

**UCLA**

**UCLA Electronic Theses and Dissertations**

**Title**

Contested Universals: An Anthropological Approach to the Ownership of Knowledge

**Permalink**

<https://escholarship.org/uc/item/9378q56n>

**Author**

Espinoza, Ulises J

**Publication Date**

2023

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Contested Universals: An Anthropological Approach to the Ownership of Knowledge

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Anthropology

by

Ulises Espinoza

2023

© Copyright by

Ulises Espinoza

2023

## ABSTRACT OF THE DISSERTATION

Contested Universals: An Anthropological Approach to the Ownership of Knowledge

by

Ulises Espinoza

Doctor of Philosophy in Anthropology

University of California, Los Angeles, 2023

Professor Harold Clark Barrett, Chair

The intricate and multifaceted relationship humans share with ownership, whether tangible or intangible, forms the crux of this research. The first chapter investigates the psychology behind the concept of ownership. The universality of first mover norms in ownership, where the first person or the one exerting more effort is seen as the owner, is examined. Through a comparative study between the Achuar adults in Ecuador and an online U.S. sample, it is found that while there is a general lean towards first possessor intuitions, these norms may be more contextually and culturally variable than previously believed. The second chapter delves into the contentious realm of ownership and Intellectual Property (IP). By examining public attitudes across 12 societies spanning 10 countries, the research highlights how these perceptions align or diverge from legal frameworks. The findings illuminate that individuals tend to attribute higher ownership rights to knowledge when it has an innovative origin, revealing a nuanced

understanding of what qualifies as "ownable." The final chapter ethnographically anchors this research in an Achuar community, spotlighting the tussle between tradition and modernity in knowledge dissemination and control. As traditional knowledge oscillates between private to public spaces, challenges around intellectual boundaries, authenticity, and commodification arise. The role of technology, both as an enabler and disruptor, further adds complexity to the narrative. The Achuar community's journey exemplifies the broader challenges faced by Indigenous communities globally, as they negotiate identity, sovereignty, and the ethical distribution of knowledge in the digital age. Collectively, this dissertation underscores the need to utilize an anthropological approach to appreciate the dynamic nature of ownership and its profound implications on identity, culture, and legalities in contemporary society.

The dissertation of Ulises Espinoza is approved.

Jason Patrick De León

Christopher J. Throop

Erin Katherine Debenport

Agustín Fuentes

Harold Clark Barrett, Committee Chair

University of California, Los Angeles

2023

This work is dedicated to the SouthSide and everyone there who made this possible.

## Table of Contents

<b>List of Tables</b> .....	<b>viii</b>
<b>List of Figures</b> .....	<b>x</b>
<b>Acknowledgments</b> .....	<b>xii</b>
<b>Biographical Sketch</b> .....	<b>xiv</b>
<b>Chapter 1: Cultural and Contextual Variation in First Mover Norms of Ownership: Evidence from an Achuar community.</b>	
Abstract.....	2
Introduction.....	2
Methods.....	20
Results.....	25
Discussion.....	35
Appendix A.....	43
References.....	67
<b>Chapter 2: Intuitions about Ownership of Ideas Across Cultures.</b>	
Abstract.....	77
Introduction.....	77
Methods.....	90
Results.....	95
Discussion.....	108
Appendix B.....	115
References.....	134

**Chapter 3: Indigenous Perspectives: An Ethnographic Case Study of the Ownership of Knowledge among Achuar Communities.**

Abstract.....	145
Introduction.....	145
Methods.....	148
Results.....	158
Discussion.....	192
References.....	198

## **List of Tables**

### **Chapter 1: Cultural and Contextual Variation in First Mover Norms of Ownership: Evidence from an Achuar community.**

Table 1.1. Selected psychological studies of First Mover Intuitions.

Table 1.2. Parameter estimates of Model 1: First Possessor Judgments for all DVs across  
Hunting Scenarios.

Table 1.3. Parameter estimates of Model 2: First Possessor Judgments of Ownership  
across Hunting Scenarios.

Table 1.4. Parameter estimates of Model 3: First Possessor Judgments for all DVs across  
Land Scenarios.

Table 1.5. Parameter estimates of Model 4: First Possessor Judgments for Ownership  
across Land Scenarios.

Table 1.6. Parameter estimates for Model 5: First Possessor Judgments across Hunting  
and Land Scenarios.

### **Chapter 2: Intuitions about Ownership of Ideas Across Cultures.**

Table 2.1. Study Populations and Sample Characteristics.

Table 2.2. Copyright: Song Scenarios.

Table 2.3. Patent: Medicinal Remedy Scenarios.

Table 2.4. Trademark: Design Scenarios.

Table 2.5. Table 2.5. List of DVs and Characteristics

Table 2.6. Mean and Standard Deviation of Ownership Ratings by Author and Vignettes,  
Pooled Across Participant Samples.

Table 2.7. Parameter estimates of Model 1: Attributions of Ownership Ratings over  
Objects vs Ideas, Pooled Across Participant Samples.

Table 2.8. The Median and 90% HCI of the Estimated Difference in Ownership Ratings  
Across Objects and Ideas by Author, Pooled Across Participant Samples

Table 2.9. The Median and 90% HCI of the Estimated Difference in Ownership  
Attribution Extend to Objects and Ideas between Authors, Pooled Across  
Participant Samples.

Table 2.10. Model 2 Total Effects Across Participant Samples.

Table 2.11. The Mean and Standard Deviation of Rights ratings by Authors and Vignette,  
Pooled Across Participant Samples.

Table 2.12. The Median and 90% HCI of the Estimated Difference in Rights ratings  
between Authors, Pooled Across Participant Samples.

Table 2.13. The Median and 90% HCI of the Estimated Difference Rights ratings across  
Authors, Pooled Across Participant Samples.

Table 2.14. Difference in Mean Attribution of Rights between Rights ratings across  
Participant Samples

**Chapter 3: Indigenous Perspectives: An Ethnographic Case Study of the Ownership of  
Knowledge among Achuar Communities.**

Table 3.1. Knowledge Circulation in San Lorenzo.

## **List of Figures**

### **Chapter 1: Cultural and contextual variation in first mover norms of ownership:**

#### **Evidence from an Achuar community.**

Figure 1.1. Probability of First Possessor Judgments across Hunting Scenarios.

Figure 1.2. Probability of First Possessor Judgments across Land Scenarios.

Figure 1.3. Probability of First Possessor Judgments across Hunting and Land Scenarios.

### **Chapter 2: Intuitions about Ownership of Ideas Across Cultures.**

Figure 2.1. Map of Study Sites.

Figure 2.2. Probability of Ownership Extended Across Participant Samples.

Figure 2.3. Mean Difference in Ownership Ratings Extended to Objects vs Ideas Across Authors, Pooled Across Participant Samples.

Figure 2.4. Mean Difference in Ownership Ratings Across Objects and Ideas by Author, Pooled Across Participant Samples.

Figure 2.5. Difference in Ownership Ratings Extend to Objects and Ideas across Author Categories, Pooled Across Participant Samples.

Figure 2.6. Probability of Rights ratings Extended across Participant Samples.

Figure 2.7. Difference in Mean Attribution Rights ratings between Author, Pooled Across Participant Samples.

Figure 2.8. Difference in Mean Attribution of Rights ratings by Authors, Pooled Across Participant Samples.

Figure 2.9. Difference in Mean Attribution of Rights ratings by Authors, Pooled Across Participant Samples.

**Chapter 3: Indigenous Perspectives: An Ethnographic Case Study of the Ownership of Knowledge among Achuar and Shuar Communities.**

Figure 3.1. Map of San Lorenzo Region.

Figure 3.2. Snapshot of Youtube page belonging to the person who came into record Yokobo's Mother's songs.

Figure 3.3. Facebook posting selling a Chimpui.

Figure 3.4. Social Media post calling for taking care of elders as a response to the passing of González and others due to Covid-19.

Figure 3.5. Social Media Post Soliciting interest in Cattle.

Figure 3.6. YouTube Video inviting people to Come Visit the Community.

Figure 3.7. Instagram Post from Colonos visiting San Miguel.

## Acknowledgments

I am grateful for the endless support of my committee members. I want to thank Clark Barrett for being a kind and supportive mentor. Thank you for giving me the space to follow my intellectual curiosities, encouraging my voice to be heard, lending a listening ear, and most importantly for the wisdom. Thank you, my friend. I thank Jason Throop for his kindness, beverage choices, and support of my phenomenological curiosities. His phenomenology graduate seminar single handedly changed the way I view ethnographic work. I am thankful to Erin Debenport for her generosity, positivity, and helping me navigate the intricacies of ethnographic writing. Thank you to Agustín Fuentes, your mentorship has taught me the importance of the need to have our work speak to broader political issues. Finally, thank you to Jason De León for making space for a janky kid from the Southside of Chicago. I will forever be grateful for allowing me to be myself in a profession that already pushes you to act in a certain way and come from a particular background, for his insightful feedback on my writing, and for pushing me to think about the visual as a means of producing theory. Gracias Jelipe. I'm grateful for their guidance as this research relied on their expertise and encouragement, but most importantly thank you for being good people.

This project would not be possible without my collaborators on the Geography of Philosophy Project, especially with their assistance in collecting the data for chapter 2. Thank you to Kristopher M. Smith for his statistical guidance.

This dissertation is funded by the Geography of Philosophy Project, The Latin American Institute, The International Institute, and Indigenous Futures Institute at UC San Diego. This work came to fruition thanks to the substantial support from each of these funding organizations.

Thank you to the Behavior, Evolution, and Culture (BEC) group, the UCLA Experimental Biological Anthropology group, the Visual Anthro Multimodal Praxis group, and

several faculty and staff within the UCLA Anthropology Department for their friendship, guidance, and intellectual conversations. Special thanks to Abigail Bigham for her positivity and feedback within the Bio-Subfield, we needed it. Thank you to Justin Dunnivant for helping me with the in and outs of transitioning from student to postdoc. Thank you to Keolu Fox for the opportunity to work alongside you with the LabtoLand group. Thank you to Anne Walters and Tracy Humbert for all their help and support. I would like to thank Jennifer Banawa for keeping my paperwork in order. Thank you to the members of CBLAAC, in particular Zachary Mondesire, Michael Moses, Maddy Aubey, Charles Rhodes, Bethel Moges, Akua Agyen, Stephanie Parks, and Jewels Humphrey. I cannot forget the friendship of Kristine Chua, Andrew Smith, Zachary Mondesire, Delaney Knorr, Alexis Gonzalez, Wanda Quintanilla, Andrew Dang, Nicole Smith, and Nicco La Mattina. Their kindness, knowledge, and willingness to cut loose kept me sane and happy, particularly during the last couple of years.

To my family: my parents, Veronica and Santos, thank you for your love, support, and ability to check me when needed. Mom, this Ph.D. is as much your as it is mine. Thank you for always believing in my potential, your patience, and willingness to fly out and be there if I ever needed it. It's always just been us two. You're my inspiration. Dad, thanks for instilling the love of the *chinga* in me. To Ladonna, Nikki, and Jaxon thank you for being my family, ya'll really provided me some of that Chicago energy I needed to get this dissertation done. Most importantly thank you to my love, Blair Black Espinoza. You truly changed my life for the better and none of this would be possible without you. You've made me a better person babas. Thank you for prioritizing fun in our lives and making me see that there are other things that matter outside of work. Finally, I would like to the community of San Lorenzo for allowing me the privilege to work with you all. Thank you for your kindness, vulnerability, and willingness to share your stories.

## **Biographical Sketch**

### **Education**

- 2016            BS (Psychology) DePaul University
- 2019            MA (Anthropology) University of California, Los Angeles

### **Awards and Fellowships (Selected)**

- Fall 2023        Princeton Fellows Post-Doc
- 2023            UC San Diego Indigenous Futures Institute Fellowship
- 2023            UC San Diego Indigenous Futures Institute Fast Grant
- 2022            UCLA Latin American Institute Fieldwork Fellowship
- 2022            UCLA International Institute Fieldwork Fellowship
- 2017/2020       Eugene V. Cota-Robles Fellowship
- 2018/2020       Graduate Student Research Mentorship
- 2018            Foreign Language Area Studies Program

### **Peer-reviewed publication**

Espinoza, U.J. & Barrett, H.C. (under review) Cultural and contextual variation in first mover norms of ownership: Evidence from an Achuar community.

### **Conference Presentations**

- 2023            American Anthropology Association
- 2022            Society for Visual Anthropology
- 2023            American Anthropology Association

### **Teaching (Selected)**

2017 – 2023    University of California Los Angeles, Los Angeles, CA: Anthropology Teaching Assistant/Associate/Fellow/Instructor

### **Services (Selected)**

- 2018-2023        Founder, Centering the Black Legacy in Anthropological Creativity

## **Chapter 1**

Cultural and Contextual Variation in First Mover Norms of Ownership:

Evidence from an Achuar community

Ulises Espinoza<sup>1,2</sup>, H.C. Barrett<sup>1,2</sup>

<sup>1</sup>Department of Anthropology, University of California, Los Angeles, California, U.S.A.

<sup>2</sup>Center for Behavior, Evolution, & Culture University of California, Los Angeles, California, U.S.A.

## **Abstract**

The proposal that humans possess an evolved psychology of ownership is a highly plausible one. But what, if any, features of human ownership psychology might be universal? Psychologists have proposed that human ownership psychology might contain rules or norms for determining ownership, some of which might be universal. Here we explore *first mover* norms, in which an individual who acts first or exerts higher initial effort toward an object is recognized as its owner. Developmental studies in North America and Europe have provided evidence that first mover intuitions, especially about first possession, reliably develop in childhood, and some cross-cultural studies have supported this. Ethnographic research, however, provides mixed evidence about the universality of first-mover norms across cultures and domains. Here we report results from an experimental study comparing judgments of Achuar adults in Ecuador with those of an online U.S. sample. Achuar judgments leaned weakly in favor of first possessors in the domain of hunted game, but not for land. For land, a principle of use took precedence over first possession. U.S. participants, on the other hand, exhibited strong first possessor intuitions across both domains, consistent with prior results in the psychological literature. Together these findings suggest that first mover norms for assigning ownership may be more culturally and contextually variable than prior psychological research has suggested.

## **Introduction**

The evolutionary social sciences have long been concerned with the search for human universals, and questions surrounding them. Which traits, including psychological and behavioral traits, are part of our species-typical “human nature”? Are there any traits that are universally present in early childhood across cultures? Are there any traits that, barring

developmental disability, develop reliably in all adults? Which traits that might be universal or widespread now can be linked to histories of natural selection acting in the past?

In this paper, we present new data bearing on debates about a possible domain of human universality: ownership, and the psychological and cultural norms and rules underlying it (Nancekivell et al., 2019). The idea that ownership of some kind is a human universal is quite plausible, akin to claims that language, morality, and cooperation are part of human nature. But here the comparison to domains like language and morality is apt. Claims that humans everywhere make moral judgments, communicate linguistically, and regard some things as owned are much more general than claims about specific universals within those domains, such as specific grammatical or moral rules, which have proven to be much harder to find (Christiansen & Chater, 2009; Stich, 2006).

Here we examine a category of norms or rules of ownership that have been proposed as possible human universals, which we call *first mover* norms. First mover norms hold that an individual who acts first or with the greatest initial effort toward an ownable entity becomes socially recognized as the rightful owner of that entity. Psychologists have proposed and studied a variety of first mover norms including norms of *first possession*, *first pursuit*, *effort*, and *creation* or *authorship*. These can apply to both tangible items, such as human-made artifacts, natural resources, and land, as well as intangible items such as ideas and other forms of intellectual property (Friedman & Neary, 2008; Friedman, 2010; Friedman et al., 2011; Li, Shaw, & Olson, 2013; Nancekivell et al., 2019). Using experimental tasks, developmental psychologists have shown that first mover intuitions typically develop in early to middle childhood in children in Canada, the U.S., and Europe (Friedman, 2008; Shaw, Li, & Olson, 2012; Verkuyten, Sierksma, & Thijs, 2015). A small cross-cultural literature using similar experimental tasks has supported these findings, albeit with some variation in developmental

trajectory, providing evidence for potential universality of first mover norms (Kangiesser et al., 2015; Kangiesser, Itakura, & Hood, 2014; Kangiesser, Rossano, & Tomasello, 2015; Rochat et al., 2014).

The ethnographic literature, on the other hand, provides mixed evidence for the universality of first-mover norms. First possessor rules of property ownership are known to exist in non-European legal systems, including Islamic, African, and Native American legal and informal traditions (Barnard & Woodburn, 1988; Gluckman, 1967; Lentz, 2006; Lueck, 1995). At the same time, the literature on property rights across the world and throughout history documents a multitude of cases where ownership rights are communal, partial, or a matter of negotiation based on other rules or principles, including kinship, sharing, stewardship, use, and need (Akaateba, 2019; Brightman, 2010; Brightman et al., 2016; Carpenter et al., 2009; Daal, 2000; Hann, 1998; Goody 1962; Lowie, 1949; Mauss, 1925; Nagan, 2012; Nagan & Hammer, 2013; Santos-Granero, 2009; Tobin, 2014; Woodburn, 1998). Even in some cases where first mover norms might seem to apply, like “first comer” principles of land ownership in West Africa, those principles do not actually assign ownership to individuals, but rather to lineages within which other principles determine individual rights (Lentz, 2006). For land, a principle of stewardship by current users often takes precedence over any form of permanent, individual ownership, even if others used the land before (Brightman et al., 2016; Carpenter et al., 2006; Descola, 1982; Hann, 1998). Against this backdrop, the universality of first-mover norms is far from clear, especially if we mean rules determining who *actually* owns something, and whether and how those apply across contexts.

Here, we use an experimental method to examine intuitions about first mover norms among adults in an Achuar community in Ecuador, where cultural rules about ownership are likely to diverge significantly from those seen in the European diaspora. We compare these to a

sample of American adults using the same materials and show that first mover intuitions, while robustly present in American adults, are not strongly endorsed by Achuar adults: they are weaker, and variable across domains.

### **The domain of ownership**

It's likely that all humans have the capacity to own things, and to recognize ownership in others. However, the question of whether there is a specific, species-typical human psychology of ownership, and whether that psychology contains particular rules or principles, remains an open one. In principle, it is possible that ownership is a purely cultural phenomenon. But there may also be evolutionary roots to how we conceptualize ownership and the domains to which ownership is extended. How we would tease these apart remains very much an open question.

From an evolutionary perspective, the idea of ownership as an evolved trait gains plausibility because of the presence of ownership-like phenomena—specifically, physical possession and the ability to exclude others—in non-human animals (Brosnan, 2011).

However, there are many ways in which human phenomena of ownership differ from those seen in other animals. One is that while possession and control of resources by force or threat of force are widely seen in other animals, the phenomenon of deference to publicly recognized owners is less phylogenetically widespread in other species (Kanngiesser et al., 2020). Another is that human ownership is clearly heavily governed by cultural norms, rules, and worldviews, both implicit and explicit (Brightman et al., 2016; Hann, 1998; Stake, 2004). Clearly, not all norms of ownership are culturally or historically universal, raising the question of what, if any, rules or principles might be universal components of an evolved ownership psychology. Different literatures paint different pictures of what aspects of ownership might be universal or variable across cultures, people, and history.

## The psychological literature

Much of the psychology literature on ownership has looked for universals, including the emergence of ownership intuitions in childhood as possible evidence for universality. One influential approach to ownership in psychology is a “naïve theory” approach, similar to approaches to naïve or intuitive theories of mind and of physics (Carey and Spelke, 1994). According to this approach, the naïve theory of ownership is part of an evolved core domain of cognition that provides universal psychological building blocks that are in turn shaped by culture and personal experience (Nancekivell et al., 2019). On this view, the human naïve theory of ownership is characterized by a distinct ontology—a set of principles about what ownership is, what can be owned, who can own it, rights and obligations, etc—and principles of causal-explanatory reasoning that are used to predict, for example, how people will respond to claims of ownership, violations of core principles of ownership, and behavior with respect to owned items.

The naïve theory approach to ownership explicitly accepts that ownership norms are in part culturally shaped, but also suggests that there will be universal, or widely shared, intuitions and principles of ownership. These include heuristics for deciding who owns something, based on their prior history with that object or entity. Here we use the term *first mover* to describe a category of such rules or heuristics. These include principles of *first possession* and *effort*, as well as other possible principles such as *first pursuit* and *creation* (Friedman & Neary, 2008; Levene, Starmans, & Friedman, 2015; Rochat, 2011; Rochat et al., 2014). For land, such principles also include *first comer* or *first arrival* rules (Lentz, 2006; Verkuyten et al., 2015a,b). Each of these principles is an intuitive rule that assigns ownership of an entity to an individual who did something first, longest, or most effortfully with respect to that entity. For example, the first possessor rule assigns ownership of an object to the first person who possessed it (Friedman & Neary, 2008; Lueck, 1995). Effort rules assign ownership to the person who provided the most

labor to obtain, build, or create the item (Friedman, 2010). As studied in psychology, these rules have typically been proposed to apply to individuals, i.e., individual persons, rather than groups.

