, #2	V0, ✓1, #3	V0, ✓1, #4	V1, ✓4, #0	1 prt: V DLOC3=$\tilde{a}^4ma^4$, ND root DLOC3.
10	no majority	V0, ✓1, #2, ND 1	V0, ✓5, #0	V1, ✓2, #0	V0, ✓1, #4	V2, ✓3, #0	2 prt: V DLOC3=$\tilde{a}^4ma^4$. 1/2 ✓ root DLOC3, 1/2 ND root DLOC3.
11	DLOC1	V4, ✓1, #0	V0, ✓4, #1	V0, ✓0, #3	V0, ✓2, #3	V0, ✓2, #3	1 prt: V DLOC1=$\tilde{a}^4ma^4$, ✓ root DLOC1.
12	no majority	V1, ✓3, #1	V0, ✓4, #1	V2, ✓1, #0	V0, ✓2, #3	V0, ✓4, #1	2 prt: V DLOC3=$\tilde{a}^4ma^4$, 2/2 ✓ root DLOC3.
13	DLOC3	V0, ✓3, #2	V0, ✓5, #0	V3, ✓0, #0	V0, ✓2, #2	V0, ✓2, #3	2 prt: V DLOC3=$\tilde{a}^4ma^4$. 1/2 ✓ root DLOC3, 1/2 ND root DLOC3.
14	no majority	V1, ✓1, #3	V2, ✓3, #0	V1, ✓2, #0	V0, ✓1, #3	V0, ✓3, #2	1 prt: V DLOC4=$\tilde{a}^4ma^4$, ✓ root DLOC4.

Table A.9: Results of the Demonstrative Questionnaire modified to target DLOCs: scenes 15-25

Scene	Majority Vold.	DLOC1	DLOC2	DLOC3	DLOC4	DLOC5	Complex DLOCs
15	no majority	V0, ✓3, #2	V0, ✓4, #0, ND 1	V1, ✓3, #0	V0, ✓1, #3	V1, ✓3, #1	1 prt: V DLOC1=*ã⁴ma⁴*, ✓ root DLOC1. 1 prt: V DLOC2=*ã⁴ma⁴*, ND root DLOC2. 1 prt: V DLOC3 =*ã⁴ma⁴*, ✓ root DLOC3.
16	DLOC5	V0, ✓2, #3	V0, ✓3, #2	V1, ✓1, #3	V0, ✓1, #3	V3, ✓1, #0	1 prt: V DLOC5 with the clitic *=ta²ã⁴* 'just,' ND root DLOC5.
17	DLOC1=*ã⁴ma⁴*	V1, ✓2, #2	V2, ✓3, #0	V0, ✓1, #3	V0, ✓2, #2	V0, ✓2, #2	3 prt: V DLOC1=*ã⁴ma⁴*, 2/3 ✓ root DLOC1, 1/3 # root DLOC1.
18	no majority	V0, ✓2, #3	V0, ✓4, #1	V0, ✓1, #1	V0, ✓1, #3	V2, ✓3, #0	2 prt: V DLOC2=*ã⁴ma⁴*, 1/2 ✓ root DLOC2, 1/2 # root DLOC2. 1 prt: V DLOC3=*ã⁴ma⁴*, ND root DLOC3.
19	DLOC1	V5, ✓0, #0	V0, ✓1, #3, ND 1	V0, ✓0, #2	V0, ✓4, #0	V0, ✓3, #0	
20	DLOC1	V4, ✓2, #0	V1, ✓4, #0	V0, ✓2, #1	V0, ✓4, #1	V0, ✓4, #1	
21	DLOC3	V0, ✓2, #3	V0, ✓3, #2	V4, ✓0, #0	V0, ✓2, #4	V0, ✓4, #1	1 prt: V DLOC3=*ã⁴ma⁴*, ✓ root DLOC3.
22	DLOC1	V4, ✓0, #0, ND 1	V0, ✓1, #3, ND 1	V0, ✓0, #3	V0, ✓3, #1	V0, ✓0, #4	
23	no majority	V1, ✓1, #2	V1, ✓4, #0	V0, ✓1, #2	V0, ✓1, #4	V1, ✓3, #1	2 prt: V DLOC1=*ã⁴ma⁴*. 1/2 ✓ root DLOC1, 1/2 ND root DLOC1.
24	no majority	V1, ✓1, #3	V0, ✓4, #1	V4, ✓1, #0	V0, ✓1, #4	V0, ✓5, #0	2 prt: V DLOC3=*ã⁴ma⁴*. 1/2 ✓ root DLOC3, 1/2 ND root DLOC3.
25	no majority	V0, ✓1, #4	V0, ✓2, #3	V4, ✓1, #0	V0, ✓0, #5	V1, ✓4, #0	2 prt: V DLOC3=*ã⁴ma⁴*, 2/2 ✓ root DLOC3.