Table 1 provides a selective summary of prior studies investigating first possessor and effort rules.

**Table 1.1 Selected psychological studies of first mover intuitions**

Rule	Study	Population	Age of development	Class
First Possessor	Bakeman & Brownlee (1982)	United States	Children (2-4 years)	Item
	Beggan and Brown (1994)	United States	Undergraduates	Item
	Blake & Harris (2009)	United States	Children (2-5 years)	Item
	Ramsey (2001)	United States	Children (3-4.5 years)	Item
	Friedman & Neary (2008)	Canada	Children (2-4 years)	Item
	Shaw et al. (2012)	United States	Children (6-8 years) /Adults	Item
	Da Silva et al. (2014)	Brazil, Florianopolis	Children (4-6 years)	Item
	Verkuyten et al. (2015)	Netherlands	Children (9-12 years)	Item
	Kanngiesser, Rossano & Tomasello (2015)	Kenya (Kikuyu) and Germany	Children (5-9 years)	Item
	Kanngiesser et al., (2014)	Japan, UK	Children (3-4 years) / Adults	Item
	Kanngiesser et al. (2015)	China, Japan, UK	Children (4 years) /Adults	Item
	Li et al. (2018)	China	Children (3-5 years) /Adults	Item
	Noles & Keil, (2019)	United States	Children (7-8 years)	Item
	Verkuyten et al. (2015a)	Netherlands	Children (9-12 years)	Land (individual)
	Verkuyten et al. (2015b)	Netherlands	Children (9-12 years)	Land (collective)

Effort	Hook (1993)	United States	Children (4-15 years) /Adults	Item
	Beggan and Brown (1994)	United States	Undergraduates / Adults	Item
	Friedman (2010)	Canada	Undergraduates/ Adults	Item
	Kanngiesser et al. (2010)	UK	Children (3-4 years) /Adults	Item
	Palamar et al. (2012)	Canada	Undergraduates/ Adults	Item
	Li et al. (2013)	United States	Children (4-6 years)	Item
	Kanngiesser et al. (2014)	UK and Japan	Children (3-4 years) /Adults	Item
	Rochat et al. (2014)	United States, China, Vanuatu, and Brazil	Children (3-5 years)	Item
	Yang et al. (2014)	United States, Mexico, and Japan	Children (4-6 years)	Item
	Levene et al. (2015)	United States	Adults	Item
	Verkuyten et al. (2015a)	Netherlands	Children (9-12 years)	Land

Psychological research, especially developmental research on children’s ownership intuitions, has provided evidence for each of these rules. In the absence of verbal information (e.g., information that states claims of ownership), children utilize cues such as prior possession, effort in procuring, modification of an object or resource, and the transference of an ownership claim to attribute ownership rights (Friedman et al. 2011). As shown in Table 1, many developmental studies have provided evidence for a first possession principle of ownership in children. Some of these studies show that first possession acts as a heuristic that can sometimes be modulated or overridden by other factors. For example, the assumption that possession implies ownership can be overridden when the means by which the item was gained are questioned (e.g., theft) (Friedman et al., 2010).

Effort is another factor that can play a role in ownership judgments. Early experimental work by Hook (1993) and Beggan and Brown (1994) found that prior use and investment of labor into an item established ownership rights over that item. Later work has shown that effort can interact with and even override first possession (Friedman, 2010; Verkuyten et al., 2015). Additionally, ownership is ascribed at a higher rate to effort directed purposefully rather than by accident (Palamar et al., 2012; Li et al., 2013).

Relatively few developmental studies have investigated the first possessor rule related to land (see Table 1). Verkuyten et al. (2015a) examined judgments of 9 to 12 year old Dutch children about individual ownership of land. The majority of children accorded ownership rights to the individual who first arrived on a piece of land. However, a follow-up found that first arrivers who work the land are judged to own the land more than those who do not. In a second study, Verkuyten et al. (2015b) examined Dutch 9 to 12 year olds' intuitions about group ownership of land, finding that children judged the group that was first to arrive on an island as the owners of the island, independent of how long they had been there. Another study that did not look at first possessor rules per se examined a sample of U.S. and Palestinian children's judgments about how factors such as wealth or poverty, and ingroup affiliation (to the child), should determine ownership of land (Zebian and Rochat, 2012). Children in both groups showed inequity aversion judgments, leaning in favor of a poor versus rich person's claims to a previously unowned piece of land, with weaker evidence for biases towards ingroup members as owners.

The research discussed in this section highlights a prominent gap in the psychological literature: cross-cultural experimental research in settings not situated in the global north is limited. While there is a small cross-cultural literature that examines intuitive ownership rules in non-Western contexts, the vast majority of psychological studies have used standard convenience

samples (but see Kanngiesser et al., 2014; Rochat, 2014; Da Silva et al., 2014; Kanngiesser et al., 2015). Some work has found evidence for first possessor rules in children across cultures, but sometimes with different developmental trajectories (Kanngiesser, et al., 2014; Kanngiesser et al., 2015). Other cross-cultural studies have found some support for the universality of other principles, such as the ownership rights afforded to a creator of an object (Yang et al., 2014)

The picture from psychology, then, is largely one of universality, in which first mover intuitions develop reliably in childhood, with some variability in development. This stands in contrast to the ethnographic literature, which suggests considerable variability in the norms or rules that adults use to assign ownership across cultures, and throughout history.

### **The ethnographic literature**

Literatures in anthropology, history, and economics have documented how rules for ownership have varied across space and time, including rules for who can own things, what things can be owned, how ownership is determined, and the rights and obligations of owners. The ethnographic literature documents a range of ownership principles for different kinds of entities, from land, to food, to human-made artifacts and intangible property including songs, ecological knowledge, and other kinds of cultural property (Akaateba, 2019; Bremner & Lu, 2006; Brightman et al., 2016; Carpenter et al., 2009; Dahl, 2000; Descola, 1982; Earle, 1998; Gluckman, 1965; Graziadei & Smith, 2017; Greene & Drescher, 1994; Gurven, 2004; Hann, 1998; Lentz, 2006; Lueck, 1995; Man & Thambiah, 2020; Lowie, 1949; Mauss, 1926; Nagan, 2012; Nagan & Hammer, 2013; Petersen, 2003; Riley, 2000; Santos-Granero, 2009; Schlagel & Ostrom, 1992; Wiessner, 1982; Woodburn, 1998). The ethnographic record reflects a necessity for nuance in the examination of ownership. Sometimes things can be individually owned, and sometimes not. Sometimes the first possessor has a right of ownership, and sometimes not. Importantly, while factors such as first possession, intent to possess, effort, improvement, etc.,

are often recognized by observers, how these determine who actually gets to own something (if at all), and what rights the person has regarding that thing, are highly variable. Moreover, many commentators have noted that the extreme emphasis on and protection of individual ownership in Western capitalist traditions is much less pronounced in other cultural traditions, suggesting that a rule like first possession might be less widely applicable elsewhere, and in more limited contexts (Buchanan, 1993; Hann, 1998; Hartley, 2019; Harvey, 2007; MacPherson, 1962; Nagan & Hammer, 2013; Riley, 2000; Tobin, 2014).

Because our study focuses on ownership in two domains—hunted foods and land—we note two general observations from the ethnographic literature. First, rules for ownership of food and land are variable across cultures. Second, principles for ownership of food are nearly always different in important ways from principles for ownership of land, even within cultures (including the U.S.). This is not to say that principles such as first possession can't matter in these domains, but rarely is it simply applicable in the way experimental psychology studies might imply. Often it is at best a tie breaker when other principles don't apply. For reasons of space we cannot conduct a full survey of the ethnographic literatures on food and land ownership here, but we offer some brief observations to support the idea that rules for ownership are variable within and between these domains across cultures, and that studies from Western contexts might not offer the best support for the universality of first mover norms.

Rules for ownership of food are likely to differ between industrialized societies where most food is purchased, agricultural and pastoralist societies where food is self-produced, and foraging societies where food is gathered and hunted. Rules for food distribution and ownership are among the most discussed in the classic anthropological literature. In particular, rules for sharing of hunted game in foraging societies have been heavily studied and discussed, forming the basis of many theories and debates about the nature of human sociality and cooperation

(Gurven, 2004; Hames, 1990; Wiessner, 1982; Woodburn, 1998). Hunting societies are known for having elaborate rules for food sharing, and in some cases, rules explicitly designed to remove rights of distribution of prey from the person who captured it—a key element of “ownership” that seems not to apply to first possessors in these communities (Woodburn, 1998; Bird-David, 1990). That said, the ethnographic literature does document a “first pursuer” rule of ownership in some cases, which can even include the right to decide how game is distributed (Gluckman, 1965). First mover rules that have been reported in the case of hunting include first to see, first to inflict a wound, first to kill, and first weapon to strike, even if the owner of the weapon was not the first to strike. Again, however, attribution of a kill to an individual might be separable from “ownership” in some cases, especially where ownership implies right to distribute. For example, the distribution of hunted game meat among the Ache is often done by an older man in the hunting party (Gurven, Hill, & Jakugi, 2004). Among Aboriginal groups of the Western Desert of Australia, food is split by a set number of pieces among individuals, with the hunter responsible for the kill having no say (Gould, 2019). What these examples show is that even in cases such as killing a prey animal, where a concept like “first possession” makes sense, cultural rules do not always bestow rights of ownership, such as rights to distribute or even consume the animal, on the first possessor.

Principles of land ownership are notoriously far more complicated across cultures and throughout history. While some psychological studies have shown that children can exhibit a first possessor intuition for land ownership (Verkuyten et al., 2015a,b), this does not necessarily reflect the realities of how land ownership is actually assigned in much or most of the world across history. While some historians and social theorists, such as Marx and Proudhon, have suggested that private ownership of land is a recent phenomenon, this depends to a degree on what is meant by ownership (and even, in some cases, individuals). What is extremely well-

documented in the ethnographic and historical literatures is collective or group ownership of, or rights to use, land (as well as, e.g., hunting and fishing grounds) (Bremner & Lu, 2006; Dahl, 2000; Descola, 1982; Lentz, 2006; Man & Thambiah, 2020; Nagan & Hammer, 2013; Schlagel & Ostrom, 1992). Importantly, in many Indigenous communities this can include places such as sacred sites or other areas of communal use, such as hunting grounds, that are not owned and could not, even conceptually, be owned by anyone. But neither does this make them fair game for taking, or “unowned.” They are neither considered wilderness, nor unused or abandoned. They “belong” to the community, and community members have various rights and duties with respect to them, but to think of them in terms of ownership (or lack thereof) makes little sense. Importantly, this can apply to other kinds of property as well, including intangible goods (“cultural property”) and other culturally significant items (Carpenter et al., 2009).

Within many Indigenous communities, then, it is common if not typical for there to be no principle of indefinite, individual ownership of land. Land could be regarded as “collectively” owned, but even then this is often not exactly the way communities traditionally think of land, and categories like individual versus collective ownership make little sense locally (Leach, 2016; Nagan & Hammer, 2013; Hammer et al., 2013). Sometimes, collective ownership is a legal category sought by Indigenous communities to prevent settler encroachment and land appropriation (Bremner & Lu, 2006; Blackman et al., 2017; Buntaine et al., 2015; Nagan, 2012; Nagan & Hammer, 2013; Rubenstein, 2002). Within many communities that have ownership or sovereignty over a territory, individual “rights” to land are often assigned or recognized within that territory, such as the right to build a house a clear land for a garden, or exclusive rights for an individual or a group to hunt in an area (Akaateba, 2019; Bremner & Lu, 2006; Descola, 1982). Often, in places such as Amazonia, such rights are temporary and must be constantly renewed through maintenance and use or lost, reverting to the community (Brightman, 2010;

Carnerio da Cunha & Viveiros de Castro, 1985; Viegas, 2016). While “effort” is part of what is needed to retain these rights, it would perhaps be better to call the principle of temporary ownership in these cases a principle of *stewardship*, or productive use (Carpenter et al., 2009; Descola, 1982; Petersen, 2003). Hunting and fishing grounds can also be assigned and held based on similar factors (e.g., use and stewardship), though they are also in some communities considered to be hereditary by kindship, clan, or descent group.

Importantly, in all of these cases some forms of ownership exist. Notably, however, these rights are not always or even typically what would be called individual ownership rights under U.S. or European law, since individuals or families are merely stewards of property whose disposition is still within the control of the group. In such contexts, which arguably represent either the majority or at least a large portion of human land ownership systems throughout history, principles such as “first possession” can exist, though they are likely to have more circumscribed meanings than in, for example, the U.S. Homestead Act of 1862, in which first possessors literally come to own the land in perpetuity, provided they improve and maintain it (Lueck, 1995). In many other places, such individualistic and exclusionary rights would be considered both absurd and immoral, as exclusionary ownership disregards the potential needs of other members of the community. In some parts of West Africa, “first comer” principles assign communal land to lineages or communities that are regarded as having arrived their first—a kind of group first possessor rule that also applies in many Indigenous communities, including the Shuar and Achuar (Bremner & Lu, 2006; Descola, 1982; Lentz, 2006). In some such systems, first comers can stake claims to currently unused land, but often this is not a strong or even valid consideration for how land is allocated to individuals and families within a community, which can more often be based on need, availability, fairness, and other principles such as kinship.

While brief, this review of the ethnographic literature on ownership in the domains of food and land ownership highlights several points that motivate the present study. While psychological studies of ownership judgments have provided valuable evidence for first mover intuitions as a potential psychological principle for allocating ownership, these studies have focused largely on children's intuitions, and largely children from communities in the U.S. and Europe that are steeped in Western, capitalist traditions. Moreover, because children and adults in these communities have grown up in cultural and political systems that emphasize the importance of individual property ownership and the role of individual agency in obtaining it, they might be particularly prone to favor first mover rules for assigning ownership. Because the anthropological literature, and Indigenous communities themselves, emphasize the relative importance of other principles for assigning ownership in these communities, these might be particularly important places in which to investigate the hypothesis that first mover norms are intuitive universals (Carpenter et al., 2009). Indeed, Achuar and other Indigenous communities are especially relevant for studying putative universals that might instead represent cultural values spread via colonialism, because many of these communities actively resist and refuse values and customs imposed from the outside (Simpson, 2014)

For these reasons, we decided to examine ownership intuitions in an Indigenous Achuar community that has different ownership traditions than those of other, typically Western communities in which prior psychological studies have been conducted. We used the standard, vignette-based method used in experimental psychology studies to elicit ownership intuitions in adult members of an Achuar community in Ecuador, and to compare these with intuitions of an online sample of U.S. adults on the same materials.

## **Achuar communities as a case study**

Achuar communities provide an interesting and useful case study to test hypotheses about a universal ownership psychology due to their complex cultural history and shifting individual psychologies related to changing economic and political conditions within the Pastaza region of Ecuador. The Achuar are an Indigenous Amazonian society living in Southeastern Ecuador and are a part of the larger Aents Chicham cultural-linguistic group that includes the Shuar, Shiwiar, Awajún, and Wampís (Deshoullière & Utitaj, 2019). Here we describe shared social customs of Achuar and Shuar communities, as we have understood them, together.

For the study of ownership, Achuar communities are notable because of a mix of cultural norms that combine respect for the autonomy of individuals (particularly male heads of households) with a strong communal or collectivist ethos (Brown, 1985; Descola, 1982, 1986, 1996; Juank, 1994; Mader, 1999; Rubenstein, 2002). This makes Achuar communities difficult to situate in the classic collectivist/individualist continuum (Barrett, 2018). Political organization in the Achuar, and in Chicham-speaking communities more generally, is egalitarian in that it frowns upon strongly hierarchical power relations. Community affairs and decision-making are highly democratic, organized around communal consensus about the use of community resources and the resolution of disputes. Villages have elected presidents, but these are recently created political positions, and presidents do not generally hold special social power outside of their bureaucratic responsibilities.

In most Achuar communities, including the one studied here, there is no official (state-based) individual title to land. In this community, as for many Indigenous communities in Ecuador, the land is legally owned collectively, by an association of Achuar communities (Nagan & Hammer, 2013; Rubenstein, 2002). Individual ownership of land is maintained by

community recognition, within a larger territory that is managed by the Achuar nation and organized around *centros*, or villages (Bremner & Lu, 2006; Descola, 1982; López et al., 2013; Rubenstein, 2002). Since the law does not grant individual rights to land nor determine boundaries between individual and communal land or even between entire villages, these are matters of collective social and political recognition that must constantly be maintained and sometimes renegotiated, consistent with norms of land stewardship across many Indigenous Amazonian communities (Brightman, 2010; Viegas, 2016).

While these features point towards an egalitarian, collectivist ethos, Achuar communities are also noted for their strong respect for individual rights and autonomy, especially regarding decision-making within households (Descola, 1996). Household decision-making is gendered and typically biased towards men, but women also exert substantial economic, political, and social power. Ownership of many things is recognized in Achuar communities, including individual goods, food, and pets.

For land, such as houses, gardens, and hunting territories, there is no traditional principle of permanent ownership akin to legal title. Instead, ownership is a form of stewardship during a period of active use. Individuals are granted land by community recognition, which they are then able to use so long as they curate and maintain it. Household plots are recognized as owned as long as the family lives there, and are traditionally seen as reverting to the community if the family moves, via migration or if the head of household dies (Descola, 1982). Families are recognized as having rights to land that they are using for farming and gardening, provided that they continue to invest in its maintenance and productivity. Hunting territories, too, are typically regarded as being the property of households or families, who have the right to exclude others, but this is also subject to a principle of use and maintenance, and no family is seen as having permanent claims to land outside the recognition of the local community (Descola, 1982, 1986).

When land becomes abandoned or disused, rights to that land are generally regarded as reverting back to the community (Bremner & Lu, 2006). Again, this represents a principle of temporality of land stewardship that is seen in many Amazonian communities, associated with an idea of constant, eternal cycles: the abandonment, renewal, and “re-opening of new places,” as Viegas (2016, p. 241) describes for Tupinamba communities in Brazil (Brightman et al., 2016; Santos-Granero, 2009).

For food, there are strong sharing norms (Descola, 1986, 1996). The Achuar practice is a version of customary food sharing where meat from hunting is expected to be shared widely, often given spontaneously in the form of gifts or an invitation to a hosted party. Hospitality rules require families to welcome visitors and to share food and drink generously. Obligations to assist others, including kin, friends, and even strangers, can be very strong, making requests for assistance hard to deny. Thus, while ownership is strongly recognized and valorized, selfishness is not. Ownership bestows rights, but greedily holding onto resources when others are in need is heavily frowned upon. Finally, there is ownership of cultural knowledge such as songs, recipes, and techniques for making artifacts, such as pottery, baskets, weapons, furniture, and other personal items. Some knowledge can be seen as individually owned but is simultaneously recognized as traditional knowledge that is passed from individual to individual (i.e., among families), and thus should not be individually hoarded. At the same time, such knowledge is tacitly regarded as a form of group cultural property, not merely free for appropriation or use by anyone without relevant community standing (Carpenter et al., 2009; Nagan et al., 2010).

Together, this combination of cultural values and practices makes Achuar communities an interesting place to study ownership norms and to test hypotheses about universal principles of ownership such as first mover principles. On the one hand, respect for individual rights and the valuation of personal effort and industriousness are very strong. Since many if not most

possessions, like homes, gardens, and money, are the products of individual labor, people are justly proud of what they own. At the same time, selfishness and greediness are among the most stigmatized traits in Achuar communities, suggesting that people should not hold on to their possessions too dearly. Resources are given away generously and spontaneously, often with no expectation of thanks or compensation of any kind.

What does this mean for ownership psychology in Achuar communities? Some features mentioned above, such as strong individualism and respect for personal labor and effort, might lead us to expect norms such as norms of first possession, pursuit, or effort in determining ownership. On the other hand, this is a society where resources, even hard-earned ones, trade hands routinely and with little fuss. What does this mean when two people have competing claims to the same object, as in the vignette-style scenarios that are typically used to test ownership rules in psychology? Perhaps it means that rules such as first possessor or first pursuit will not be seen as definitive tie-breakers or adjudicators of ownership, as they are seen in some other societies. Given that resources such as land and meat are thought of quite differently, perhaps different rules could apply to different domains of ownership. Because land is held communally, who finds a piece of land first might not be regarded as bestowing ownership. Instead, principles of stewardship based on current use or maintenance might override a first possessor rule. For hunted foods, while we expect recognition that a particular hunter was first to capture or possess the prey, it is not clear whether this will lead to judgments of ownership, or how competing principles of effort and first possession might trade off.