A.3 Nominal demonstratives: motion goal modification

A.3.1 How to read the tables

In this task, participants completed selected scenes of the Demonstrative Questionnaire, modified to have the speaker, the addressee, or both participants in motion toward the demonstrative referent. As described in Chapter 2, participants were not asked to produce DLOCs in the motion goal task, nor did I ask them to make metalinguistic judgments on either DNOMs or DLOCs. Five participants took part in the motion goal task, but they did not complete exactly the same scenes.

The motion goal task included three separate motion conditions:

- Addressee Only: I (the addressee) moved as if to grab the referent (for scenes 1-11) or took one step toward the referent (scenes 12-25). As I made the motion, I asked the participant to refer to the referent with a DNOM.
- Speaker and Addressee: Both I and the participant moved to grab the referent (scenes 1-11) or took one step toward the referent (scenes 12-25). As we made the motion, I asked the participant to point out the referent with a DNOM.
- Speaker Only: The participant moved as if to grab the referent (scenes 1-11) or took one step toward it (scenes 12-25). As they made the motion, they referred to the referent with a DNOM.

In all three conditions, participants were asked to produce the DNOM reference before they or I came into contact with the demonstrative referent.

Results for the addressee-only motion condition are reported in Table A.10. Results for the speaker-and-addressee conditions and the speaker-only condition are reported together in Table A.11.

Tables A.10 and A.11 are designed to facilitate comparison between the results of the motion goal task and the results of the unmodified version of the Demonstrative Questionnaire. Therefore, they have a different format from the earlier tables in this appendix.

In each of Tables A.10 and A.11, each row represents a scene. The far left column shows the scene number. The second column from left states the motion condition for the data in that row. Table A.10 exclusively reports data from the addressee-only motion condition, while Table A.11 reports data from both the speaker-only and the speaker-and-addressee motion conditions.

The third column from left reports the majority DNOM volunteered in trials of the relevant scene, in the relevant motion condition. For comparison, the fourth column reports the majority DNOM volunteered for the same scene in the **unmodified** version of the Demonstrative Questionnaire. The fifth column lists all of the DNOMs volunteered in the given scene and motion condition, and the number of trials where each DNOM was volunteered. If the results for a given scene and motion condition appear to be different from the baseline for that scene -- as established by the unmodified Demonstrative Questionnaire -- then the row for that scene and condition is highlighted in yellow.

Note in Table A.11 that some scenes were run in only the speaker-only motion condition, others only in the speaker-and-addressee motion condition, and still others in both. Scenes run in both of the two conditions involving speaker motion have the speaker-and-addressee condition reported first, the speaker-only condition second. Scene/motion condition combinations with only one data point are not reported.