Here, we investigated these questions using experimental vignette methods like the ones used in many psychological studies of ownership, in which participants were presented with scenarios where two individuals had potential claims to ownership. We examined ownership intuitions in two distinct but culturally relevant domains: land, and hunting.

In our scenarios, there was always a first possessor. Thus, across all scenarios we were able to construct statistical models that estimated the probability of judging in favor of the first possessor. However, we also varied other factors that might weigh against first possessor judgments. We varied the amount of effort used by the second party to obtain the item. Crucially, in the hunting scenarios, the first possessor was always the one to exert less effort but ended up possessing the animal. In the land scenarios, the second party ended up building a house on the land, contrasting the use / stewardship principle with first possession. Additionally, we varied whether the land in question was considered communal land or not.

For comparability to prior studies in psychology reviewed above, we used an experimental vignette method, tailored so that the scenarios were culturally appropriate to the Achuar, but could also be understood by a sample of U.S. participants, who we recruited via the Amazon mTurk platform.

## **Methods and materials**

### **Participants**

#### *Achuar sample*

We recruited Achuar participants in the village of San Lorenzo<sup>1</sup>, located on the north bank of the Pastaza River in Pastaza Province in southeastern Ecuador, in the summer of 2018. Participants were 35 adults (Mean age= 29.1 years), 19 men and 16 women. The interviews were conducted in Spanish by the first author and generally took between 60 and 90 minutes. The order of vignettes and questions was randomized across participants, in a within-subjects design. Most participants in the study do not read or write. Paraphrasing was not often needed unless a

---

<sup>1</sup> This is a pseudonym for the community.

participant asked for a clarification of the vignette and the questions being asked. Participation was voluntary and was compensated with a one-time payment.

### ***mTurk (U.S.) sample***

We recruited U.S. participants on the Amazon Mechanical Turk platform, in the 2018 academic year. Materials were presented via the Qualtrics platform, in English. The design was between-subjects, and order of questions was randomized within subjects. Surveys were conducted with 1935 U.S adults (Mean age= 38.89), 960 males and 975 females. Participants were granted an hour time window to complete the survey (mean time of completion 28.5 minutes). Participation was voluntary and compensated with a one-time payment. Participants were prescreened for repeat participation, English fluency, minimal completeness, and the correct answering of attention questions. Participants who failed to answer the attention check questions or responded too quickly were excluded from the survey.

## **Materials**

### ***Vignette format***

Materials consisted of a series of vignettes, each describing a scenario with two agents as potential owners of an object. Materials consisted of a series of vignettes across three domains: Hunting, Land, and Artifacts. Each domain contained of four vignettes. The Artifact scenarios were intended as a pilot to examine issues of intellectual property and were not parallel in design with the Hunting and Land scenarios. Data from this pilot are not reported here.

Each participant in the Achuar sample received all 12 vignettes in a within-subjects design. mTurk participants each received four vignettes within one domain, in a between-subjects design. The order of vignettes and questions was randomized across participants.

Each vignette was a story about two agents (characters), both men, with different personal histories with respect to the potentially owned object: a hunted animal in the Hunting scenarios, and a plot of land in the Land scenarios. In each case, one individual came to possess the item: this is the character we will call the first possessor. Participant judgments were always binary, and we coded judgments in favor of the first possessor as “1”. Judgments in favor of the other party were coded as “0,” allowing us to construct logistic models of the data.

While each scenario had an unambiguous first possessor, we varied other factors across the scenarios that might weigh against first possessor judgments. For example, we varied the amount of effort the second party exerted to obtain the item, such that the second party’s effort was always equal to or greater than that of the first possessor, creating a conflict with first possession as the deciding factor. In the Hunting scenarios we contrasted three levels of effort, and the Land scenarios two. In addition, in the land scenarios the second party was always the one to actually build a house on the land, contrasting a principle of use or stewardship with the principle of first possession. In addition, we varied whether the land was communal or non-communal, which might influence judgments about the implications of first possession.

In addition to Ownership judgments, we investigated several other judgment DVs: Deserves (who deserves the item?), Entitled (who is entitled to the item?), and, in the Hunting scenarios, Credit (who deserves credit for the hunted animal?). See the Supplementary Materials (SM) section S1 for full texts of vignettes and DVs in English, and section S2 for full texts in Spanish.

### ***Hunting scenarios***

We designed four hunting scenarios which factorially varied levels of effort used by the first possessor to obtain the prey: Medium Effort, Low Effort, and No Effort (always contrasted

with a high level of effort by the second party). The text of the Medium Effort vignette was as follows:

*There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John [Kunampi], sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go down, another man, William [Nanki], decides to go out by himself and look for the animal. William notices the animal a short distance away from him. William takes the animal.*

In this case, while William (Nanki, in the Achuar scenarios) was the first possessor of the animal, and exerted some effort to obtain it, John (Kunampi) had exerted higher effort.

Participant judgments in favor of William were coded as first possessor judgments (“1”).

The DV questions asked participants their judgments about whether the first possessor (or the other party) owned, was entitled to, deserved, and should get credit for the hunted item (DV names: Ownership, Entitled, Deserves, Credit). After the DV questions, Achuar participants were given an opportunity to explain their answers. Due to time limitations for mTurk participants, we did not ask for free responses following the DV questions in the mTurk sample.

The DV questions were as follows.

**Owner:** *Of the two men, John and William, in your opinion who is the owner of the meat?*

**Entitled:** *Of the two men, John and William, in your opinion who is entitled to the meat?*

**Deserves:** *Of the two men, John and William, in your opinion who is deserving of the meat?*

**Credit:** *Of the two men, John and William, in your opinion who deserves credit for finding the meat?*

In addition to the Hunting vignette scenarios reported here, we ran several additional scenarios which differed from the primary scenarios in several ways and are thus not included in

the analyses reported in the main text. These include a High Effort scenario as well as a set of Modified vignettes that address small potential ambiguities in the original vignettes. These are reported and analyzed in the Supplementary Materials (see SM section S3).

### ***Land scenarios***

The Land scenarios factorially varied levels of effort used to obtain the land: High Effort and Low Effort. This was crossed with a second factor, Communal, and Non-Communal Land, to align with Achuar norms about the use of Community vs non-Community land use. In addition, while the first possessor was described as arriving and taking possession of the land first, the second party was described as the first to build a house.

The text of the Communal / High Effort vignette was as follows:

*John [Kunampi] has been out walking for several days by himself, looking for a new plot of land to build his house on. He comes across a piece of land in a remote area with lots of undeveloped land that is perfect for building a house: it is high on a hill with a stream below. Satisfied that he has found the place he will begin to build his house, he takes off his backpack and puts down his machete and falls asleep. This plot of land is on communal land. Another man not related to John, William [Nanki], has also been walking around for several days looking for a plot of land to build his house. William walks by the same piece of land that John saw, but does not notice him sleeping. It is exactly the kind of land he is looking for. William decides to build his house on this plot of land.*

In these vignettes, John was the first possessor of the land, and judgments in favor of John were coded as first possessor judgments (“1”).

The DV questions asked participants their judgments about whether the first mover (or the other) owned, was entitled to, and deserved the land (DV names: Ownership, Entitled, Deserves). Credit as a DV was excluded from the Land scenarios as it is typically not a way of

framing rights to Land from an Achuar point of view. After the DV questions, Achuar participants were given an opportunity to explain their answers. Due to time limitations for mTurk participants, we did not ask for free responses following the DV questions in the mTurk sample.

The DV questions were as follows.

*Owner: Of the two men, John and William, in your opinion who is the owner of the land?*

*Entitled: Of the two men, John and William, in your opinion who is entitled to the land?*

*Deserves: Of the two men, John and William, in your opinion who is deserving of the land?*

## **Results**

For all analyses described here, we modeled the data using multilevel Bayesian regression modeling. Participant responses were modeled using *brm* in the *brms* package in R version 3.6.2 (R Core Team, 2022; Chung et al., 2013).

For each model we fitted participant responses where 1 represented judgments in favor of the first possessor of the item. Factors such as Population (mTurk vs Achuar) and features of the vignettes (e.g., Effort) were modeled as combinations of fixed or random factors, along with various interaction terms. In each model, we used a Bernoulli distribution as a likelihood function to estimate the probability of responding in favor of a first possessor. We used weakly regularizing, noninformative priors centered at zero.

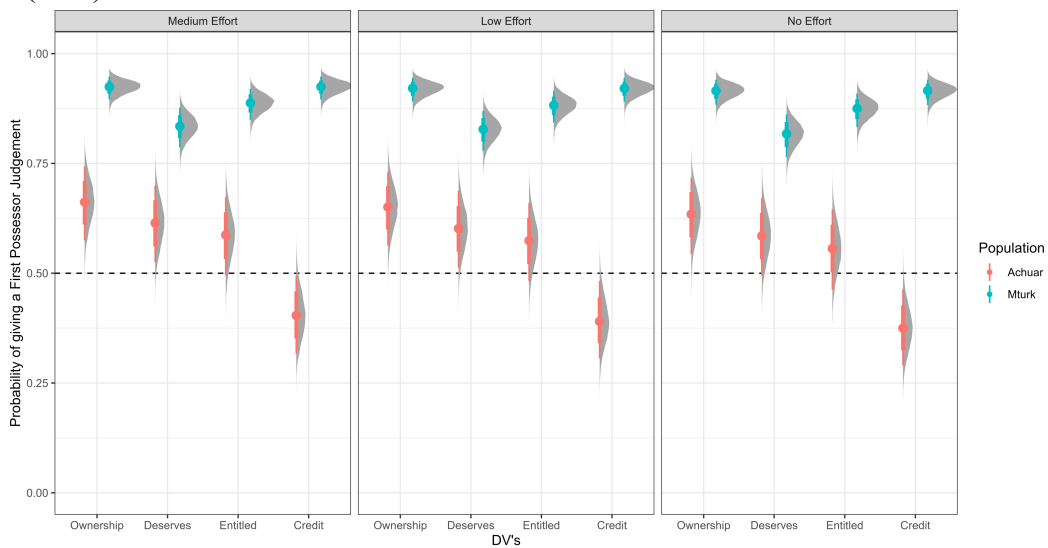
For each model we provide a table that reports, for each factor estimated in the model, the median of the posterior distribution, a credible interval (CI) based on the 90% HDI (High Density Interval) of the posterior, and the probability of direction (pd)—a variable that ranges between .5 and 1.0 and represents the certainty which with an effect goes in a particular direction, either positive or negative (pd = 0.5 indicates no directional effect, and pd = 1.0 equals a highly directional effect of the factor in question). Figures show estimated posterior distributions

of specific combinations of factors investigated in the models. Tables in the Supplementary Materials report estimates of those distributions (medians and 90% HDIs) for each specific combination of factor values shown in the plots (see SM section S5). Where relevant, we report some of these statistics in the main text.

### Hunting scenarios

For the Hunting scenarios, participants' probability of first possessor responses across Medium Effort, Low Effort, and No Effort scenarios, broken down by Population, Effort of first possessor, and DV are shown in Figure 1.1

**Figure 1.1 Probability of First Possessor Judgments across Hunting scenarios.** Points are the median estimates of the posterior distribution and intervals are the 67% and 90% highest density intervals (HDI).



For the Hunting scenarios we constructed two models: one model (Model 1) for all the DVs (Ownership, Credit, Deserving, Entitlement), and another model (Model 2) for the Ownership DV only.

**Model 1: First possessor judgments for all DVs across Hunting scenarios**

In Model 1 we fitted participant responses where 1 represented judgments in favor of the first possessor if the hunted item. Participant Population (Achuar vs mTurk) was modeled as a fixed factor, with interaction effects for Population x DV. Sex of participant was modeled as a fixed factor. Effort of the first possessor (Medium, Low, None) was treated as a random factor.

Parameter estimates of Model 1 are shown in Table 1.2.

**Table 1.2. Parameter estimates of Model 1: First Possessor Judgments for all DVs across Hunting scenarios**

Variable	Median	90% CI	pd
Population (1=mTurk)	1.85	[1.37, 2.37]	1
Sex (1=Male)	-0.04	[-0.28, 0.18]	.623
Population (mTurk) x Question: Deserves	-0.90	[-1.35, -0.48]	.999
Population (mTurk) x Question: Entitled	-0.45	[-0.92, 0.01]	.947
Population (mTurk) x Question: Credit	-0.02	[-0.57, 0.46]	.533
Population (Achuar) x Question: Deserves	-0.19	[-0.67, 0.27]	.752
Population (Achuar) x Question: Entitled	-0.32	[-.80, 0.14]	.873
Population (Achuar) x Question: Credit	-1.07	[-1.55, -0.61]	.999

Model 1 showed a strong main effect of population: mTurk participants displayed a stronger pattern of judging in favor of the first possessor of the Hunted animal than did Achuar participants (*Med.* = 1.85, 90% CI: 1.37, 2.37, *pd* = 1). Inspection of Figure 1 shows that first possessor judgments in the mTurk sample were robust across the board for all DVs, though they were strongest for Ownership and Credit, and slightly weaker for Deserves and Entitled. For Ownership, posterior expected probabilities of judgments in favor of first possessors were 0.92, 0.92, and 0.92 for Medium, Low, and No Effort scenarios respectively, all with 90% CIs excluding 0.5 (See SM Table S4 for full breakdown of median estimates of the posterior

distribution for Model 1). This pattern replicates prior findings in the psychology literature of a robust first possessor heuristic in the U.S.

Judgments of the Achuar participants also showed evidence for a first possessor bias for Ownership in this domain, although it was much weaker than for U.S. participants. For Ownership, posterior expected probabilities of judgments in favor of first possessors were 0.66, 0.65, and 0.63 for Medium, Low, and No Effort scenarios respectively, all with 90% CIs excluding 0.5 (See SM Table S4). Like the U.S. sample, biases towards the first possessor were weaker for the DVs Deserves and Entitled. For the DV Credit, however, Achuar participants showed a bias against first possessors, in contrast to the U.S. sample (posterior medians were 0.40, 0.39, and 0.29 for Medium, Low, and No Effort scenarios respectively, all with 90% CIs excluding 0.5) (See SM Table S4).

***Model 2: Ownership DV alone, with Effort as a fixed factor***

Model 2 examined Ownership judgments alone. In Model 2 we fitted participant responses where 1 represented Ownership judgments in favor of the first possessor if the hunted item. Sex of participant was modeled as a fixed factor. Effort of the first possessor (Medium, Low, None) was modeled as a fixed factor, with interaction effects for Population x Effort. Participant Population (Achuar vs mTurk) was treated as a fixed factor.

Parameter estimates of Model 2 are shown in Table 1.3.

**Table 1.3. Parameter estimates of Model 2: First Possessor Judgments of Ownership across Hunting scenarios**

Variable	Median	90% CI	pd
Population (1=mTurk)	1.32	[0.50, 2.14]	.996
Sex (1=Male)	-0.13	[-0.63, 0.36]	.670
Vignette: Low Effort	-0.44	[-1.32, 0.39]	.809
Vignette: No Effort	-0.62	[-1.48, 0.21]	.886
Population(mTurk) x Vignette: Medium Effort	1.23	[-1.57, 3.52]	.830

Population(mTurk) x Vignette: Low Effort	1.23	[-0.02, 2.53]	.947
Population(mTurk) x Vignette: No Effort	0.57	[-0.56, 1.70]	.793

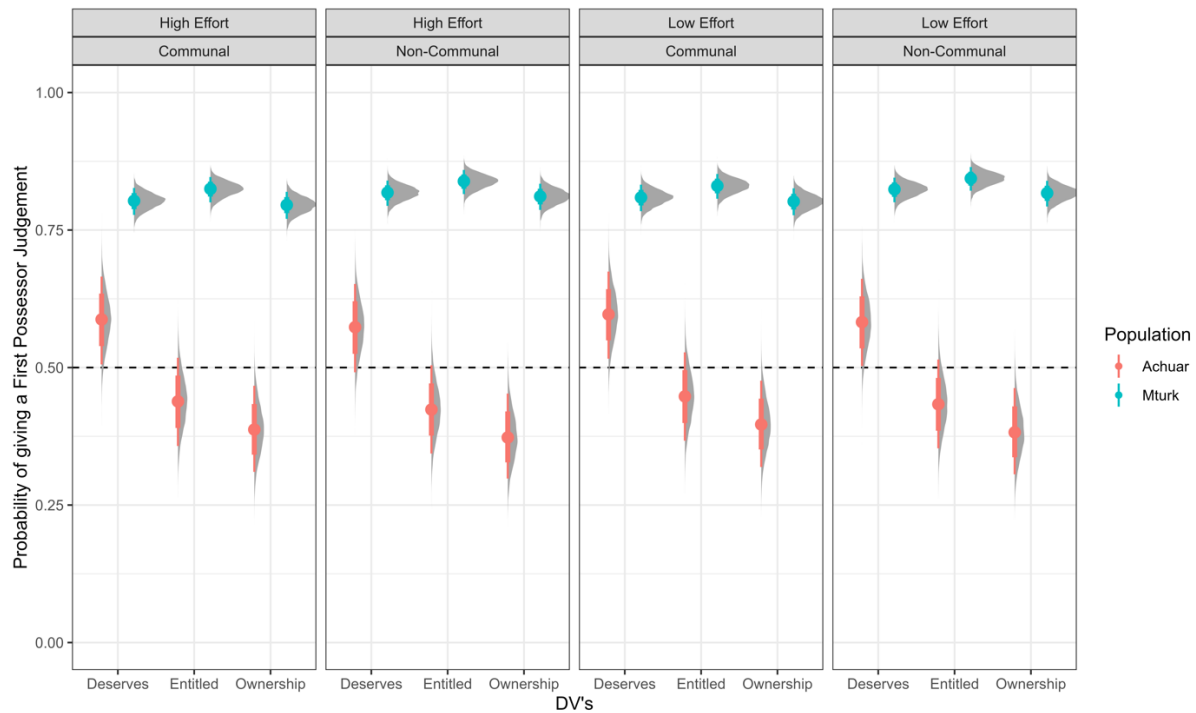
Model 2 confirmed a large main effect of population seen in Model 1, but this time isolating the effect of the Ownership DV. For Ownership, mTurk participants displayed a stronger pattern of judging in favor of the first possessor of the hunted animal than did Achuar participants (*Med.* = 1.32, 90% CI: 0.50, 2.14, *pd* = .996). We modeled Effort as a fixed factor to see if there were main effects of decreasing effort on likelihood of assigning ownership to a first possessor across the scenarios, and we found directional but non-significant effects where Low and No Effort slightly reduced the probability of first possessor judgments across populations (medians for Low and No Effort were negative but the 90% CIs for both included zero; see Table 1.3).

Achuar participants' free response data offered some insights into the reasons for their judgments. Of 35 participants (19 men, 16 women), 8 men gave free response justifications for their answers. 6 responses said either that "Nanki [William, the first possessor] was first" or "Nanki had it first." Two others recognized Kunampi's effort (and one saying he deserved credit for the search) but still pointed out that Nanki got the prey first. While only a minority of participants offered free responses, the responses that were made point to a first possessor principle as the reason underlying the Achuar pattern of judgments.

### **Land scenarios**

Participants' probability of first possessor responses across all four Land scenarios, broken down by Population, Effort of first possessor, and DV are shown in Figure 1.2.

**Figure 1.2 Probability of First Possessor Judgments across Land scenarios.** Points are the median estimates of the posterior distribution and intervals are the 67% and 90% highest density intervals (HDI).



As we did for the Hunting scenarios, we constructed two models: one model (Model 3) for all the DVs (Ownership, Deserves, Entitled), and another model (Model 4) for the Ownership DV only.

***Model 3: First possessor judgments for all DVs across Land scenarios***

In Model 3 we fitted participant responses where 1 represented judgments in favor of the first possessor of the land. Participant Population (Achuar vs mTurk), Effort (High vs Low) and Land Type (Communal vs non-Communal) were modeled as fixed factors.

Parameter estimates of Model 3 are shown in Table 1.4.

**Table 1.4. Parameter estimates of Model 3: First Possessor Judgments for all DVs across Land scenarios**

Variable	Median	90% CI	pd
Population (1=mTurk)	0.86	[0.45, 1.25]	1
Effort: Low Effort	-0.26	[-0.58, 0.07]	.904
Type: Non-Communal	-0.06	[-0.38, 0.26]	.616
Population (mTurk) x Question: Entitled	0.15	[-0.03, 0.32]	.913
Population (mTurk) x Question: Ownership	-0.05	[-0.22, 0.13]	.670
Population (Achuar) x Question: Entitled	-0.62	[-1.01, -0.22]	.993
Population (Achuar) x Question: Ownership	-0.83	[-1.22, -0.43]	.999
Population (mTurk) x Type: Non-Communal	0.16	[-0.20, 0.52]	.770
Population (mTurk) x Effort: Low Effort	0.38	[0.02, 0.73]	.961

Model 3 showed a large main effect of population for first possessor judgments across DVs in the Land scenarios. mTurk participants displayed a stronger pattern of judging in favor of the first possessor of the of Land than did the Achuar participants (*Med.* = 0.86; 90% CI = .45, 1.25, *pd* = 1). These results provide strong evidence for a first possessor norm for land in the U.S. population, one that stretches across the DVs and factors we manipulated. (See SM Table S6 for more details).

For Achuar participants, only for the DV Deserves did we see judgments biased towards the first possessor, and the HDIs for this variable exceeded 0.5 only in the High Effort / Communal (*Med.* = 0.625) and High Effort / Non-Communal (*Med.* = 0.611) conditions. For the variables Entitled and Ownership, judgments were weakly biased against the first possessor in all conditions, in some cases significantly. The 90% CIs did not include 0.5 for Ownership in High Effort / Non-Communal (*Med.* = 0.408), Low Effort / Communal (*Med.* = 0.360) and Low Effort / Non-Communal conditions (*Med.* = 0.347). For Entitled, judgments against first possessors were significant (HDI not including 0.5) in the Low Effort, Non-Communal condition (*Med.* = 0.396) (See SM Table S6 for details).

**Model 4: Ownership DV alone, with Effort as a fixed factor**

As we did for Hunting scenarios, we constructed a separate model just with the Ownership DV responses. Population, Effort, and Land Type were modeled as fixed factors, with interaction terms between Population x Effort and Population x Type.

Parameter estimates of Model 4 are shown in Table 1.5.

**Table 1.5. Parameter estimates of Model 4: First Possessor Judgments for Ownership across Land scenarios**

First Possessor Bank	Median	90% CI	pd
Population (1=mTurk)	1.93	[1.37, 2.48]	1
Effort: Low Effort	0.25	[-0.33, 0.82]	.758
Type: Non-Communal	-0.002	[-0.59, 0.57]	.503
Population (mTurk) x Effort: Low Effort	-0.19	[-0.82, 0.43]	.687
Population (mTurk) x Type: Non-Communal	0.15	[-0.48, 0.79]	.651

Model 4 confirmed a large main effect of population on first possessor judgments for Ownership in the domain of Land. mTurk participants displayed a stronger pattern of judging in favor of the first possessor of the Land than did Achuar participants (*Med.* = 1.93, 90% CI: 1.37, 2.48, *pd* = 1). Neither of the factors we manipulated, Effort and Land Type, had significant effects on judgments in either population (90% CI included zero; see Table 1.5).

Again, Achuar participants' free responses offer some insight into the patterns of responses. Of 35 participants (19 men and 16 women), 6 men gave free responses, and these generally point to the fact that Nanki (the second to arrive) altered or modified the land by building a house. Examples include: "Nanki altered the land first," "Nanki built his house on the land before Kunampi," and "Nanki made an effort to build his house... Kunampi was there first, but he didn't build his house." All of these suggest that while first possession is recognized, it is actually using the land by building a house there that gives one ownership. This is consistent

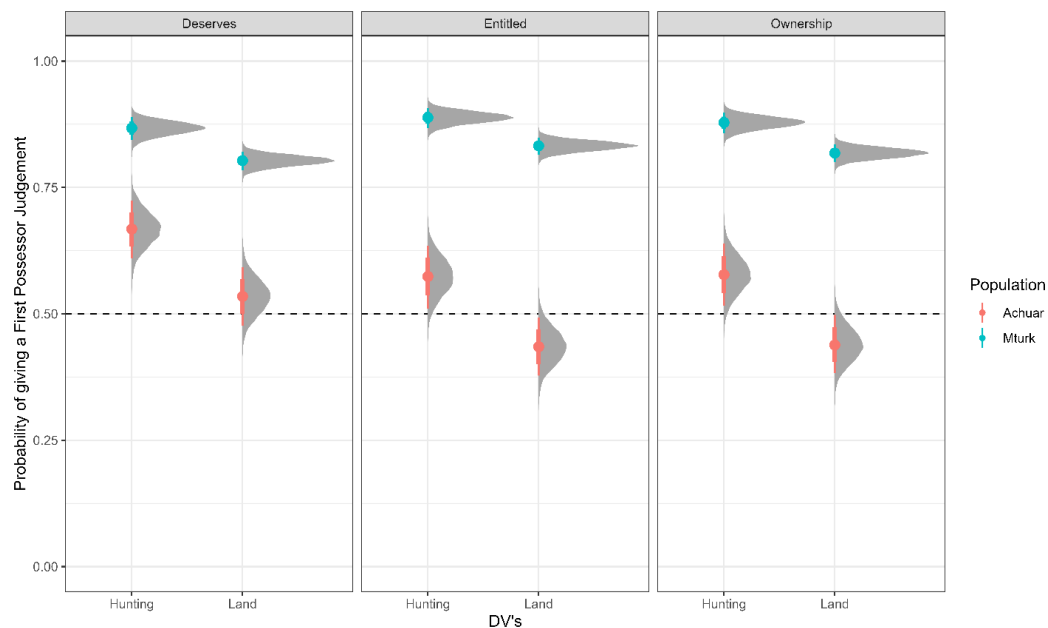
with Achuar norms of land use described in the ethnographic literature reviewed above (Descola, 1982).

### **Analyzing first possessor norms across Hunting and Land domains**

Taken together, the results of the Hunting and Land scenarios paint a picture of population differences in first possessor norms. Americans (at least as represented by our mTurk sample) show strong first possessor norms across all the DVs and factor manipulations for two domains, Hunting and Land. In contrast, Achuar participants showed several effects. First, they exhibited weaker first possessor norms overall. Second, ownership judgments were significantly biased towards first possessors in the domain of Hunting, but not for land. And, unlike the mTurk sample, Achuar participants sometimes exhibited judgments biased against first possessors for some combinations of DVs and domains. In the case of land, it is likely that the second party's building a house on the land was deemed more important than first possession.

To summarize how judgments differed across the Hunting and Land domains across both populations, we analyzed judgments for the three DVs that were in common across Hunting and Land domains in a single statistical model. Responses across the Hunting and Land domains, broken down by DV and Population, are shown in Figure 1.3.

**Figure 1.3. Probability of First Possessor Judgments across Hunting and Land scenarios.** Points are the median estimates of the posterior distribution and intervals are the 67% and 90% highest density intervals (HDI).



***Model 5: Comparing first possessor judgments across Hunting and Land domains***

To examine first possessor judgments across Hunting and Land domains, we constructed a final model, Model 5, that included data from both Hunting and Land scenarios in a single model. Because there were three DVs that were shared across the Hunting and Land scenarios, Ownership, Deserves, and Entitled, we included these and modeled them as fixed factors so we could examine the separate effects of each. We also included Population as a fixed factor. Because Effort was treated differently across the Hunting and Land scenarios, and because Communal vs non-Communal was not manipulated in the Hunting scenarios, we did not include these factors in the model. Instead, this model allowed us to estimate the size of the overall population difference in first possessor norms across the Hunting and Land domains, as well as to estimate variance in first possessor bias across the three DVs of Ownership, Deserves, and Entitled. We also included interaction terms for Population x Domain.

Results of Model 5 are shown in Table 1.6.

**Table 1.6. Parameter estimates for Model 5: First Possessor Judgments across Hunting and Land scenarios**

First Possessor Bank	Median	90% CI	pd
Population (1=mTurk)	1.18	[0.85, 1.51]	1
Question: Entitled	-0.40	[-0.71, -0.11]	.986
Question: Ownership	-0.39	[-0.69, -0.09]	.983
Domain: Land	-0.56	[-0.81, -0.31]	1
Population: mTurk x Domain: Land	0.09	[-0.23, 0.40]	.676
Population: mTurk x Question: Entitled	0.59	[0.26, 0.95]	.998
Population: mTurk x Question: Ownership	0.48	[0.15, 0.82]	.991

Model 5 confirms a large main effect of population in first possessor judgments across Hunting and Land scenarios: mTurk participants displayed a stronger pattern of judging in favor of the first possessor across the Hunting and Land domains than did Achuar participants (*Med.* = 1.18, 90% CI: 0.85, 1.51, *pd* = 1). The mTurk participants showed consistently strong first possessor biases across the board, with all median estimates of the posterior distribution above 80% probability of judging in favor of first possessors (See SM Table S8).

For the Achuar participants, as earlier models showed, first possessor judgments were much weaker than for the mTurk participants, and were only consistently, albeit weakly, in favor of first possessors for Hunting (all 90% CIs excluded 0.5). In the Land domain, on the other hand, both Entitled and Ownership judgments were biased weakly against first possessors, with approximately a 38% probability of judging in favor of first possessors in each case (90% CIs for both excluded 0.5). In the case of Land, Achuar participants only judged in favor of first possessors for the variable Deserves (*Med.* = 0.54) (See SM Table S8).

## Discussion

Our results yield several main conclusions. On the one hand it seems that across both domains examined here, American participants positively attributed rights in favor of the first

possessor, regardless of the domain (Hunting vs Land), effort utilized by the other party, and the DV measured. Achuar participants, on the other hand, exhibited a weaker first possessor bias for ownership than Americans in the domain of Hunting, and no first possessor bias for ownership in the domain of Land. In contrast to the mTurk participants, Achuar participants' judgments were more variable across DVs and domains, and in some cases were weakly biased against first possessors. We believe these differences make sense in light of the different cultural backgrounds of these two groups of participants. The patterns of judgment by Americans, strongly in favor of first possessors in all cases, are consistent both with prior literature and the historical role of ideas of first possession in American and European culture and law (Lueck, 1995). Similarly, the nuanced patterns of judgment by Achuar participants are consistent with cultural values we have observed and that have been reported in the ethnographic literature that we surveyed above.

Our statistical analysis found not only that the bias in favor of first possessors was much stronger in the American (mTurk) sample than for Achuar—the largest statistical effect size in any of our models—it was also strong across the board, for all of our DVs. Notably, for the case where Achuar first possessor judgments about ownership reversed—for land, where house building overrode first possession—the first possessor bias for mTurkers dropped slightly, though still remained robustly in favor of first possessors. This suggests that for Americans (at least as represented by this sample), first possession is a strong enough principle to override all of the other factors we tested here, even though these other factors can, in some cases, slightly modulate the strength of the first possessor bias.

While we cannot say for sure exactly what combination of values and beliefs explains the strong, across the board first possessor bias in Americans, we note that it is consistent not only with the prior literature on first possessor norms in psychology, but also with the importance of

first possession in U.S. law, including the idea underlying the Homesteading Act, i.e., that Indigenous land was “unowned” and therefore could be appropriated by the first colonial settlers to arrive (Lueck, 1995).<sup>2</sup> More broadly, the strength of first possessor biases in this sample might reflect what has been called the value of “possessive individualism” that underlies classical liberalism (and now, neoliberalism) as theorized by scholars such as Hobbes and Locke (MacPherson, 1962; Harvey, 2007). The fact that, to an American, *everything* can be individually owned might make a principle like first possession more intuitively natural or appealing.

For Achuar participants, on the other hand, first possession was clearly not as strong a principle as it was for the mTurkers. It played a role in their judgments, but only in some situations, and we found evidence that other factors weighed against first possession to a much greater degree than for the Americans.

In the Hunting scenarios, we found evidence that Achuar people do assign ownership to the first person to capture a game animal, and this was reflected in participants’ free responses (e.g., “Nanki had it first”). This resonates with our experience and the ethnographic literature on how hunted game is treated in these communities (Descola, 1996). Unlike in some other Indigenous hunting communities where ownership is not recognized and there are rules for who, outside the hunter, partitions the food (Gould, 2019; Woodburn, 1998), Achuar communities do recognize the person who killed the animal as the owner. However, as reviewed above, there are also extremely strong sharing and generosity rules that seem to go against an idea of “possessive individualism” with regard to meat. The successful hunter is indeed the “owner,” but an ethical

---

<sup>2</sup> Note that Indigenous peoples in the Americas also frequently considered most land to be “unowned,” precisely because the idea of permanent, exclusive individual ownership of land was not part of their system of governance. There are many historical reports of Indigenous Americans freely allowing European settlers to build homes, graze livestock and grow crops according to local norms of use and stewardship. What was puzzling to Native Americans was the idea of granting deed or title to individual owners with rights of exclusion in perpetuity, a clash of principles that continues to this day (Carpenter et al., 2009).

hunter will share the bounty of the hunt widely, and often intentionally not keep the best or most valuable pieces for himself. Perhaps consistent with this, we found that Achuar participants tended to be slightly biased against first possessors in terms of “credit,” perhaps indicating that while we should recognize the hunter who killed an animal as having the right to distribute it, we should not inflate his ego too much. In traditional Achuar contexts hunting is an ordinary, daily task to bring food to the table, so receiving special kudos for such a mundane domestic duty might seem excessive.

In contrast to the Hunting scenarios, Achuar participants did not judge in favor of first possessors (or, more accurately, first arrivers) when it came to assigning ownership of land. Crucially, all of our scenarios pitted first possession against use, or improvement, of the land, and this appeared to sway people’s judgments in favor of the home builder, as evidenced by their free responses (e.g., “Nanki built his house on the land before Kunampi”).<sup>3</sup> Again, as reviewed above, this is consistent with views in Achuar and other Indigenous Amazonian communities that see land ownership as a process of stewardship that requires constant maintenance and renewal, and is not static (Descola, 1982; Brightman, 2010; Viegas, 2016). Nobody has a claim to land merely because of having seen it, or set foot on it. It is actual use of the land, through action aimed at productivity and family life such as building a house or clearing a garden, that bestows rights—but even then, these are not seen as permanent, and must be continually maintained and renewed. Again, here, the judgments that went the other way are perhaps revealing: the first arriver was recognized as potentially “deserving” the land, but the first builder

---

<sup>3</sup> Technically, this was not stated directly in the scenario but had to be inferred. Based on their free responses, however, this appears to be what most participants inferred from the scenario, because Nanki was mentioned second as intending to build his house, while Kunampi napped. One participant even mentioned this explicitly: “Nanki [is the owner] because he took the time to build his house first... Kunampi was lazy.”

beat the first possessor to the punch in building a house there, and is therefore regarded as the legitimate owner.

In summary, our findings present only weak evidence in favor of a first possessor heuristic for ownership as a cross-cultural universal. While we did find a modest first possessor bias for ownership among Achuar participants in the case of hunting, we did not find it for land. Moreover, the first possessor bias among mTurkers was extremely strong across all DVs and contexts, unlike for Achuar. This suggests that use of a first possessor heuristic in ownership judgments may be strongly influenced by cultural background. Americans, and perhaps Westerners in general, may be particularly prone to use this heuristic.

Our findings add to a growing call for caution in generalizing from specific cultural samples to the rest of the world (Barrett, 2020). For many aspects of human psychology, including and perhaps especially for heavily culturally shaped phenomena such as ownership, studies conducted in the U.S. and Europe may have limited generalizability. While an evolved ownership psychology might exist in humans, it could be impacted far more by cultural differences and cultural history than initially suggested in the literature on the psychology of ownership.

## **Conclusion**

This study illustrates divergent patterns of judgment about ownership between Achuar and Americans. Achuar people do not simply use an “I had it first” intuition to attribute rights to resources across the board, in contrast to previous findings from studies in Western societies. In Achuar communities, willingness to grant ownership to a first possessor is more context dependent than in the American communities from which our mTurk sample was drawn. Together, these findings suggest that first mover norms may not be as cross-culturally universal as previously assumed.

Our results raise many additional questions for future studies to address, and about which we can only conjecture here. One concerns the reasons for the cultural differences that we observed. Another concerns the generalizability of the results, both to other domains and populations and even within the populations studied here, given the experimental, vignette-based nature of the materials.

What are the reasons for the population differences we observed? Our conjecture is that these differences stem from differences in cultural norms about ownership, but as we did not observe or measure these norms directly, we cannot say for sure. However, the findings do make sense considering the ethnographic observations about Achuar society that we reviewed in the introduction, as well as what is known about ownership norms and laws in the contemporary U.S.

For Americans, there is a much longer and more deeply entrenched cultural and legal tradition of possessive individualism that renders nearly everything ownable by individuals (MacPherson, 1962). Within this context, legal scholars have argued that first possession is the key factor that should adjudicate who owns what (Lueck, 1995). For Americans, most food is purchased at the store and therefore, upon first possession, unambiguously owned. Americans also appear to have a strong ethos and history of claiming land through the use of a perceived first possession claim (i.e., not acknowledging the Indigenous people who were first on the land). This is exemplified by the notion of “manifest destiny” and the generous U.S. policy of granting land to the first colonial settlers to arrive there, as in the U.S. Homestead Act of 1862 (Lueck, 1995).

Achuar social norms, on the other hand, tend to reflect a balance between norms of personal autonomy and norms of community sharing, which makes it difficult for individuals to exert strong claims to hold on to items merely because of physically possessing them. Consistent

with this, while ownership of hunted meat by the person who caught it is recognized, hunters are expected to share, and exerting a right of exclusion (often seen as the defining feature of ownership in Western societies) would be seen as odd. For land, the right to make use of a piece of land is recognized as a form of community sanctioned stewardship, but first possession is not considered the ultimate right to possession, as it is in the U.S. The judgments of Achuar participants in our study reflected these principles.

Our study raises unanswered questions about the generalizability of the results. First, there is the question of the external validity of our vignette-based findings. To what degree would peoples' judgments in these vignettes extend to their judgments about ownership in real-life situations? This is always a drawback of vignette-based studies as opposed to behavioral observation. However, we believe that vignette-based studies are likely to tap into norms, in that these are participants' explicit statements about who owns or is entitled to something in a hypothetical situation. Whether such norms actually determine ownership in real life is a different question, but that is true for nearly every prior study, in the psychology literature at least.

Finally, there is the question of how our findings in the domains of Hunting and Land might extend to other domains, such as ownership of human-made artifacts, natural resources, or intellectual property. These are important questions for future research, but there are reasons to suspect that our findings reflect more general differences between Achuar and American attitudes, values, and worldviews. Americans robustly show first possessor intuitions and Achuar show both weaker first possessor judgments as well as variation in judgments across the domains of Land and Hunting, suggesting that Achuar judgments about first possession could be both weaker and more variable across other domains, such as artifacts or information. Additionally, our results dovetail with the ethnographic observations we have made about the values and

attitudes of Achuar communities with respect to ownership, and the differences we have noted from American society. Together, these lead us to expect that our findings of a large difference in first possessor norms is not likely to be unique to these two domains. For example, many Indigenous communities regard cultural knowledge and practices (e.g., ecological knowledge, songs, stories, language) to be communally held and individually possessable, but not “owned” in the highly individualistic way that intellectual property (IP) is treated in U.S. and European law (Brown, 2009; Carpenter et al., 2009; Hammer et al., 2013; Nagan et al., 2010; Riley, 2000). Thus, as we found for hunting and land, we might expect a stronger first possessor bias for individual ownership of intangible property for Americans than for Achuar—a topic for future study.

While this is only a small and preliminary study of ownership intuitions in Achuar communities, we feel that future studies in this community, as well as other Indigenous communities with strong ownership traditions that differ from those of European descendent communities, will be key to painting a fuller picture of the ways that human ownership psychology can vary, and the ways in which it is similar across human communities. Every contemporary human community is an equally valid exemplar of the possible configurations of evolved human psychology, and every contemporary human community has an equally long cultural history. Rather than fetishize some communities as being better or worse examples of evolved human nature, evolutionary social scientists can benefit from studying the full spectrum of contemporary human psychologies as a window into what human nature is and is not.

**Acknowledgments:** We would like to thank the Community of San Lorenzo for their generous participation in our study. This work was supported by the UCLA Graduate Student Research Mentorship Program, The Latin American Institute, and the Geography of Philosophy Project, funded by John Templeton Foundation Grant 60813.

## **Appendix A**

### **Contents**

S1) Vignette texts in English

S2) Vignette texts in Spanish

S3) Analyses of additional data

S4) Additional figures

S5) Tables of posterior estimates for specific factor combinations across models

### **S1) Vignette texts in English**

#### **S1a) Hunting scenarios: Original versions**

*Note: Below are texts of vignettes presented to mTurk participants, results of which are shown in the figures, tables, and analyses in the main text. The High Effort scenario was excluded from analyses presented in the main text, but will be included in supplementary analyses below. In section (S1b), we present Modified versions of these scenarios that were presented to a separate group of mTurk participants.*

#### **High Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. Two people from the village, John and William, leave from the village separately at separate times to look for the animal. They are not hunting together. They both look for the animal until the sun starts going down. Just as the sun begins to go down William, on his own, notices the animal. *However, John, who is closer to the animal than William, takes the animal.\**

*\*Note that this final sentence in which John takes the animal makes this scenario not parallel to the following three, which is why it is excluded from the main analyses. This is remedied in the Modified scenarios in section (S1b).*

### **Medium Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go down, another man, William, decides to go out by himself and look for the animal. William notices the animal a short distance away from him. William takes the animal.