Table A.10: Results of the Demonstrative Questionnaire, modified to include motion toward the referent by the **addressee only**

Scene	Motion Condition	Majority DNOM w/ Motion	Majority DNOM w/o Motion	Volunteered DNOMs
3	Addr Only	DNOM1 (3/4)	DNOM1 (9/10)	DNOM1 (3/4), DNOM5 (1/4)
6	Addr Only	DNOM1 (4/4)	DNOM1 (9/10)	DNOM1 (4/4)
7	Addr Only	DNOM1 (3/4)	DNOM1 (10/10)	DNOM1 (3/4), DNOM2 (1/4)
8	Addr Only	DNOM5 (3/5)	DNOM1 (10/10)	DNOM5 (3/5), DNOM1 (2/5)
9	Addr Only	no majority	no majority	DNOM3 (3/6), DNOM2 (2/6), DNOM5 (1/6)
10	Addr Only	no majority	DNOM5 (6/10)	DNOM3=$\tilde{a}^4ma^4$ (1/2), DNOM5 (1/2)
11	Addr Only	DNOM1 (3/5)	DNOM1 (9/10)	DNOM1 (3/5), DNOM1=$\tilde{a}^4ma^4$ (2/5)
12	Addr Only	no majority	DNOM3 (9/10)	DNOM3 (2/4), DNOM3=$\tilde{a}^4ma^4$ (1/4), DNOM1=$\tilde{a}^4ma^4$ (1/4)
13	Addr Only	no majority	DNOM3 (8/10)	DNOM3 (1/3), DNOM3=$\tilde{a}^4ma^4$ (1/3), DNOM5 (1/3)
14	Addr Only	DNOM2 (2/4)	no majority	DNOM2 (2/4), DNOM3 (1/4), DNOM5 (1/4)
15	Addr Only	no majority	DNOM5 (6/9)	DNOM5 (2/4), DNOM3=$\tilde{a}^4ma^4$ (2/4)
17	Addr Only	no majority	no majority	DNOM2 (2/4), DNOM1 (1/4), DNOM3 (1/4)
19	Addr Only	DNOM1 (3/3)	DNOM1 (9/10)	DNOM1 (3/3)
20	Addr Only	no majority	DNOM1 (6/10)	DNOM1 (2/4), DNOM5 (1/4), DNOM1=$\tilde{a}^4ma^4$ (1/4)
21	Addr Only	DNOM3 (3/3)	DNOM3 (8/10)	DNOM3 (3/3)
22	Addr Only	DNOM1 (2/3)	DNOM1 (9/10)	DNOM1 (2/3), DNOM5 (1/3)
23	Addr Only	DNOM5 (3/3)	no majority (DNOM5: 3/10 volunteer)	DNOM5 (3/3)
24	Addr Only	DNOM3 (3/3)	DNOM3 (8/10)	DNOM3 (3/3)
25	Addr Only	DNOM5 (3/4)	DNOM5 (8/10)	DNOM5 (3/4), DNOM3=$\tilde{a}^4ma^4$ (1/4)

Table A.11: Results of the Demonstrative Questionnaire, modified to include motion toward the referent by the **speaker only** or **speaker and addressee**

Scene	Motion Condition	Majority DNOM w/ Motion	Majority DNOM w/o Motion	Volunteered DNOMs
6	Spkr+Addr	DNOM1 (4/4)	DNOM1 (9/10)	DNOM1 (4/4)
7	Spkr+Addr	DNOM1 (4/4)	DNOM1 (10/10)	DNOM1 (4/4)
8	Spkr+Addr	DNOM1 (4/4)	DNOM1 (10/10)	DNOM1 (4/4)
8	Spkr Only	DNOM1 (2/2)	DNOM1 (10/10)	DNOM1 (2/2)
9	Spkr Only	no majority	no majority	DNOM1 (1/3), DNOM3 (1/3), DNOM5 (1/3)
12	Spkr+Addr	no majority	DNOM3 (9/10)	DNOM1 (2/4), DNOM2=$\tilde{a}^4ma^4$ (1/4), DNOM3 (1/4)
12	Spkr Only	DNOM1 (2/3)	DNOM3 (9/10)	DNOM1 (2/3), DNOM1=$\tilde{a}^4ma^4$ (1/3)
13	Spkr+Addr	no majority	DNOM3 (8/10)	DNOM3 (2/4), DNOM2 (2/4), DNOM3=$\tilde{a}^4ma^4$ (1/4)
14	Spkr+Addr	no majority	no majority	DNOM1 (2/4), DNOM2 (1/4), DNOM5 (1/4)
15	Spkr Only	no majority	DNOM5 (6/9)	DNOM1=$\tilde{a}^4ma^4$ (1/2), DNOM5 (1/2)
16	Spkr+Addr	no majority	DNOM5 (9/10)	DNOM2 (2/4), DNOM5 (2/4)
17	Spkr+Addr	DNOM1 (2/3)	no majority	DNOM1 (2/3), DNOM3 (2/3)
24	Spkr+Addr	DNOM3 (2/2)	DNOM3 (8/10)	DNOM3 (2/2)
25	Spkr+Addr	no majority	DNOM5 (8/10)	DNOM5 (2/4), DNOM2 (1/4), DNOM3 (1/4), DNOM3=$\tilde{a}^4ma^4$ (1/4)