### **Low Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go down, another man, William is walking back from the watering hole by himself. William keeps a lookout his way back to the village in hopes of maybe seeing the animal. William notices the animal a short distance away from him. William takes the animal.

### **No Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go

down, another man, William, is walking back from the watering hole. William notices the animal on his way back to the village. William takes the animal.

### **S1b) Hunting scenarios: Modified versions**

*Note: The following scenarios were run with a separate set of mTurk participants from the analyses presented in the main text, in order to examine possible effects from small ambiguities in the original scenarios. Differences from the Original scenarios are indicated in each vignette, in italics (italics were not presented to participants). Results are analyzed in Section S3, below.*

#### **High Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. Two people from the village, John and William, leave from the village separately at separate times to look for the animal. They are not hunting together. They both look for the animal until the sun starts going down. Just as the sun begins to go down William, on his own, notices the animal. *John notices the animal at the same time as William. However, William, who is closer to the animal than John, takes the animal.\**

*\* Note that there are two differences, in this High Effort scenario, from the Original version. One, parallel to the changes in the following three scenarios, is that both individuals are now described as seeing the animal at the same time. Second, William (rather than John) is now described as taking the animal. This also makes the scenario now parallel with the others.*

#### **Medium Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go

down, another man, William, decides to go out by himself and look for the animal. William notices the animal a short distance away from him. *John notices the animal at the same time as William.* William takes the animal.

### **Low Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go down, another man, William is walking back from the river by himself towards the village. William keeps a lookout his way back to the village in hopes of maybe seeing the animal. William notices the animal a short distance away from him. *John notices the animal at the same time as William.* William takes the animal.

### **No Effort**

There is a society where people occasionally scavenge game animals that have just died for meat. Several people report seeing a small wounded animal wandering by the village in the early morning. A man from the village, John, sets out by himself from the village to look for the animal. John looks for the animal until the sun starts going down. Just as the sun begins to go down, another man, William, is walking back from the river by himself towards the village. William notices the animal a short distance from him on his way back to the village. *John notices the animal at the same time as William.* William takes the animal.

### **S1c) Hunting DV questions**

**Owner:** Out of the two men, John and William, in your opinion who is the owner of the meat?

**Entitled:** Out of the two men, John and William, in your opinion who is entitled to the meat?

**Deserves:** Out of the two men, John and William, in your opinion who is deserving of the meat?

**Credit:** Out of the two men, John and William, in your opinion who deserves credit for finding the meat?

Can you tell me why for any of the responses you gave?

### **S1d) Land scenarios**

#### **Communal High Effort**

John has been out walking for several days by himself, looking for a new plot of land to build his house on. He comes across a piece of land in a remote area with lots of undeveloped land that is perfect for building a house: it is high on a hill with a stream below. Satisfied that he has found the place he will begin to build his house, he takes off his backpack and puts down his machete and falls asleep. This plot of land is on communal land. Another man not related to John, William, has also been walking around for several days looking for a plot of land to build his house. William walks by the same piece of land that John saw, but does not notice him sleeping. It is exactly the kind of land he is looking for. William decides to build his house on this plot of land.

#### **Communal Low Effort**

John has been out walking for several days by himself, looking for a new plot of land to build his house on. He comes across a piece of land in a remote area with lots of undeveloped land: it is high on a hill with a stream below. Satisfied that he has found the place he will begin to build his house, he takes off his backpack and puts down his machete and falls asleep. This plot of land is on communal land. Another man not related to John, William, is walking by the village when he notices the same plot of land that John saw, but does not notice him sleeping. He thinks that this would be a perfect plot of land to build a house. William decides to build his house on this plot of land.

### **Non-Communal High Effort**

John has been out walking for several days by himself, looking for a new plot of land to build his house on. He comes across a piece of land in a remote area with lots of undeveloped land: it is high on a hill with a stream below. Satisfied that he has found the place he will begin to build his house, he takes off his backpack and puts down his machete and falls asleep. This plot of land is not near any village. Another man not related to John, William, has also been walking around for several days looking for a plot of land to build his house. William walks by the same piece of land that John saw, but does not notice him sleeping. It is exactly the kind of land he is looking for. William decides to build his house on this plot of land.

### **Non-Communal Low Effort**

John has been out walking for several days by himself, looking for a new plot of land to build his house on. He comes across a piece of land in a remote area with lots of undeveloped land: it is high on a hill with a stream below. Satisfied that he has found the place he will begin to build his house, he takes off his backpack and puts down his machete and falls asleep. This plot of land is not near any village. Another man not related to John, William, is walking nearby when he notices the same plot of land that John saw, but does not notice him sleeping. He thinks that this would be a perfect plot of land to build a house. William decides to build his house on this plot of land.

### **S1e) Land DV questions**

**Owner:** Out of the two men, John and William, in your opinion who is the owner of the land?

**Entitled:** Out of the two men, John and William, in your opinion who is entitled to the land?

**Deserves:** Out of the two men, John and William, in your opinion who is deserving of the land?

Can you tell me why for any of the responses you gave?

## **S2) Vignette texts in Spanish**

### **S2a) Hunting scenarios**

#### **High Effort**

Hay una sociedad donde le gente de vez en cuando buscan animales que se acaban de morir para obtener la carne del animal. Un día varias personas reportan que han visto un animal pequeño que esta herido errante por la comunidad temprano en la mañana. Dos hombres de la comunidad, Kunampi y Nanki, se van de la comunidad separados a tiempos separados para buscar al animal. No estan casando juntos. Los dos buscan el animal hasta que el sol comience a bajar. Justo cuando el sol comienza a bajar Kunampi, que esta solo, nota el animal. Sin embargo, Nanki quien esta mas cerca al animal que Nanki, se lleva el animal.

#### **Medium Effort**

Hay una sociedad donde le gente de vez en cuando buscan animales que se acaban de morir para obtener la carne del animal. Un día varias personas reportan que han visto un animal pequeño que esta herido errante por la comunidad temprano en la mañana. Un hombre de la comunidad, Kunampi, se va de la comunidad solo para buscar el animal. Kunampi busca el animal hasta que el comienza a bajar. Justo cuando el sol comienza a bajar, otro hombre, Nanki, decide salir solo para buscar el animal. Nanki nota el animal poca distancia de él. Nanki se lleva el animal.

#### **Low Effort**

Hay una sociedad donde le gente de vez en cuando buscan animales que se acaban de morir para obtener la carne del animal. Un día varias personas reportan que han visto un animal pequeño que esta herido errante por la comunidad temprano en la mañana. Un hombre de la comunidad, Kunampi, se va de la comunidad solo para buscar el animal. Kunampi busca el animal hasta

que el comienza a bajar. Justo cuando el sol comienza a bajar, otro hombre, Nanki esta caminando de la fuente de agua solo. En la caminata al la comunidad, Nanki mantiene ojo con la esperanza de encontrar el animal. Nanki nota el animal poca distancia en su regreso a la comunidad. Nanki se lleva el animal.

### **No Effort**

Hay una sociedad donde le gente de vez en cuando buscan animales que se acaban de morir para obtener la carne del animal. Une dia varias personas reportan que han visto un animal pequeño que esta herido errante por la comunidad temprano en la mañana. Un hombre de la comunidad, Kunampi, se va de la comunidad solo para buscar el animal. Kunampi busca el animal hasta que el comienza a bajar. Justo cuando el sol comienza a bajar, otro hombre, Nanki esta caminando de la fuente de agua solo hacia la comunidad. Nanki nota el animal poca distancia en su regreso a la comunidad. Nanki se lleva el animal.

### **S2b) Hunting DV questions**

**Owner:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién es el dueño de la carne?

**Entitled:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién es titulado (derecho) a la carne?

**Deserves:** De los dos hombres, Kunampi y Nanki, en tu opinión, ¿quién merece la carne?

**Credit:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién merece crédito por encontrar la carne?

¿Me puede decir por qué contesto come contesto para alguna de las respuestas que dio?

### **S2c) Land scenarios**

#### **Communal High Effort**

Un hombre, Kunampi, ha estado caminando por varios días solo buscando un pedazo de terreno nuevo para construir su casa en. Se encuentra con un pedazo de terreno en un área remota con gran cantidad de terreno con no ha estado desarrollado. Este terreno es perfecto para construir casa porque esta en una colina alta al lado de una corriente de agua fresca. Satisfecho de haber encontrado el lugar donde comenzará a construir su casa, se quita la mochila, deja el machete y se queda dormido. Este terreno esta en tierra communal. Otro hombre Nanki, que no esta relacionado con Kunampi, también ha estado caminando por varios días buscando un terreno para construir su casa. Nanki camina por el mismo pedazo de terreno que Kunampi vio. Nanki no nota a Kunampi dormido. Es exactamente el tipo de terreno que Nanki ha estado buscando. Nanki decide construir su casa en el terreno.

### **Communal Low Effort**

Un hombre, Kunampi, ha estado caminando por varios días solo buscando un pedazo de terreno nuevo para construir su casa en. Se encuentra con un pedazo de terreno en un área remota con gran cantidad de terreno con no ha estado desarrollado. Este terreno es perfecto para construir casa porque esta en una colina alta al lado de una corriente de agua fresca. Satisfecho de haber encontrado el lugar donde comenzará a construir su casa, se quita la mochila, deja el machete y se queda dormido. Este terreno esta en tierra communal. Otro hombre Nanki, que no esta relacionado con Kunampi, esta caminando por la comunidad cuando nota el mismo terreno que Kunampi vio. Nanki no nota a Kunampi dormido. Nanki piensa que este terreno es perfecto para construir casa. Nanki decide construir su casa en el terreno.

### **Non-Communal High Effort**

Un hombre, Kunampi, ha estado caminando por varios días solo buscando un pedazo de terreno nuevo para construir su casa en. Se encuentra con un pedazo de terreno en un área remota con gran cantidad de terreno con no ha estado desarrollado. Este terreno es perfecto para construir

casa porque esta en una colina alta al lado de una corriente de agua fresca. Satisfecho de haber encontrado el lugar donde comenzará a construir su casa, se quita la mochila, deja el machete y se queda dormido. Este terreno no está cerca a la comunidad. Otro hombre Nanki, que no está relacionado con Kunampi, también ha estado caminando por varios días buscando un terreno para construir su casa. Nanki camina por el mismo pedazo de terreno que Kunampi vio. Nanki no nota a Kunampi dormido. Es exactamente el tipo de terreno que Nanki ha estado buscando. Nanki decide construir su casa en el terreno.

### **Non-Communal Low Effort**

Un hombre, Kunampi, ha estado caminando por varios días solo buscando un pedazo de terreno nuevo para construir su casa en. Se encuentra con un pedazo de terreno en un área remota con gran cantidad de terreno con no ha estado desarrollado. Este terreno es perfecto para construir casa porque esta en una colina alta al lado de una corriente de agua fresca. Satisfecho de haber encontrado el lugar donde comenzará a construir su casa, se quita la mochila, deja el machete y se queda dormido. Este terreno no está cerca a la comunidad. Otro hombre Nanki, que no está relacionado con Kunampi, está caminando cerca de este terreno cuando nota el mismo terreno que Kunampi vio. Nanki no nota a Kunampi dormido. Nanki piensa que este terreno es perfecto para construir casa. Nanki decide construir su casa en el terreno.

### **S2d) Land DV questions**

**Owner:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién es el dueño de la tierra?

**Entitled:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién es titulado (derecho) a la tierra?

**Deserves:** De los dos hombres, Kunampi y Nanki, en su opinión, ¿quién merece la tierra?

¿Me puede decir por qué contesto como contesto para alguna de las respuestas que dio?

### **S3) Analyses of additional data**

Here we report two additional analyses of data not included in the main paper.

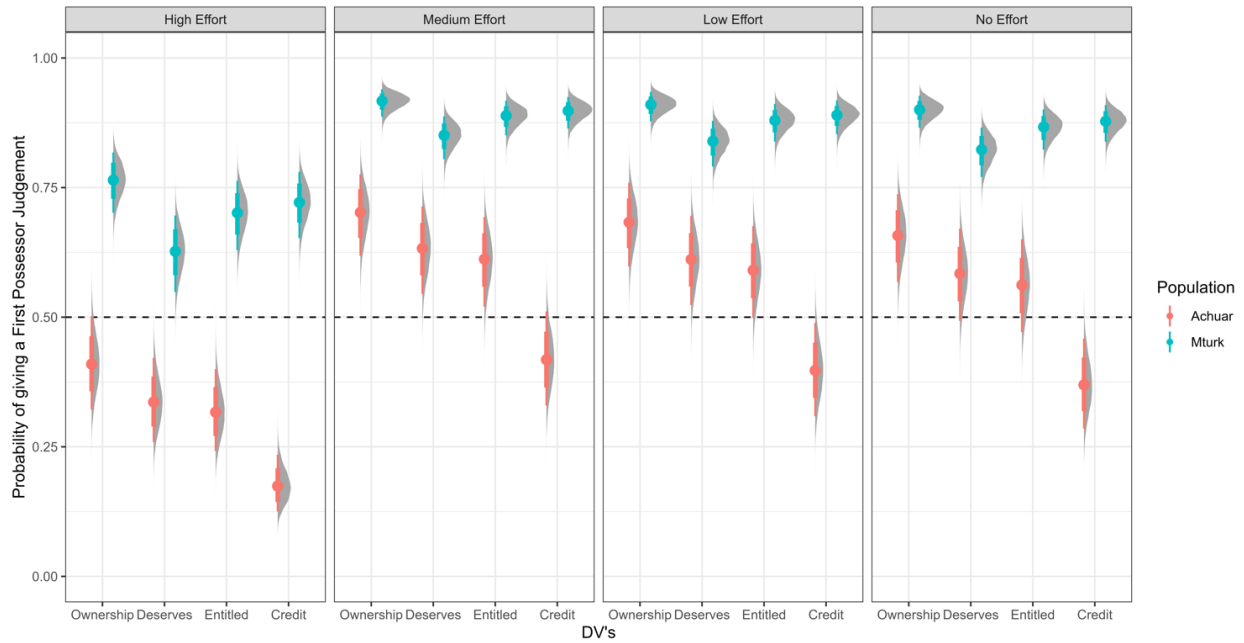
#### **S3a) Analysis of first possessor judgments for Hunting across domains and populations, High Effort scenario included**

The first analysis includes an additional Hunting scenario, High Effort, which was originally designed to be comparable to the Medium, Low, and No Effort conditions, and was run at the same time as those conditions in the mTurk and Achuar populations. After collection of the data, however, we realized that there was an important aspect of this scenario that made it not parallel to the other three, and therefore different not only in the level of effort exerted by the second character in the story.

In the High Effort scenario as originally run, John rather than William was described as taking the animal, and thus ended up being the first possessor. In all the other scenarios, William was described as taking the animal first. While both John and William were described as exerting equal effort in the High Effort scenario, this made the scenario different than the other three (Medium, Low, and No effort). For this reason, we excluded the High Effort scenario from the analyses in the main text.

Here, we report the data from this additional High Effort vignette, for both mTurk and Achuar participants: these are shown in the left panel of Figure S1. The data in the other three panels are identical to Figure 1 in the main text.

**Figure S1. Probability of First Possessor Judgments across Hunting scenarios (High Effort scenario included).** Points are the median estimates of the posterior distribution and intervals are the 67% and 90% highest density intervals (HDI).



We replicated the analyses in Model 1 and Model 2 in the main text, but including the High Effort scenario. Model S1 was the equivalent of Model 1 (all DVs) in factor structure, but includes the High Effort Scenario. Parameter estimates of the posterior distributions of Model S1 are shown in Table S1.

**Table S1. Parameter estimates of Model S1: First Possessor Judgments across Hunting scenarios and DVs, with High Effort scenario included**

First Possessor Bank	Median	90% CI	pd
Population (1=mTurk)	1.54	[1.16, 1.94]	1
Sex (1=Male)	0.16	[-0.03, 0.35]	.921
Population (mTurk) x Question: Deserves	-0.66	[-1.00, -0.32]	.993
Population (mTurk) x Question: Entitled	-0.33	[-0.67, 0.02]	.941
Population (mTurk) x Question: Credit	-0.23	[-0.56, 0.11]	.864
Population (Achuar) x Question: Deserves	-0.32	[-0.73, 0.10]	.893
Population (Achuar) x Question: Entitled	-0.41	[-.82, 0.00]	.948
Population (Achuar) x Question: Credit	-1.19	[-1.61, -0.77]	1

Model S2 was the equivalent of Model 2 in the main text (Ownership DV only) in factor structure, but includes the High Effort Scenario. Parameter estimates of the posterior distributions of Model S2 are shown in Table S2.

**Table S2. Parameter estimates of Model S2: First Possessor Judgments across Hunting scenarios for Ownership DV alone, High Effort scenarios included**

First Possessor Bank	Median	90% CI	pd
Population (1=mTurk)	0.95	[0.28, 1.67]	.989
Sex (1=Male)	0.02	[-0.37, 0.40]	.531
Vignette: Medium Effort	0.92	[0.10, 1.79]	.969
Vignette: Low Effort	0.49	[-0.34, 1.33]	.834
Vignette: No Effort	0.31	[-0.51, 1.12]	.738
Population(mTurk) x Vignette: Medium Effort	0.35	[-0.73, 1.41]	.706
Population(mTurk) x Vignette: Low Effort	1.58	[0.40, 2.84]	.986
Population(mTurk) x Vignette: No Effort	0.92	[-0.11, 1.95]	.927

**S3b) Analysis of Original vs Modified Hunting scenarios across two mTurk samples**

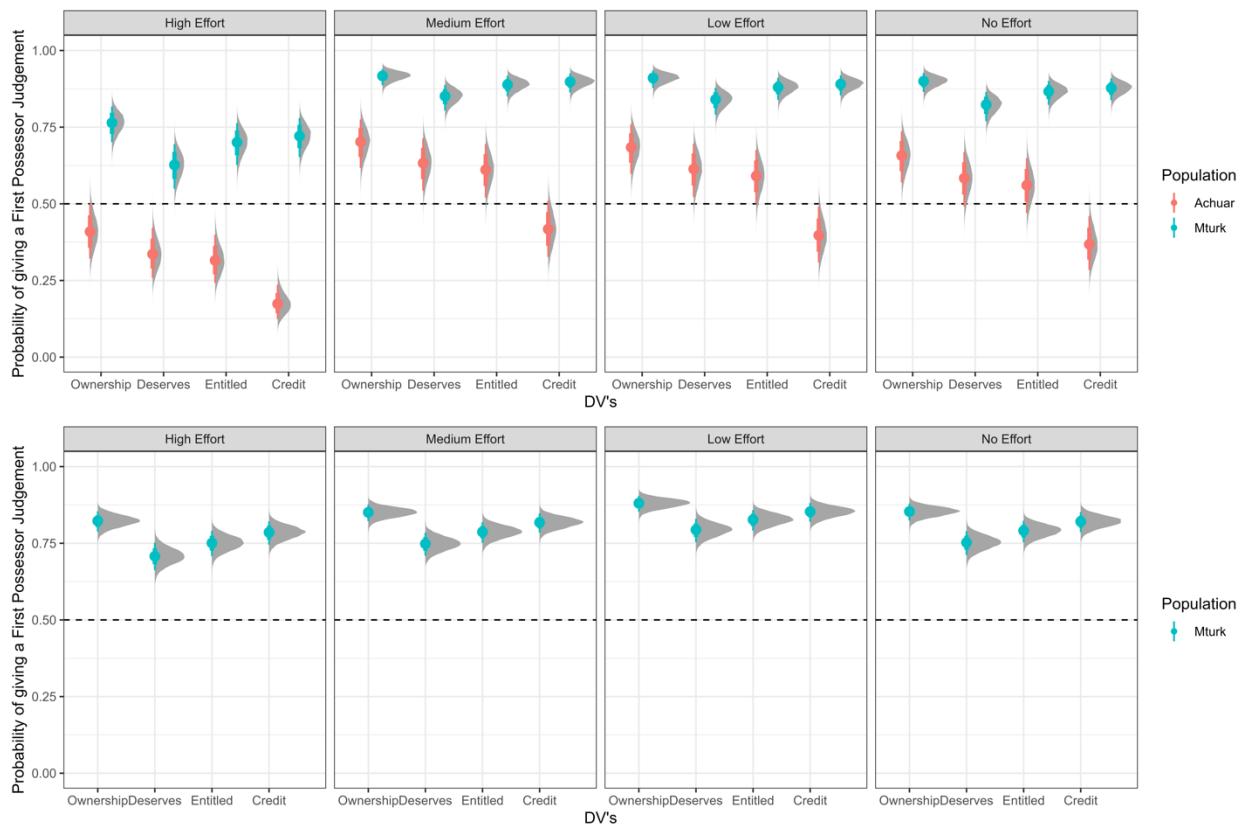
Additionally, after completing the initial study, we were concerned that in the original materials we did not specify whether or not John and William spotted the animal at the same time, which could bring factors other than effort and first possession into play in peoples' judgments. To address this, we ran an additional mTurk study with modified scenarios in which both hunters were explicitly described as spotting the game animal at the same time (text provided in Section S1 above). Also, in the Modified High Effort scenario, William was described as capturing the prey animal first, as in the other three Hunting scenarios.