Appendix B

Resumen en español

B.1 Introducción

La presente tesis es el producto de cuatro años de investigaciones del idioma ticuna, llevados a cabo en los pueblos de Cushillococha y Caballococha, provincia Mariscal Ramón Castilla, región Loreto, Perú. El ticuna es un idioma aislado (sin relación a cualquier otro idioma). Es hablado por aproxamidamente 60,000 personas, la mayoría de las cuales viven en el estado de Amazonas, Brasil. En Perú, país del estudio, es hablado por aproxamidamente 9,000 personas, casi todas en la provincia de M. Ramón Castilla, región Loreto. En las comunidades ticunas peruanas, el ticuna -- gracias a los esfuerzos de los maestros bilingües, los líderes y las mismas familias ticunas -- se conserva como el idioma principal de la vida cotidiana, hablado por casi toda la población.

Mis investigaciones de doctorado fueron realizadas durante 11 meses en Cushillococha y Caballococha, desde junio de 2015 hasta agosto de 2018. Durante las investigaciones, trabajé con aproxamidamente 50 personas maternohablantes del ticuna, incluyendo hombres y mujeres, monolingües y bilingües. Juntos realizamos diversos experimentos; analizamos rasgos gramaticales del idioma; grabamos conversaciones, entrevistas y cuentos; y creamos transcripciones y traducciones al español de grabaciones seleccionadas. Todos los datos recolectados en las investigaciones fueron archivados en el California Language Archive (cla.berkeley.edu). Además de realizar estas tareas, participé como huespéd en las actividades cotidianas de las familias que trabajaban conmigo. Mediante esas experiencias aprendí a hablar el ticuna, lo cual me alcanzó un mejor entendimiento de los fenómenos centrales del presente estudio.

Las investigaciones entre 2015 y 2018 fueron muy amplias. En los primeros cuatro meses del trabajo, que tuvieron lugar entre 2015 y 2016, me enfoqué en la fonología del idioma, la cual es muy compleja en lo suprasegmental: contrastan cinco niveles de tono, y la nasalidad vocálica y la voz laringalizada también son contrastivas. En los siete meses después -- entre 2017 y 2018 -- estudié un mayor abanico de temas, inclusive de morfología, sintaxis, semántica y pragmática y adquisición lingüística. A pesar de la amplitud total del estudio, por los requisitos del doctorado esta tesis abarca un tema muy específico: la semántica y pragmática de los **demostrativos** del ticuna.

Este resumen de la tesis se divide en dos partes. En la §B.2, describo el sistema de demostrativos del idioma, tratando de las características proprias de los demostrativos en la fonología, morfología y sintaxis. En la §B.3, resumo cada capítulo de la tesis. Partes de este resumen son basadas en los Capítulos 1 y 8 del trabajo principal.

B.2 El sistema de demostrativos

El ticuna cuenta con dos conjuntos de demostrativos. Existen seis demostrativos nominales (que indican personas y objetos), mostrados en los Cuadros B.1 y B.2. Existen también seis demostrativos locativos (que indican lugares), mostrados en los Cuadros B.3 y B.4.

Los **demostrativos nominales** o DNOMs son las palabras equivalentes a *este*, *ese* y *aquel* en español, o *this* y *that* en inglés. Funcionan como modificadores de sustantivos y como pronombres. En ambos usos, los DNOMs concuerdan en clase nominal con el sustantivo que modifican. Existen cinco clases nominales; la división de sustantivos en clases nominales sigue principios semánticos, no fonológicos.

Los Cuadros B.1 and B.2 muestran los DNOMs. Etiquetan cada uno con un número arbitrário que identifica el lexema (es decir, el conjunto de todas las formas del lexema, para todas las clases nominales). Utilizo los números para crear una manera de referirme a los DNOMs que se abstrae de la concordancia por clase nominal. En el cuerpo principal del estudio, y también en este resumen, me refiero a cada DNOM con su número arbitrario, más la forma del DNOM para la clase nominal IV (la clase mayor). Conforme a estos principios, el DNOM1 -- a pesar de que tenga todas las cinco formas *da³¹ʔe²* (I), *da²a²* (II), *da³¹a¹* (III), *ɲa⁴a²* (IV), *ɲa⁴³a²* (V) -- es escrito solamente como 'DNOM1 *ɲa⁴a²*'.

El Cuadro B.1 presenta el inventario de DNOMs en el AFI, mientras que el Cuadro B.2 presenta los mismos datos en la ortografía oficial actualmente utilizada en las escuelas de Cushillococha.

Table B.1: Inventario de demostrativos nominales: AFI

Clase Nominal	Clase I	Clase II	Clase III	Clase IV	Clase V
Sustantivo	*kɨ³ʔtʃi¹*	*tʃe³ra¹*	*ʎu³¹e³*	*ta³ra⁵*	*pa⁴kɨ³*
Ejemplo	'cuchillo'	'cerrucho'	'canoa'	'machete'	'mujer jóven'
Lexema					
DNOM1	da³¹ʔe²	da²a²	da³¹a¹	ɲa⁴a²	ɲa⁴³a²
DNOM2	ɟi³¹ʔe²	ɟi²a⁴	ɟi²a²	ŋe³a²	ŋe⁴³a²
DNOM3	gu³¹ʔe²	gu²a⁴	gu²a²	ɟe³a²	ɟe⁴³a²
DNOM4	(no existe)	do²ma⁴	do³¹ma²	ɲo⁴ma⁴	(no existe)
DNOM5	ɟi³¹ʔe²ma⁴	ɟi²ma⁴	ɟi²ma²	ŋe³ma²	ŋe⁴ma²
DNOM6	gu³¹ʔe²ma⁴	gu²ma⁴	gu²ma²	ɟe⁴ma⁴	ɟe⁴ma²

Table B.2: Inventario de demostrativos nominales: Ortografía oficial del ticuna en el Perú

Clase Nominal	Clase I	Clase II	Clase III	Clase IV	Clase V
Sustantivo	*cüxchi*	*chera*	*ngue*	*tara*	*pacü*
Ejemplo	'cuchillo'	'cerrucho'	'canoa'	'machete'	'mujer jóven'
Lexema					
DNOM1	daxe	daa	dáa	ñaa	ñaa
DNOM2	yixe	yia	yia	ngea	ngea
DNOM3	guxe	gua	gua	yea	yea
DNOM4	(no existe)	domá	doma	ñoma	(no existe)
DNOM5	yíxema	yimá	yima	ngema	ngema
DNOM6	guxema	gumá	guma	yema	yema

Los **demostrativos locativos** o DLOCs son las palabras equivalentes a *aquí* y *allí* en español, o *here* y *there* en inglés. En la mayoría de los lexemas, los DLOCs sólo se diferencian de los DNOMs por (a) el tono y (b) la presencia de la oclusiva glotal. Pueden usarse como adjuntos, como los complementos de ciertos enclíticos y como predicados que expresan la ubicación. A diferencia de los DNOMs, los DLOCs no pueden usarse como argumentos de un predicado.