For the Modified Hunting scenarios we recruited U.S. participants on the Amazon Mechanical Turk platform, in the 2018 academic year. Materials were presented via the Qualtrics platform, in English, and were identical in format to the version reported in the main text in

terms of randomization and assignment to conditions. A survey with the modified vignettes were conducted with 344 U.S adults (Mean age= 37.43), 161 males and 183 females. Participants were granted an hour time window to complete the survey (mean time of completion 29 minutes). Participation was voluntary and compensated with a one-time payment. Participants were prescreened for repeat participation, English fluency, minimal completeness, and the correct answering of attention questions. Participants who failed to answer the attention check questions or responded too quickly were excluded from the survey. Anonymized datasets are available in Supplemental Materials.

Figure S2 shows the data from the Modified vignettes in the new sample of mTurk participants (lower panel), compared with data from the Original vignette samples (upper panel).

**Figure S2. Proportion of First Possessor Judgments across Original and Modified versions of Hunting scenarios, High Effort scenario included**



### **Model S3: First Possessor Judgments across Hunting scenarios, comparing Original vs Modified scenarios**

To examine possible statistical differences in first possessor responses between mTurk participants judging the Original and Modified vignettes, we constructed a model including both mTurk datasets, Model S3.

This model was equivalent to Model S1 with the following exceptions. There was no variable for Population, because mTurkers were used for both Original and Modified scenarios (Achuar data are left out of this model). We modeled Original vs Modified scenarios for mTurkers as a fixed factor.

Parameter estimates for Model S3 are shown in Table S3. Note that the small positive effect of the factor Original Scenarios suggests that probability of first possessor judgments was slightly higher in the Original vs Modified scenarios, presumably due to the added sentence indicating that both hunters saw the animal at the same time. Nevertheless, the overall level of first possessor judgments for mTurkers across both Original and Modified scenarios is very high.

Making William first possessor boosted judgments slightly in favor of the first possessor in the Modified vignettes, leading to an mTurker first possessor bias in that condition roughly similar (but slightly lower) to that seen in Medium, No, and Low conditions. Noted that in this case, both John and William exerted equal effort.

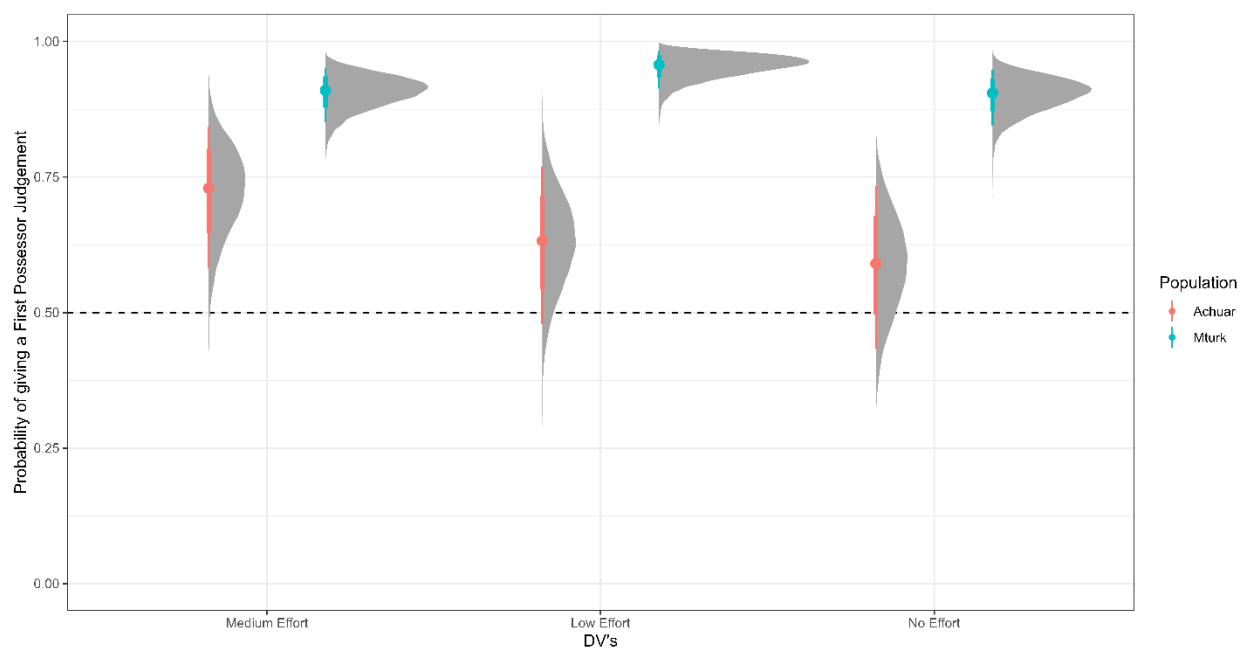
**Table S3: Parameter estimates of Model S3: First Possessor Judgments across Hunting scenarios, comparing Original vs Modified scenarios**

Variable	Median	90% CI	pd
Original Scenarios	0.77	[0.41, 1.13]	.999
Modified x Question: Deserves	-0.24	[-0.60, 0.12]	.863
Original x Question: Deserves	-0.42	[-0.73, -0.11]	.985

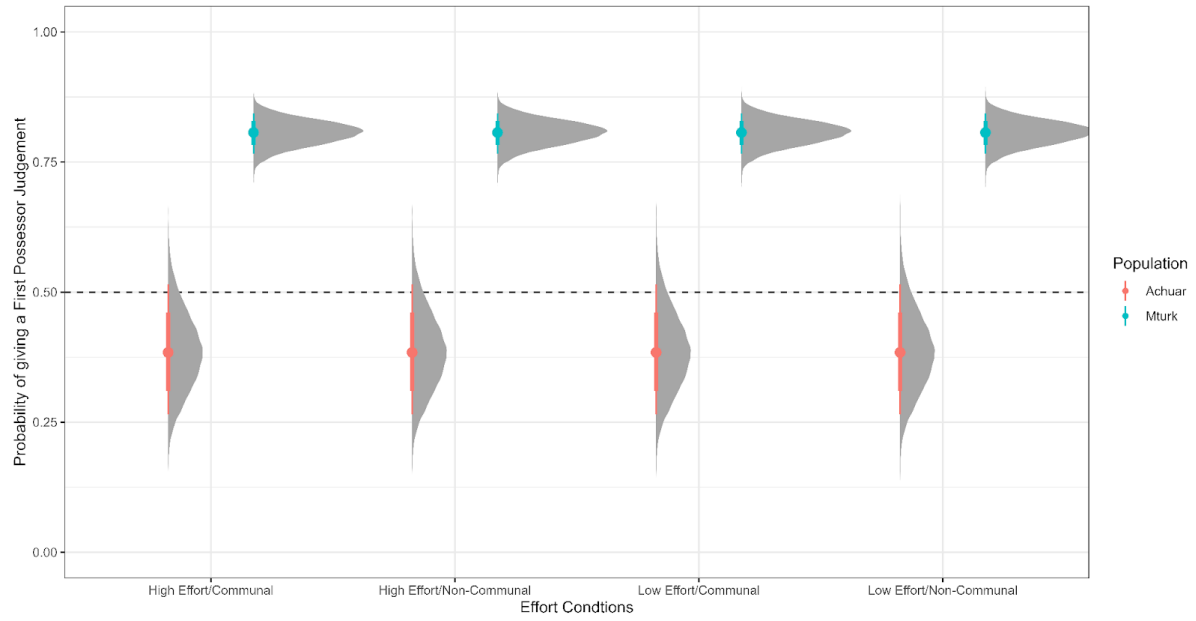
Modified x Question: Entitled	-0.10	[-0.46, 0.26]	.679
Original x Question: Entitled	-0.11	[-0.44, 0.22]	.724
Modified x Question: Ownership	0.46	[0.09, 0.83]	.980
Original x Question: Ownership	0.18	[-0.15, 0.51]	.816

#### S4) Additional figures

**Figure S3. Proportion of First Possessor Judgments of Ownership by Population, across Original versions of Hunting scenarios**



**Figure S4. Proportion of First Possessor Judgments of Ownership by Population, across Land scenarios**



**S5) Tables of posterior estimates for specific factor combinations across models**

**Table S4. Median estimates of the posterior distribution for Model 1: First Possessor Judgments across Hunting scenarios**

*Note: .epred indicates the expected value (median) of the posterior distribution for each combination of factors indicated in the table. .lower and .upper indicated the lower and upper bounds of the 90% HDI.*

Population	Vignette	Question	.epred	.lower	.upper
mTurk	Medium Effort	Ownership	0.924	0.893	0.947
mTurk	Medium Effort	Deserves	0.835	0.782	0.872
mTurk	Medium Effort	Entitled	0.888	0.846	0.918
mTurk	Medium Effort	Credit	0.925	0.893	0.947
mTurk	Low Effort	Ownership	0.921	0.893	0.947
mTurk	Low Effort	Deserves	0.828	0.782	0.872
mTurk	Low Effort	Entitled	0.883	0.846	0.918
mTurk	Low Effort	Credit	0.921	0.893	0.947
mTurk	No Effort	Ownership	0.915	0.886	0.943
mTurk	No Effort	Deserves	0.817	0.769	0.863
mTurk	No Effort	Entitled	0.875	0.835	0.911
mTurk	No Effort	Credit	0.915	0.886	0.944
Achuar	Medium Effort	Ownership	0.662	0.576	0.745
Achuar	Medium Effort	Deserves	0.615	0.530	0.701
Achuar	Medium Effort	Entitled	0.586	0.499	0.676
Achuar	Medium Effort	Credit	0.404	0.317	0.494
Achuar	Low Effort	Ownership	0.650	0.562	0.734
Achuar	Low Effort	Deserves	0.602	0.515	0.688
Achuar	Low Effort	Entitled	0.574	0.486	0.662
Achuar	Low Effort	Credit	0.391	0.303	0.477
Achuar	No Effort	Ownership	0.633	0.540	0.718
Achuar	No Effort	Deserves	0.585	0.495	0.675
Achuar	No Effort	Entitled	0.556	0.463	0.643
Achuar	No Effort	Credit	0.374	0.287	0.459

**Table S5. Median estimates of the posterior distribution for Model 2: First Possessor Judgments across Hunting scenarios for Ownership DV**

*Note: .epred indicates the expected value (median) of the posterior distribution for each combination of factors indicated in the table. .lower and .upper indicated the lower and upper bounds of the HDI.*

Population	Vignette	Question	.epred	.lower	.upper
Mturk	Medium Effort	Ownership	0.908	0.857	0.954
Mturk	Low Effort	Ownership	0.956	0.987	0.987
Mturk	No Effort	Ownership	0.904	0.853	0.953
Achuar	Medium Effort	Ownership	0.731	0.603	0.858
Achuar	Low Effort	Ownership	0.630	0.482	0.775
Achuar	No Effort	Ownership	0.590	0.439	0.775

**Table S6. Median estimates of the posterior distribution for Model 3: First Possessor Judgments across Land scenarios**

*Note: .epred indicates the expected value (median) of the posterior distribution for each combination of factors indicated in the table. .lower and .upper indicated the lower and upper bounds of the 90% HDI.*

Population	Vignette	Type	Question	.epred	.lower	.upper
Mturk	High Effort	Communal	Deserves	0.797	0.771	0.823
Mturk	High Effort	Communal	Entitled	0.820	0.794	0.843
Mturk	High Effort	Communal	Ownership	0.789	0.764	0.837
Mturk	High Effort	Non-Communal	Deserves	0.813	0.788	0.875
Mturk	High Effort	Non-Communal	Entitled	0.834	0.810	0.856
Mturk	High Effort	Non-Communal	Ownership	0.806	0.781	0.830
Mturk	Low Effort	Communal	Deserves	0.815	0.790	0.839
Mturk	Low Effort	Communal	Entitled	0.836	0.813	0.858
Mturk	Low Effort	Communal	Ownership	0.808	0.784	0.833
Mturk	Low Effort	Non-Communal	Deserves	0.830	0.807	0.852
Mturk	Low Effort	Non-Communal	Entitled	0.849	0.828	0.871
Mturk	Low Effort	Non-Communal	Ownership	0.823	0.799	0.846
Achuar	High Effort	Communal	Deserves	0.625	0.536	0.707
Achuar	High Effort	Communal	Entitled	0.475	0.385	0.564
Achuar	High Effort	Communal	Ownership	0.423	0.334	0.509
Achuar	High Effort	Non-Communal	Deserves	0.611	0.524	0.695
Achuar	High Effort	Non-Communal	Entitled	0.459	0.372	0.552
Achuar	High Effort	Non-Communal	Ownership	0.408	0.321	0.495

Achuar	Low Effort	Communal	Deserves	0.562	0.477	0.656
Achuar	Low Effort	Communal	Entitled	0.410	0.327	0.500
Achuar	Low Effort	Communal	Ownership	0.360	0.278	0.446
Achuar	Low Effort	Non-Communal	Deserves	0.548	0.460	0.640
Achuar	Low Effort	Non-Communal	Entitled	0.396	0.313	0.486
Achuar	Low Effort	Non-Communal	Ownership	0.347	0.265	0.432

---

**Table S7. Median estimates of the posterior distribution for Model 4: First Possessor Judgments for Ownership across Land scenarios**

*Note: .epred indicates the expected value (median) of the posterior distribution for each combination of factors indicated in the table. .lower and .upper indicated the lower and upper bounds of the 90% HDI.*

Population	Effort	Type	.epred	.lower	.upper
Mturk	High Effort	Communal	0.790	0.754	0.823
Mturk	High Effort	Non-Communal	0.814	0.781	0.847
Mturk	Low Effort	Communal	0.799	0.765	0.833
Mturk	Low Effort	Non-Communal	0.822	0.791	0.855
Achuar	High Effort	Communal	0.355	0.245	0.471
Achuar	High Effort	Non-Communal	0.355	0.245	0.470
Achuar	Low Effort	Communal	0.413	0.298	0.531
Achuar	Low Effort	Non-Communal	0.412	0.297	0.536

**Table S8. Median estimates of the posterior distribution for Model 5: First Possessor Judgments across Hunting and Land scenarios**

*Note: .epred indicates the expected value (median) of the posterior distribution for each combination of factors indicated in the table. .lower and .upper indicated the lower and upper bounds of the 90% HDI.*

Population	Domain	Question	.epred	.lower	.upper
Mturk	Hunting	Deserves	0.868	0.844	0.889
Mturk	Hunting	Entitled	0.888	0.869	0.908
Mturk	Hunting	Ownership	0.878	0.857	0.898
Mturk	Land	Deserves	0.803	0.785	0.821
Mturk	Land	Entitled	0.832	0.814	0.848
Mturk	Land	Ownership	0.818	0.801	0.835
Achuar	Hunting	Deserves	0.668	0.610	0.724
Achuar	Hunting	Entitled	0.574	0.512	0.637
Achuar	Hunting	Ownership	0.578	0.519	0.642
Achuar	Land	Deserves	0.535	0.448	0.594
Achuar	Land	Entitled	0.435	0.376	0.491
Achuar	Land	Ownership	0.448	0.382	0.498

## References

- Akaateba, M. A. (2019). The politics of customary land rights transformation in peri-urban Ghana: Powers of exclusion in the era of land commodification. *Land Use Policy*, 88, 104197.
- Bakeman, R., & Brownlee, J. R. (1982). Social rules governing object conflicts in toddlers and preschoolers. Pp. 99-111 in Rubin, K. H., & Ross, H. S. (Eds.). *Peer relationships and social skills in childhood*. Springer Science & Business Media.
- Barnard, A., & Woodburn, J. 1988. Introduction. In Ingold, T., Riches, D., & Woodburn, J. (eds.). *Hunters and gatherers, Volume 2: Property, power, and ideology*. Oxford: Berg.
- Barrett, H. C. (2018). Dynamics of culture change and cultural stability among the Shuar of Ecuador. In Üskul, A. and Oishi, S. (Eds.) *Socioeconomic Environment and Human Psychology*. (pp. 271-298). New York: Oxford University Press.
- DOI:10.1093/oso/9780190492908.003.0011
- Barrett, H. C. (2020). Towards a cognitive science of the human: cross-cultural approaches and their urgency. *Trends in cognitive sciences*, 24(8), 620-638.
- Beggan, J. K., & Brown, E. M. (1994). Association as a psychological justification for ownership. *The Journal of Psychology*, 128(4), 365-380.
- Bird-David, N. (1990). The giving environment: another perspective on the economic system of gatherer-hunters. *Current Anthropology*, 31(2), 189-196.
- Blackman, A., Corral, L., Lima, E. S., & Asner, G. P. (2017). Titling indigenous communities protects forests in the Peruvian Amazon. *Proceedings of the National Academy of Sciences*, 114(16), 4123-4128.
- Blake, P. R., & Harris, P. L. (2009). Children's understanding of ownership transfers. *Cognitive Development*, 24(2), 133-145.

- Bremner, J., & Lu, F. (2006). Common property among indigenous peoples of the Ecuadorian Amazon. *Conservation and Society*, 4(4), 499.
- Brightman, M. (2010). Creativity and control: property in Guianese Amazonia. *Journal de la Société des Américanistes*, 96(96-1), 135-167.
- Brightman, M., Fausto, C., & Grotti, V. (Eds.). (2016). *Ownership and nurture: studies in native Amazonian property relations*. Berghahn Books.
- Brosnan, S. F. (2011). Property in nonhuman primates. *New directions for child and adolescent development*, 2011(132), 9-22.
- Brown, M. (1985). *Tsewa's gift: Magic and meaning in an Amazonian society*. University of Alabama Press.
- Brown, M. F. (2009). *Who owns native culture?*. Harvard University Press.
- Buchanan, A. (1993). The role of collective rights in the theory of Indigenous peoples' rights. *Transnat'l L. & Contemp. Probs.*, 3, 89.
- Buntaine, M. T., Hamilton, S. E., & Millones, M. (2015). Titling community land to prevent deforestation: An evaluation of a best-case program in Morona-Santiago, Ecuador. *Global Environmental Change*, 33, 32-43.
- Carey, S., & Spelke, E. (1994). Domain-specific knowledge and conceptual change. In L. Hirschfeld & S. Gelman (Eds.), *Mapping the Mind: Domain Specificity in Cognition and Culture* (pp. 169-200). Cambridge: Cambridge University Press.
- doi:10.1017/CBO9780511752902.008
- Carneiro da Cunha, M. M. L., & Viveiros de Castro, E. (1985). Vingança e temporalidade: os Tupinambá. *Journal de la Société des Américanistes*, 71, 191-208.
- Carpenter, K. A., Katyal, S. K., & Riley, A. R. (2009). In defense of property. *Yale LJ*, 118, 1022.

- Christiansen, M. H., & Chater, N. (2009). The myth of language universals and the myth of universal grammar. *Behavioral and Brain Sciences*, 32(5), 452-453.
- Chung, Y., Rabe-Hesketh, S., Dorie, V., Gelman, A., & Liu, J. (2013). A nondegenerate penalized likelihood estimator for variance parameters in multilevel models. *Psychometrika*, 78, 685-709.
- Da Silva, S., Moreira, B., & Da Costa Jr, N. (2014). Preschoolers and the endowment effect. *PloS one*, 9(10), e109520.
- Dahl, J. (2000). *Saqqaq: An Inuit hunting community in the modern world*. University of Toronto Press.
- Descola, P. (1982). Territorial adjustments among the Achuar of Ecuador. *Social Science Information*, 21(2), 301-320.
- Descola, P. (1986). *In the society of nature: a native ecology in Amazonia*. Cambridge University Press.
- Descola, P. (1996). *The spears of twilight: life and death in the Amazon jungle*. New York: new Press
- Deshoullière, G., & Utitiaj Paati, S. (2019). Acerca de la Declaración sobre el cambio de nombre del conjunto Jívaro. *Journal de la Société des Américanistes*, 105(105-2), 167-179.
- Earle, T. (1998). Property Rights and the Evolution of Hawaiian Chiefdoms. In Hunt, R., & Gilman, A. (eds.) *Property in Economic Contexts. Monographs in Economic Anthropology*. Lanham, ML: University Press of America: 89
- Friedman, O. (2010) Necessary for possession: How people reason about the acquisition of ownership. *Personality and Social Psychology Bulletin*, 36(9), 1161–69. Doi: 10.1177/0146167210378513.