Los DLOCs no concuerdan en clase nominal, pero sí sufren otras alternancias morfológicas, mostradas en el Cuadro B.3 (AFI) y el Cuadro B.4 (ortografía peruana). Como será evidente en los cuadros, cada DLOC aparece en tres alomorfos: el alomorfo predicativo, el alomorfo locativo y el alomorfo alativo (tambíen utilizado como el complemento de los enclíticos). Explico la distribución sintáctica de cada alomorfo en el Capitulo 1 (§1.3). Me refiero a cada DLOC con su número de lexema, seguido por el alomorfo locativo. Así, para referirme al DLOC1, que tiene los alomorfos *nu²ʔũ⁴* (predicativo) ∼ *nu²ʔa²* (LOC) ∼ *nu⁵a²* (ALL), escribo solamente 'DLOC1 *nu⁵a²*'.

En cada conjunto de demostrativos, los nominales tanto como los locativos, tres lexemas son exclusivamente exofóricos -- -- es decir, sólo se pueden utilizar para indicar personas, objetos y lugares que están presentes en el ambiente del discurso. Estos son DNOM1 *ɲa⁴a²* / DLOC1 *nu⁵a²*, que (a primera vista) parece indicar que el referente está cerca del hablante; el DNOM2 *ŋe³a²* / DLOC2 *ŋe⁵a²*, que aparentemente indica que el referente está a una distancia intermedia del hablante; y el DNOM3 *ɟe³a²* / DLOC3 *ɟe⁵a²*, que parece expresar que el referente está lejos del hablante. Estos tres exofóricos son plenamente productivos. Al lado de ellos, encontramos un demostrativo exofórico no productivo, el DNOM4 *ɲo⁴ma⁴* / DLOC4 *nu⁵ma²*. En la pragmática, el DNOM/DLOC4 tiene un sentido muy restringido -- solamente puede usarse para indicar áreas de espacio que encierran el hablante e intervales de tiempo que incluyen el momento de hablar. De igual manera, el DNOM4 es morfológicamente restringido, careciendo de formas para las clases nominales I y V. Por esta falta de productividad, en el cuerpo principal del estudio, paso por alto el DNOM/DLOC4.

A diferencia de los demostrativos exclusivamente exofóricos, el DNOM5 *ŋe³ma²* y DLOC5 *ŋe⁵ma²* tienen a la vez usos exofóricos y anafóricos. En uso exofórico, el DNOM/DLOC5 indica un referente que está cerca del destinatario; el DNOM5 también puede usarse para cualquier referente que no sea visible al hablante. En uso endofórico, el DNOM/DLOC5 puede aparecer en todos los tipos

Table B.3: Inventario de demostrativos locativos: AFI

Lexema	Predicado	Locativo	Alativo
DLOC1	nu²ʔũ⁴	nu²ʔa²	nu⁵a²
DLOC2	ŋe²ʔa⁴	ŋe²ʔa⁴	ŋe⁵a²
DLOC3	ɟe²ʔe⁴	ɟe²ʔa⁴	ɟe⁵a²
DLOC4	nu²ʔma⁴	nu²ʔma⁴	nu⁵ma²
DLOC5	ŋe²ʔma⁴	ŋe²ʔma⁴	ŋe⁵ma²
DLOC6	ɟe²ʔma⁴	ɟe²ʔma⁴	ɟe⁵ma²

Table B.4: Inventario de demostrativos locativos: Ortografía peruana

Lexema	Predicado	Locativo	Alativo
DLOC1	nuxũ	nuxa	nua
DLOC2	ngexa	ngexa	ngéa
DLOC3	yexe	yexa	yéa
DLOC4	nuxma	nuxma	numa
DLOC5	ngexma	ngexma	ngéma
DLOC6	yexma	yexma	ɟéma

de claúsula. El DNOM/DLOC6 *ɟe⁵ma²* es exclusivamente endofórico, sin ningún uso exofórico. Su distribución manifiesta restricciones temporales: aparece exclusivamente en cláusulas con referencia temporal al pasado lejano.