- Friedman, O. & Neary, K. R. (2008) Determining who owns what: Do children infer ownership from first possession? *Cognition* 107(3), 829–49. Doi: 10.1016/j.cognition.2007.12.002.
- Friedman, O., Neary, K. R., Defeyter, M. A. & Malcolm, S. L. (2011) Ownership and object history. In: *Origins of ownership of property: New directions for child and adolescent development*, vol. 132, ed. H. H. Ross & O. Friedman, pp. 79–90. Wiley.
- Gluckman, M. (1965). *Politics, law and ritual in tribal society*. Routledge.
- Goody, J. R. (1962). *Death, property, and the ancestors*. Stanford University Press, Stanford, CA.
- Gould, R. A. (2019). To have and have not: The ecology of sharing among hunter-gatherers. In *Resource managers: North American and Australian hunter-gatherers* (pp. 69-91). Routledge.
- Graziadei, M., & Smith, L. (Eds.). (2017). *Comparative Property Law: Global Perspectives*. Edward Elgar Publishing.
- Greene, C. S., & Drescher, T. D. (1994). The Tipi with Battle Pictures: The Kiowa tradition of intangible property rights. *Trademark Rep.*, 84, 418.
- Gurven, M. (2004). To give and to give not: The behavioral ecology of human food transfers. *Behavioral and Brain Sciences*, 27(4), 543-560.
- Gurven, M., Hill, K., & Jakugi, F. (2004). Why do foragers share and sharers forage? Explorations of social dimensions of foraging. In *Socioeconomic aspects of Human Behavioral Ecology* (pp. 19- 43). Emerald Group Publishing Limited.
- Hames, R. (1990). Sharing among the Yanomamo: Part I, The effects of risk. Pp. 89-106 in Cashdan, E. (ed.). *Risk and uncertainty in tribal and peasant economies*. Routledge.

- Hammer, C., Jintiach, J. C., & Tsakimp, R. (2013). Practical developments in law science and policy: efforts to protect the traditional group knowledge and practices of the Shuar, an indigenous people of the Ecuadorian Amazon. *Policy Sciences*, 46, 125-141.
- Hann, C. M. (Ed.). (1998). *Property relations: Renewing the anthropological tradition*. Cambridge University Press.
- Hartley, T. (2019). The continuing evolution of ownership. *PloS one*, 14(2), e0211871.
- Harvey, D. (2007). *A brief history of neoliberalism*. Oxford University Press, USA.
- Hook, J. (1993). Judgments about the right to property from preschool to adulthood. *Law and Human Behavior*, 17(1), 135-146.
- Juank, A. (1994). *Pueblo de Fuertes: Rasgos de historia Shuar. Libro II: La edad moderna*. Ediciones Abya-Yala, Quito, Ecuador.
- Kanngiesser, P., Gjersoe, N., & Hood, B. M. (2010). The effect of creative labor on property-ownership transfer by preschool children and adults. *Psychological science*, 21(9), 1236-1241.
- Kanngiesser, P., Itakura, S., & Hood, B. M. (2014). The effect of labour on ownership decisions in two cultures: Developmental evidence from Japan and the United Kingdom. *British Journal of Developmental Psychology*, 32(3), 320-329.
- Kanngiesser, P., Itakura, S., Zhou, Y., Kanda, T., Ishiguro, H., & Hood, B. (2015). The role of social eye-gaze in children's and adults' ownership attributions to robotic agents in three cultures. *Interaction Studies*, 16(1), 1-28.
- Kanngiesser, P., Rossano, F., & Tomasello, M. (2015). Late emergence of the first possession heuristic: Evidence from a small-scale culture. *Child Development*, 86(4), 1282-1289.
- Kanngiesser, P., Rossano, F., Frickel, R., Tamm, A., & Tomasello, M. (2020). Children, but not great apes, respect ownership. *Developmental Science*, 23(1), e12842.

- Leach, J. (2016). Foreward. Pp. ix-xii in Brightman, M., Fausto, C., & Grotti, V. (Eds.). (2016). *Ownership and nurture: studies in native Amazonian property relations*. Berghahn Books.
- Lentz, C. (2006). First-comers and late-comers: Indigenous theories of land ownership in West Africa. pp. 35-56 In Kuba, R., and Lentz, C. (Eds.). *Land and the politics of belonging in West Africa*. Brill.
- Levene, M., Starmans, C., & Friedman, O. (2015). Creation in judgments about the establishment of ownership. *Journal of Experimental Social Psychology*, 60, 103-109.
- Li, V., Shaw, A., & Olson, K. R. (2013). Ideas versus labor: What do children value in artistic creation?. *Cognition*, 127(1), 38-45.
- Li, Z., Qi, M., Yu, J., & Zhu, L. (2018). Who is the rightful owner? Young children's ownership judgments in different transfer contexts. *Frontiers in Psychology*, 9, 1314.
- López, S., Beard, R., & Sierra, R. (2013). Landscape change in western Amazonia. *Geographical Review*, 103(1), 37-58.
- Lowie, R (1949). Property among the tropical forest and marginal tribes. Pp. 351-367 in J. Steward (ed.), *Handbook of the South American Indians: The Comparative Ethnology of South American Indians*. Washington, DC: US Government Printing Office.
- Lueck, D. (1995). The rule of first possession and the design of the law. *The Journal of Law and Economics*, 38(2), 393-436.
- Macpherson, C. B. (1962). *The political theory of possessive individualism: Hobbes to Locke*. Clarendon Press, Oxford.
- Mader, E. (1999). *Metamorfosis del poder: persona, mito y visión en la sociedad shuar y achuar (Ecuador, Perú)*. Editorial Abya Yala.

- Man, Z., & Thambiah, S. (2020). Kinship and Semelai Residential Arrangements: Belonging to Village and the Resilience of Communal Land Tenure in Tasek Bera, Malaysia. *The Asia Pacific Journal of Anthropology*, 21(4), 315-331.
- Mauss, M. (1925). *The gift*. Cohen & West, London.
- Nagan, W. P. (2013). Protecting the economic patrimony of indigenous nations: the case of the Shuar. *Policy Sciences*, 46, 143-159.
- Nagan, W. P., & Hammer, C. (2013). The conceptual and jurisprudential aspects of property in the context of the fundamental rights of indigenous people: the case of the Shuar of Ecuador. *NYL Sch. L. Rev.*, 58, 875.
- Nagan, W. P., Mordujovich, E. J., Otvos, J. K., & Taylor, J. (2010). Misappropriation of Shuar traditional knowledge (TK) and trade secrets: A case study on biopiracy in the Amazon. *J. Tech. L. & Pol'y*, 15, 9.
- Nancekivell, S. E., Friedman, O., & Gelman, S. A. (2019). Ownership matters: People possess a naïve theory of ownership. *Trends in Cognitive Sciences*, 23(2), 102-113.
- Noles, N. S., & Keil, F. C. (2011). Exploring ownership in a developmental context. *New Directions for Child and Adolescent Development*, 2011(132), 91-103.
- Palamar, M., Le, D. T., & Friedman, O. (2012). Acquiring ownership and the attribution of responsibility. *Cognition*, 124(2), 201-208.
- Petersen, R. (2003). *Settlements, kinship and hunting grounds in traditional Greenland* (Vol. 27). Museum Tusulanum Press.
- R Core Team (2022). R: A language and environment for statistical computing. *R Foundation for Statistical Computing, Vienna, Austria*. URL <https://www.R-project.org/>.
- Ramsey, P. G. (2001). Possession episodes in young children's social interactions. *Journal of Genetic Psychology*, 148, 315-325.

- Riley, A. R. (2000). Recovering Collectivity: Group Rights to Intellectual Property in Indigenous Communities. *Cardozo Arts & Ent. LJ*, 18, 175.
- Rochat, P. (2011). Possession and morality in early development. *New Directions for Child and Adolescent Development*, 2011(132), 23-38.
- Rochat, P., Robbins, E., Passos-Ferreira, C., Oliva, A. D., Dias, M. D., & Guo, L. (2014). Ownership reasoning in children across cultures. *Cognition*, 132(3), 471-484.
- Rubenstein, S. (2002). *Alejandro Tsakimp: a Shuar healer in the margins of history*. U of Nebraska Press.
- Santos-Granero, F. (Ed.). (2009). *The occult life of things: Native Amazonian theories of materiality and personhood*. University of Arizona Press.
- Schlager, E., & Ostrom, E. (1992). Property-rights regimes and natural resources: a conceptual analysis. *Land economics*, 68(3), 249-262.
- Shaw, A., Li, V., & Olson, K. R. (2012). Children apply principles of physical ownership to ideas. *Cognitive science*, 36(8), 1383-1403.
- Simpson, A. (2014). *Mohawk interruptus: Political life across the borders of settler states*. Duke University Press.
- Stake, J. E. (2004). The property “instinct.” *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359, 1763–1774.
- Stich, S. (2006). Is morality an elegant machine or a kludge?. *Journal of Cognition and Culture*, 6(1-2), 181-189.
- Tobin, B. (2014). *Indigenous peoples, customary law and human rights: Why living law matters*. Routledge.
- Verkuyten, M., Sierksma, J., & Thijs, J. (2015a). First arrival and owning the land: How children reason about ownership of territory. *Journal of Environmental Psychology*, 41, 58-64.

- Verkuyten, M., Sierksma, J., & Martinovic, B. (2015b). First arrival and collective land ownership: How children reason about who owns the land. *Social Development, 24*(4), 868-882.
- Viegas, S. de M. (2016). Temporalities of Ownership: Land Possession and its Transformations among the Tupinambá (Bahia, Brazil) pp. 232-256 in Brightman, M., Fausto, C., & Grotti, V. (Eds.). (2016). *Ownership and nurture: studies in native Amazonian property relations*. Berghahn Books.
- Wiessner, P. 1982. Risk, reciprocity and social influences on !Kung San economics. pp. 61-84 In Leacock, E., & Lee, R. (Eds.). *Politics and History in Band Societies*. Cambridge: Cambridge University Press.
- Woodburn, J. (1998). "Sharing is not a form of exchange": an analysis of property-sharing in immediate-return hunter-gatherer societies. Pp. 48-63 in Hann, C. M. (Ed.). *Property relations: Renewing the anthropological tradition*. Cambridge University Press, Cambridge.
- Yang, F., Shaw, A., Garduno, E., & Olson, K. R. (2014). No one likes a copycat: A cross-cultural investigation of children's response to plagiarism. *Journal of Experimental Child Psychology, 121*, 111-119.
- Zebian, S., & Rochat, P. (2012). Judgment of land ownership by young refugee Palestinian and US children. *International Journal of Behavioral Development, 36*(6), 449-456.

## Chapter 2

Intuitions about Ownership of Ideas Across Cultures.

Ulises Espinoza<sup>1,2</sup>, Kristopher M. Smith<sup>3</sup>, H.C. Barrett<sup>1,2</sup>

<sup>1</sup>Department of Anthropology, University of California, Los Angeles, California, U.S.A.

<sup>2</sup>Center for Behavior, Evolution, & Culture University of California, Los Angeles, California, U.S.A.

<sup>3</sup>Department of Anthropology at Washington State University

## Abstract

The ownership of knowledge and other forms of intangible information is one of the most contested topics of our times, but little is known about how public attitudes differ from the law and how these attitudes vary across cultural groups. Here we examine attitudes about the ownership of knowledge and “Intellectual Property” (IP) across 10 countries (12 societies) aimed at (1) characterizing attitudes about ownership of tangible and intangible items, (2) examining the ways in which moral features of tangible and intangible goods have rights and duties ascribed to them, and (3) understanding how these align or don’t with institutionalized legal regimes. The results show substantial variation in the degree to which individuals ascribe ownership rights to types of knowledge associated with a prior author and or traditional knowledge origins. Participants tended to ascribe higher rates of ownership to different types of knowledge when they were associated with an innovative origin.

## Introduction

This chapter utilizes the mixed methods put forward in the previous chapter to address the ownership of knowledge and other forms of intangible information, from artistic performances to personal information shared online. The concept of “Intellectual Property” (IP) has emerged in the legal sphere as a means of dealing with the ownership of information. As of recently, IP has become a space of intense debate. Some argue that legalizing ownership of IP spurs economic productivity and creativity by making ideas ownable, rewarding creators for the risks they take in developing new ideas. Others argue that it corrodes the social good by privatizing what was previously a common. A primary point in this debate has been the question of how and whether the law should and does reflect public opinion—and if so, *whose* opinion. In some instances, such as sharing of music and video to streaming sites, public opinions (and behavior) appear to

diverge quite strongly from the law—but relatively little is known about where peoples’ intuitions come from about what is right and wrong in this domain (Heller & Salzman, 2021). There is likely to be considerable variation in how intellectual property is viewed and the ownership of knowledge across communities with different cultural and political histories. In a Western context, specifically in countries like the United States, ideologies of entrepreneurship and capitalism push towards the idea that virtually anything can be “owned,” by individuals or corporations (which are seen, legally, as individuals). In this capitalist cultural tradition, the idea of the individual author/creator/inventor is paramount, and the ability to capitalize on one’s inventions is seen as a right. On the other hand, some Indigenous communities may display opinions that radically diverge from the Western notion of IP. In these communities, individual authors/creators are often seen as working within a longstanding cultural tradition, such that no individual’s creations are truly their own but rather part of a larger cultural identity. Indigenous communities often also regard ownership of traditions to occur at the community level, so that it is not within the rights of a single individual to own or transfer ownership of knowledge (Brown, 2009).

Research related to intuitions about intellectual property done outside of the legal sphere has primarily focused on attitudes about IP in new rapidly developing domains such as software (Postigo, 2008), design (Sun et al., 2019), and domains such as publishing and music (Carter et al., 2007; Kretschmer et al., 1999). Some research has investigated concepts of knowledge ownership in a more traditional context, such as attitudes about ownership of farming innovations among African farmers (Tambo et al., 2020), and concepts of knowledge ownership in historical and contemporary China (Rees, 2003; Stone, 2008), and ceremonial songs used in shamanic practices among Amazonian communities (Fausto, 2008; Santos-Granero, 2009; Brightman, Fausto and, Grotti, 2022). There has been a debate both within and outside

Indigenous communities about conflicts between Indigenous and non-Indigenous conceptions of intangible property (Brown, 2005, 2009; Lixinski, 2013; Smith & Akagawa, 2008; Riley 2000; Carpenter, 2009).

Central to the doctrine of IP law, in particular copyright, in the West is the stipulation that for protection to be granted, the work needs to have a physical manifestation (Riley, 2000). It must be captured on mediums like paper, film, or canvas, to name a few. For instance, while a unique storyline for a novel might be an author's prized possession, unless it's transcribed, it's free for the taking by anyone privy to it. This viewpoint is dual-faceted: ideologically, it champions the belief that ideas, akin to the very air we breathe, are a communal asset, meant to be shared. From a practical standpoint, this approach acknowledges the intangible nature of raw ideas, which makes them challenging to monitor or regulate. In times predating modern recording methods, many such communities depended on tangible art forms like murals or intricate structures to crystallize their bodies of knowledge (Strowel, 1994; Brown, 2009). Verbal recitals or ceremonial enactments were also primary vehicles of knowledge transfer (Brown, 2009). But with copyright's narrow scope and its emphasis on tangible novelty, even a comprehensive, documented catalog of Indigenous stories or songs could be appropriated through legal means by another simply by securing rights to a slightly modified rendition (Brown, 2009). An example of this can be seen in the ways the New Mexico has been able to legally appropriate a sacred symbol from Zia communities, without community permission, for its state flag<sup>1</sup>.

---

<sup>1</sup> The flag design was created by Harry Mera, an anthropologist, who entered the design into a state flag design contest in 1925. Given that that the Zia did not have citizenship at the time, they were unable to argue legally for themselves. In 1990, they were finally able to demand compensation but by this time the symbol had existed so long that it had entered the Public Domain and could not be copyrighted (Brown, 2009; Saez, 2018)

To date, the vast majority of studies on ownership, specifically how it pertains to information, have been primarily carried in the Western context in places like the United States and Europe. Communities that fall outside the cultural traditions of the United States and Europe present a critical area for the examination of views concerning information ownership.

In our study, we delve deep into the perceptions of individuals from a myriad of global backgrounds. We aim to discern how they perceive ownership of intangible assets like knowledge, songs, recipes, and designs. By juxtaposing intangible entities, such as a song, with their tangible counterparts, like a song recording, we can shed light on rights and responsibilities attached to tangible and intangible assets. Furthermore, we looked at monetary vs non-monetary rights (i.e., rights to profit financially from IP, versus other rights to, e.g., use or transfer the information at no cost), because of the history of IP and the ways in which it prioritizes the monetization and commodification of knowledge and creations.

### **The Concept of Intellectual Property**

The concept of Intellectual Property (IP) as it stands today, both as legal framework and method for defining who has the right to own and the rights associated with ownership is deeply informed by a Eurocentric legal perspective. It is for this reason that traditions outside of a European scope are rarely protected by IP legal frameworks (Riley, 2000; Greene et al., 2004; Shiva, 2007; Carpenter, 2009). Before delving into what types of traditions aren't protected, we first need to understand a bit of the history that created the contemporary legal framework around IP.

IP is comprised of copyright, trademarks, patents, and trade secrets. Trade secrets<sup>2</sup> are the earliest iterations of IP and essentially emphasized the concealment of business strategies or unique formulas to maintain an edge in competitive scenarios. The concept of patents<sup>3</sup>, which gives inventors exclusive rights to their creations, has antecedents in ancient Greece but gained institutional backing in England in 1623 with the Statute of Monopolies (Bugbee, 1967). This effectively laid the groundwork for modern patent laws (Bugbee, 1967). Concurrently, the invention of the printing press by Johannes Gutenberg, led to the dissemination of written work becoming more efficient, leading to concerns over unauthorized reproductions (Rose, 1993). The foundation of IP law is to protect the rights of owners. It grants them a comprehensive set of exclusive rights, or “bundle of rights<sup>4</sup>”, over their creations, encapsulated within copyrights, patents, trademarks, and trade secrets. These bundles of rights are often what is seen as marking ownership, as property within a legal framework is best thought of as an association of the rights that can be enjoyed by the “owner” (Fiscor, 2001). Such rights confer privileges including the reproduction of their work, its distribution, the creation of derivative works, public performance, or display, and, in certain jurisdictions, the right to claim authorship and combat misrepresentation (Fiscor, 2001).

This period also witnessed patent systems emerge, granting inventors exclusive rights to their innovations for a set duration. England's 1624 Statute of Monopolies prohibited patents for existing ideas but enabled novel inventions (Bracha, 2007). In 1710, Britain enacted the Statute

---

<sup>2</sup> While their formal legal recognition came much later, the essence of protecting confidential business knowledge predates other IP paradigms.

<sup>3</sup> Specifically, around 500 BCE, inventors in the city of Sybaris were granted a year-long monopoly on their innovations. This primitive understanding of patents evolved when, in 1421, Filippo Brunelleschi in Italy was acknowledged with the first recorded patent for a unique barge and hoisting mechanism (Bugbee, 1967).

<sup>4</sup> Bundle of rights in the context of Intellectual Property (IP) refers to the set of exclusive rights granted to IP holders (WIPO, 2023).

of Anne, acknowledged as the first genuine copyright law, granting authors exclusive rights while also emphasizing public interest (Patterson, 1968). Later, in 1790, the United States passed its first Patent Act (Walterscheid, 1994), which laid down rules for patent applications, laying the foundation for modern patent law. As nations developed their IP laws, there arose a need for international collaboration to address cross-border issues. The Paris Convention for the Protection of Industrial Property in 1883 and the Berne Convention for the Protection of Literary and Artistic Works in 1886 established guiding principles for international IP law (May and Sell, 2006). Which would later come to be overseen by the World Intellectual Property Organization (WIPO), founded in 1967.

Innovations in technology ushered in unprecedented challenges for IP legal frameworks. The ease of copying and disseminating digital content led to rampant copyright infringements (Brown, 2009). In response, nations enacted various legal frameworks aiming to counter digital piracy while safeguarding copyright in the digital age (Litman, 2001). This was accompanied by an increase in patent applications, driven by technological innovation and broader patent laws. The TRIPS agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights) in 1994, overseen by the World Trade Organization, sought to standardize IP laws internationally, making provisions for IP enforcement, dispute resolution, and establishing minimum standards for IP rights (Correa, 2007).