B.3 Resumenes de capítulos

La tesis es dividida en ocho capítulos. Los capítulos 1 y 2 proporcionan información general sobre el idioma y el estudio. Los capítulos 3 a 6 analizan los demostrativos exofóricos. De allí, el capítulo 7 analiza los demostrativos no exofóricos -- los utilizados para indicar personas y objetos conocidos exclusivamente por el discurso (uso anafórico) o por los conocimientos compartidos de los participantes (conocido en inglés como el uso *recognitional*). El capítulo 8 resume el estudio y explica como los hallazgos deben afectar nuestra teoría pragmática de los demostrativos.

En el capítulo 1, hablo de generalidades del idioma y pueblo ticuna, tales como el número de hablantes, los rasgos más sobresalientes del idioma y las investigaciones sobre el idioma previamente publicadas por otros autores. También resumo el inventario total de demostrativos del idioma (con más detalle que la §B.2 arriba). En el capítulo 2, describo los diversos métodos utilizados en el estudio. Estos incluyen elicitación semántica, tareas experimentales y análisis de grabaciones de conversaciones. Escogí este conjunto de métodos con el fin de mantener un equilibrio entre el control experimental y la validez ecológica.

En el capítulo 3, repaso los conceptos que subyacen los estudios contemporáneos de la deixis exofórica, a través de las distintas tradiciones disciplinarias que se han interesado por el fenómeno, las cuales incluyen la lingüística, la psicología y la antropología. En este capítulo intro-

duzco dos conceptos centrales para la descripción de los demostrativos: el **contenido deíctico** y el **órigo**. El contenido deíctico es la información expresada por un demostrativo sobre la relación entre el referente y los participantes en el discurso. El órigo de un demostrativo es el participante (o el conjunto de participantes) con el cual el demostrativo relaciona el referente. Por ejemplo, bajo el análisis más habitual de los demostrativos del español, el demostrativo *este* requiere que el referente del demostrativo esté cerca del hablante. Por eso, el órigo de *este* es el hablante; el contenido deíctico expresa que el referente está cerca del órigo.

Los capítulos 4, 5 y 6 forman el corazón de la tesis. En el capítulo 4, muestro, con datos experimentales y de elicitación semántica, que tres de los cuatro demostrativos exofóricos del ticuna -- DNOMs 2, 3 y 5 -- expresan información sobre la manera en la que el hablante percibe el referente. Más específicamente, el contenido deíctico de estos demostrativos se refiere al sentido de la visión -- si el hablante ve el referente del demostrativo al momento de hablar. Este significado está relacionado con el sentido literal de la visión, y no con significados más abstractos, tales como la modalidad epistémica, la capacidad del hablante para identificar el referente o un valor general de evidencialidad directa (*pace* Levinson 2004a, 2018a). El apoyo más importante para estos puntos es que los demostrativos visibles, DNOMs 2 y 3, no pueden utilizarse para un referente que el hablante no ve en el momento de hablar -- inclusive si el hablante percibe el referente directamente por los sentidos del oído u olfato (p.ej., si es un olor o un sonido). En cambio, el demostrativo invisible, DNOM5, puede utilizarse tanto para referentes que el hablante percibe por los sentidos del oído, olfato y tacto, como para los referentes que el hablante no percibe por ningún sentido en el momento de hablar. Aunque estas afirmaciones están basadas en datos de la elicitación semántica, muestro que los datos conversacionales igualmente son congruentes con ellas.

En el capítulo 5, investigo los demostrativos DNOM/DLOC1, que parece ser 'proximal al hablante,' y DNOM/DLOC5, en su uso exofórico como 'proximal al destinatario.' Desde datos experimentales, argumento que estos demostrativos sí tienen contenido deíctico espacial. Sin embargo, este contenido **no** está relacionado con la distancia del referente. Más bien, el contenido deíctico espacial de los 'proximales' recae en la ubicación del referente en relación al **espacio peripersonal** del hablante o destinatario. El espacio peripersonal (Kemmerer 1999) se define como el espacio que una persona puede alcanzar (es decir, percibir por el sentido del tacto) sin moverse en relación al fondo. Así, el concepto del espacio peripersonal no es exclusivamente espacial, sino a la vez espacial y perceptivo. Por eso, inclusive el contenido 'espacial' de los demostrativos está fundamentado en la percepción.

El capítulo 5 también se involucra en detalle con datos de la conversación informal. En estos datos, observo que el demostrativo proximal-al-hablante y el demostrativo proximal-al-destinatario también pueden expresar características no espaciales sobre la relación entre el órigo y el referente. El demostrativo proximal-al-hablante también puede utilizarse para llamar la atención a cualquier referente previamente desatendido por el destinatario, y el demostrativo proximal-al-destinatario puede usarse para cualquier referente que sea propiedad del destinatario. Además, los dos demostrativos proximales pueden utilizarse para cualquier referente hacia el cual el órigo (hablante o destinatario) está en movimiento. En comparación con los usos más comunes de los mismos demostrativos, estos usos -- motivadas por la atención, la propriedad y el

movimiento -- son excepcionales, ya que no requieren que el referente esté adentro del espacio peripersonal del órigo. Para explicar este patrón, propongo que todos los usos excepcionales de los proximales surgen de su contenido deíctico espacial, por desplazamiento de referencia (*deferred reference*) y desplazamiento del órigo (*deictic transposition*; conceptos introducidos en el capítulo 3).

En el capítulo 6, analizo el aparente demostrativo medial, DNOM/DLOC2, y el aparente distal, DNOM/DLOC3. Con base en datos experimentales y conversacionales, demuestro que el aparente medial es -- de hecho -- un demostrativo proximal y 'sociocéntrico,' en el sentido de 'sociocéntrico' desarrollado por Hanks (1990). Es decir, el 'medial' no expresa que el referente está a una distancia intermedia del hablante, sino que el referente está adentro de un espacio definido conjuntamente por la ubicación del hablante y la del destinatario. En la mayoría de los casos, esto implica que el referente del 'medial' está entre el hablante y el destinatario. El demostrativo distal, por otro lado, es verdaderamente distal y egocéntrico. Expresa únicamente que el referente está afuera del espacio peripersonal del hablante. Sin embargo -- debido a la presencia de los demostrativos no egocéntricos (DNOM/DLOC5 y DNOM/DLOC2) -- casi todos los usos del DNOM/DLOC3 indican un referente que no solamente está afuera del espacio peripersonal del hablante, sino también está afuera del espacio de la interacción (es decir, que no está en el espacio peripersonal del destinatario, ni entre el hablante y el destinatario).

El capítulo 7 defiende mi análisis de la deixis contra las teorías que asimilan la deixis a la anáfora, argumentando que el sistema deíctico y el anafórico del ticuna tienen muy poca relación. Demuestro que el sistema de demostrativos del idioma manifiesta una división léxica completa entre los demostrativos exofóricos (es decir, deícticos) y los demostrativos no exofóricos (es decir, anafóricos y *recognitional*). Las dos clases de demostrativos se distinguen tanto en significado como en forma léxica. Los demostrativos exofóricos tienen todo el contenido deíctico, espacial y perceptivo, descrito en los capítulos 4 a 6. En cambio, los demostrativos no exofóricos no expresan nada sobre el referente, salvo su familiaridad (desde el discurso o el terreno común). El capítulo 8 resume la tesis y concluye.

Hago estos argumentos no solamente como un análisis del ticuna, sino también como apoyo para una visión de la deixis exofórica como un fenómeno **interactivo** y **corporal**. En afirmar que la deixis es fenómeno corporal, sostengo que los demostrativos relacionan sus referentes con los cuerpos de los participantes -- no con sus mentes. De igual manera, en afirmar que la deixis es interactiva, sostengo que los demostrativos son técnicas que los hablantes utilizan para gestionar la atención de sus destinatarios; no son maneras neutrales para describir referentes en relación al hablante (cf. Levinson 2004a). Por eso, mi visión contrasta con la idea, presente en muchos análises lingüísticos de los demostrativos, que la deixis puede entenderse de una manera egocéntrica e incorpórea.