We need not assume that ownership as it pertains to information is solely confined to the Western legal framework of IP. Even within the West, in particular the United States there is a diversity of opinions about the rights corporations may have to IP. One of the most famous case studies that illustrates this is Napster. Napster was a peer-to-peer internet platform where users could post and trade sound files amongst users (Ku, 2002). Napster was sued and eventually lost their legal case to A&M Records. The significance of this case is that it highlighted a diversity of

opinions about legal protections over intellectual property. Many users of the service were upset that the government stepped into protect the oligopoly held by the Big Five record companies (EMI, Universal, Sony, Time Warner, and BMG) in the music industry at the time (Ku, 2022).

Diverse cultural paradigms have their own nuanced understandings of ownership of information. It's crucial to consider these alternative perspectives to ensure a holistic and inclusive approach when investigating the ownership of intangible assets.

### **Ownership of Information from an Anthropological Lens**

A large amount of the anthropological research related to ownership and property up until the 20<sup>th</sup> century on ownership, outside of the work done on the ownership of songs (Brown, 1985), magic (Malinowski, 1935), stories, and how they are represented (Greene and Drescher, 1994), and Incorporeal Property (Lowie, 1928), has focused on the physical domains of ownership such as food (Gurven, Hill, & Jakugi, 2004), land (Earle, 1998; Artursson, Magnus, Earle, & Brown, 2015; Graziadei & Smith, 2017), and human-made artifacts (Saxe, 1970; Artursson, Magnus, Earle, & Brown, 2015).

Examining examples of ownership of information across cultures from the perspective of anthropology, particularly in regions such as Africa, Asia, and North and South America, can aid in highlighting the diversity of ways in which information may be owned<sup>5</sup>. Some of this work focused on the ownership information among Central African communities highlight how information can be carefully guarded, granting exclusive authorization to members of the community to with the information closely linked to their cultural heritage, while prohibiting non-members from participating in these reserved practices. For instance, the Yoruba community in Nigeria exclusively preserves the recitation of "oriki," a form of praise-singing poetry, within

---

<sup>5</sup> It's important to note that the following examples are not an exhaustive representation, but rather illustrative instances that provide insights into various cultural perspectives on information ownership.

specific families (Colson and Gluckman, 1961). Similarly, the Lozi in Zimbabwe reserve historical praise songs for traditional leaders, which are seen as belonging to the community and only allowed to be recited on significant occasions by a select group of bandsmen (Colson and Gluckman, 1961).

Anthropological work done in parts of Asia has shown varying perspectives on the ownership of information. One of these in particular can be seen in China's approach to intellectual property and the ways it has historically deviated from Western perspectives (Stone, 2008; Kuah and Liu, 2016). Long-standing practices within ethnic majority Han Chinese groups have encouraged the incorporation and referencing of ancient texts in literary works, often without explicit attribution, highlighting a collective ownership (Stone, 2008). Some examples can be seen in the way scholars often integrated sections of Confucian texts into their compositions and dialogues, a practice where delineating authorial sources was viewed as unnecessary (Stone, 2008). Additionally, the modification of folk songs with new lyrics was for the longest a widespread practice (Stone, 2008). However, the existing situation has been abruptly disrupted by various factors emerging since the late 1980s. The rapid advancement of China's recording and tourism industries along with international standards of intellectual property protection (enacted in 1991) has increased the potential value of folk songs. Various ethnic minority groups in China have traditions of extending both individualized and collective ownership to their songs. Some of these can be seen in Kazahks groups conceptualizations of folk songs and the ways in which they can be widely liked and used, but they have individual singers and poets attributed as authors to them (Rees, 2003; Kuah and Liu, 2016). Another example of ownership extended to information in a different cultural setting within Asia can be seen among the Ainu of Japan. In particular, Ainu communities treat *uepecker*, particular

folktales that depicted how to make certain goods for rituals<sup>6</sup>, as goods that could help accrue social status and prestige (Walker, 2001).

Some of the work focused on the ownership of information within the South American context has been done among Amazonian communities. This work has shown that shamanic practices, ceremonial objects, songs, and various other cultural practices carrying valuable forms of cultural and ecological knowledge are considered to be owned to varying degrees (Santos-Granero, 2009). Among the Kuikuro, tape recordings of ritual songs are seen as materialized forms of knowledge that are not allowed to be sold in the materialized form. The only way to transmit these songs is through one's own voice and there must be some sort of payment received for it (Fausto, 2008; Santos-Granero, 2019). Similar findings among Aguaruna and other *aents chicham* groups show that songs under the category of *anent* (e.g., songs relating to hunting, horticulturalism, and courtship) are seen as forms of knowledge owned by individuals (Brown, 1985; Descola, 2006). These songs are typically transferred between older and younger individuals, often requiring payment of cash or trade goods. The individuals would isolate themselves when transferring the song to avoid the public demonstration of the knowledge. Both the hunting and the gardening songs are treated as valuable possessions that should be hoarded (e.g., men will often not share the songs as their placement in the public domain would alter their effectiveness for hunting success; women will often be secretive about these songs out of fear of envious comments from others that may lead to negative effects on plant growth) (Brown, 1985). Magical stones are often paired with hunting and gardening songs and are also seen as being individually owned and highly valuable (Brown, 1985). These forms of ownership become even more individualized among *Aents Chicham* language groups when it comes to shamans. Shuar

---

<sup>6</sup> Similar to the way recipes work, these functioned as a step by step instructional to make certain goods. Often sold to non-Ainu (Walker, 2001).

shamans, for example, can create, own, and sell their *tsentsak* (a weapon used by shamans that can cause illness or death) and *pasuk* (a shaman's familiar that can take the form of an animal and do the shamans' bidding) to other shamans (Rubenstein, 2002). Another group that has been shown to use such intense mechanisms to protect shamanic knowledge are the Tarahumara, who believe in words having power that should be protected and kept within the community (Brown, 1985).

The selling and buying of personal songs, stories, and depictions of knowledge is not a phenomenon exclusive to Amazonian communities. For example, the Oto people of Oklahoma require payment in goods for spiritual knowledge (Brown, 2009), Kiowa communities believe that they own ideas and personal life experiences and the telling of them by anyone other than themselves is a sanctionable violation (Greene and Drescher, 1994). Similarly, work done among Kiwa communities has shown that secrecy is used as a means of preventing access to the language. This creates value of the language in four ways for these communities: tightly controlling the cultural objects, evaluating textual content, affecting the status of those associated with the language use, and contributing to the reputation of the community (Debenport, 2015).

It's crucial to acknowledge the distinct worth and essence of Indigenous and Non-Indigenous intellectual contributions, which frequently differ from Western (e.g., Euro-centric) conventions of individual property entitlements (Riley, 2000; Brown, 2009). There is a distinction between Western and non-Western intellectual property paradigms. Rooted deeply in individualistic values, the Western IP approach emphasizes the protection of individual rights, and that too for a defined period (MacPherson, 1962). This viewpoint stands in contrast to the Indigenous perspective, where knowledge and creation rights might be perceived as everlasting. Indigenous communities often regard intellectual creations not as individual achievements but as a shared legacy (Riley, 2000; Brown, 2005; Brown, 2009). These creations aren't just pieces of

art or knowledge but are deeply entwined with their identity, culture, and connection to their lands (Brown, 2005; 2009; Leach, 2016). When IP systems, molded by Western principles, place a premium on individual rights, they inadvertently sideline collective works birthed by Indigenous communities.

### **Psychological literature**

Much of the quantitative research done on ownership comes from developmental psychology and has primarily focused on ownership intuitions that children display at an early age. In particular, psychological studies show that children's intuitions appear to be sensitive to cues of what can be owned and how property can be transferred (Friedman, 2010). It seems that children assume that ownership claims are best maintained when applied to resources that can be physically possessed (e.g. to have one's ownership fully respected one must be able to fully possess an item), suggesting a possible zero-sum psychology underlying the domain of ownership (Furby, 1978; Friedman et al.2011; Rochat, 2011). In the absence of verbal information (e.g., information that state claims of ownership), children utilize cues such as prior possession, the use of extractive foraging of a resource, modification of an object or resource, and the transference of an ownership claim (Friedman et al.2011), to attribute ownership rights. This inference can be seen as a first possessor rule; Children defending claims to ownership often invoked first possessor heuristic ( Ramsey, 2001), first possessors are more likely to win conflicts starting as early as age three (Bakerman and Brownlee 1982), preschoolers infer who is the owners when not explicitly told based on first possession (Friedman, 2008), causality by which first possession came to be established plays a role in how ownership is attributed (Friedman and Neary, 2008), a first possessor child is more likely to transfer ownership if effort has been invested by a second child (Kanngiesser et al.2010), and ownership of objects is evaluated differently by children depending on the inferred qualities and context in which they

came to be owned (Da Silva, Moreira & Da Costa Jr, 2014). Intuitions seen in children also show that effort invested into the modification of an object can be seen as a cue that indicates ownership rights as well as what types of things can be owned; children are more likely to attribute ownership to artifacts and materials extracted from an environment than to abstract ideas.

Recent work in developmental psychology has begun to investigate how ownership of information is seen. Children may extend the same inferences used on physical ownership (e.g., first possessor rule, effort used to create) to information property. This suggests that the history of an object/idea, that is, who made it and how, who extracted it, what effort was involved, and what transfers took place, function as important cues for the attribution of ownership (Friedman, 2011). The empirical evidence presented by the developmental psychology literature has few studies that attempt to explain how ownership may vary between physical and informational goods (Shaw et al., 2012; Li et al., 2013). These studies found that children extended ownership to both objects and ideas (Shaw et al., 2012) and attributed ownership to someone who contributed ideas rather than to someone who solely provided labor (Li et al., 2013). These studies unfortunately do not address the cross-cultural variation in what goods have can ownership claims placed on them, and what kinds of rights and obligations apply to information ownership.

### **Study Rationale**

To this end, we probed intuitions about ownership of information across a sample of 12 societies across four continents spanning a diversity of population sizes and cultural traditions (See Figure 1). Importantly, our sample included eleven diverse non-US or European societies. For comparability to prior studies in psychology reviewed above, we used an experimental

vignette method. All materials were translated and back-translated by the research team at each site.

Here, we investigated these questions using experimental vignette methods like the ones used in many psychological studies of ownership to measure how ownership intuitions vary across a diverse set of cultures, do peoples’ everyday intuitions about ownership hold across all 3 main legal vignettes of IP, are intuitions the same for Tangible vs Intangible manifestations of an item of knowledge, and do intuitions about monetary and non-monetary rights differ across vignettes. In order to examine how people think intangible and tangible forms of knowledge can be owned, as a function of the type of information or knowledge (the “Vignette”) and how that knowledge originated (its “Author”) participants were presented with scenarios designed to resemble three common varieties of IP: copyrights (represent by a song in our study), patents (a medicinal remedy), and trademarks (a visual design).

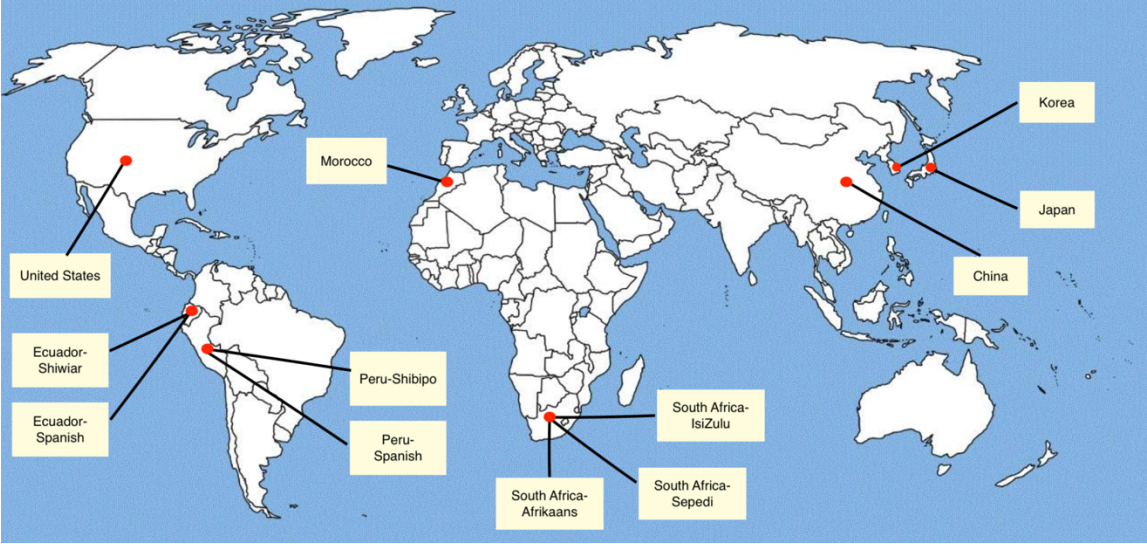
In each case, there are 3 versions of the Author of the item: it was authored by the character in the vignette, it was authored by a prior, unknown author, or it is traditional knowledge. In each case, there is both a tangible version of the item (e.g., a recording of a song) and an intangible version (the song itself). We asked participants’ personal, intuitive judgments of ownership and the rights associated with it, as well as what they think the law says about it, and a series of covariates that might predict participants’ responses.

**Table 2.1. Study Populations and Sample Characteristics.**

<b>Population</b>	<b>N</b>	<b>Language</b>	<b>% Female</b>	<b>Median Age</b>
United States	241	English	65.4%	36.29
Japan	231	Japanese	50.2%	41.05
South Korea	283	Korean	45.6%	39.91
China	275	Mandarin	50.4%	24.43
Ecuador-Shiwiar	56	Shiwiar	48%	33.45
Ecuador Spanish	35	Spanish	57.1%	33.57
Morocco	251	Arabic	55%	32.37
SA-Afrikaans	240	Afrikaans	64.9%	46.59

SA-IsiZulu	242	Zulu	67.6%	31.33
SA- Sepedi	242	Sepedi	71.9%	31.23
Peru- Spanish	246	Spanish	65%	23.32
Peru- Shipibo	147	Shipibo	47.3%	28.40

**Figure 2.1. Map of Study Sites.**



(Map source: FreeWorldMaps, 2023)

**Methods and Materials**

**Materials**

*Vignette Format*

In order to see how peoples’ judgments align or do not align with legal categories of IP, our materials were designed to resemble three common varieties of IP: copyrights, patents, and trademarks. Materials examined if people think intangible and tangible forms of knowledge can be owned, as a function of the type of information or knowledge (the “domain”) and how that knowledge originated (its “Author”). In each scenario, three variations of the item's Author are presented: in one, the vignette's character is the creator; in another, it is an undisclosed prior creator; in another, the item is part of traditional knowledge (Table 2). Additionally, each scenario encompasses both a tangible manifestation of the item (such as a recorded song on a cassette) and its intangible essence (the song in itself). Each participant received each Vignete and

each Author only once. This was done by assigning each subject to 1 of 6 blocks, each of which has a unique combination of Vignettes and Authors (See SM). The order of vignettes and questions was randomized across participants. In each case, one individual came to possess the item: this is the character for which participants were asked for their judgments about ownership rights. Participant judgments were always a 5-point Likert scale with the following labels: (1) Strongly disagree, (2) Disagree, (3) Neither Agree or Disagree, (4) Agree, (5) Strongly agree. The highest judgments in favor of ownership rights being extended to the character were coded as “5”. In the analyses, we used statistical models to ask how the various factors that varied across the vignettes and participants increased or decreased judgments on these 5-point scales.

In addition to Ownership judgments, we investigated several other judgment DVs that could be broken up into two categories, non-monetary and monetary rights. Non-monetary rights included: Allow Use, Distribute Copies, Keep and not Share. Monetary rights included: Make money from users, sell copies, Sell ownership, Sell to company (See Table 6). See the Supplementary Materials (SM) section S1 for full texts of vignettes and DVs in English.

### ***Copyright: Song Scenarios***

We designed three Song scenarios which factorially varied by how the song originated: Prior Author, New Author, and Traditional. In this series of scenarios, a musician (William) buys a collection of old cassettes at a public market. While listening through the tapes he discovers the song. In the Prior Author condition, William knows it was created by someone with musical knowledge and in the Traditional Condition William knows that this song is traditional. In the New Author condition, William creates the song. The text of the vignettes are as follows:

**Table 2.2: Copyright: Song Scenarios**

Author:	
Prior	A musician, William, is shopping at a public market where old used goods are sold. He buys a collection of old cassette tapes, many of which are unmarked. When he is listening to these tapes later at home, he finds a very good song that was clearly written by a talented songwriter. The tape is not marked and the identity of the creator of the song is unknown.
Traditional	A musician, William, is shopping at a public market where old used goods are sold. He buys a collection of old cassette tapes, many of which are unmarked. When he is listening to these tapes later at home, he finds a very good recording of an old, traditional song. He recognizes this as a very old traditional style of song that is rarely heard now. The tape is not marked and the identity of the person performing the song is unknown.
New	A musician, William, is at home playing his instrument. As he is playing, he has a new idea for a song. He spends several hours composing the song. When he has finished composing the song and has practiced playing it many times, he turns on his cassette recorder and records himself playing the song.

The DV questions asked participants their judgments about whether the musician owned and or was the creator of the physical (e.g., tape) or the non-physical (e.g., song) item, in the form of agreement or disagreement with a series of statements (See Table 2.5). Additionally, participants were asked DV questions about what monetary and non-monetary rights the musician has over the item (See Table 2.5). After each statement, participants were asked to indicate their agreement or disagreement with the statement on a 5-point scale (1= strongly disagree, 3=neither agree nor disagree, 5=strongly agree).

***Patent: (folk) Medicinal Remedy Scenarios***

We designed three Medicinal Remedy scenarios which factorially varied by how the remedy originated: Prior Author, New Author, and Traditional. In this series of scenarios, a doctor (John) buys a collection of old books at a public market. While reading through one of the books he discovers the remedy. In the Prior Author condition, John knows it was created by someone with medicinal knowledge and in the Traditional condition John knows that this folk-remedy is traditional. In the New Author condition, John creates the remedy. The text of the vignettes are as follows:

**Table 2.3: Patent: Medicinal Remedy Scenarios**

Author:	
Prior	A doctor, John, is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a recipe for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. The recipe appears to have been created by a chemist or a physician, but the identity of the creator of the recipe is unknown.
Traditional	A doctor, John, is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a recipe for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. He recognizes this combination of three plant ingredients as an old, traditional folk remedy. This is a very old traditional type of remedy that is rarely used now. The person who wrote down this remedy is not identified in the text.
New	A doctor, John, has been reading about the potential healing properties of different kinds of plants. He has a new idea for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. He creates a batch of this medicine and over the coming months tries it out on himself and his friends and family. He writes down the recipe for this remedy in his notebook.

The DV questions asked participants their judgments about whether the doctor owned and or was the creator of the physical (e.g., book with medicinal recipe) or the non-physical (e.g., medicinal recipe) item (See Table 2.5). Additionally, participants were asked DV questions about what monetary and non-monetary rights the doctor has over the item (See Table 2.5). Each statement was followed by the 5-point agree / disagree scale.

***Trademark: Design Scenarios***

We designed three Design scenarios that factorially varied by how the design originated: Prior Author, New Author, and Traditional. In this series of vignettes, an artist (Mike) buys a collection of old books at a public market. While reading through one of the books he discovers the design. In the Prior Author condition, Mike knows it was created by someone with extensive design knowledge and in the Traditional condition Mike knows that the design is traditional. In the Newly Authored condition, Mike creates the design. The text of the vignettes are as follows:

**Table 2.4: Trademark: Design Scenarios**

Author:	
Prior	An artist, Mike, is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a beautiful design. It is an abstract, geometric representation of a bird. The design was clearly drawn by a very skilled artist, but the identity of artist is unknown.
Traditional	An artist, Mike, is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a beautiful design. It is an abstract, geometric representation of a bird. He recognizes this as an ancient, sacred symbol of a local Indigenous group, drawn in a traditional style of design that is rarely seen now. The person who drew the design in the book is not identified.
New	An artist, Mike, is at home working on some drawings. As he is working, he has a new idea for a design. It is an abstract, geometric representation of a bird. He spends several hours working on versions of the idea until he perfects it. He draws the new design in his notebook

The DV questions asked participants their judgments about whether the artist owned and or was the creator of the physical (e.g., book with design) or the non-physical (e.g., design) item (See Table 2.5). Additionally, participants were asked DV questions about what monetary and non-monetary rights the doctor has over the item (See Table 2.5). Each statement was followed by the 5-point agree / disagree scale.

**Table 2.5. List of DVs and characteristics**

DV	Label	Statement for which participants rated agreement	DV Type	DV target Vignette	Models in which DV appears
1	Ownership (object)	X is owner of object containing idea (e.g., book)	Ownership	Object	1
2	Ownership (idea)	X is owner of idea itself (e.g., recipe)	Ownership	Idea	1
3	Creatorship (object)	X is creator of object containing idea (e.g., book)	Creatorship	Object	
4	Creatorship (idea)	X is creator of the idea itself (e.g., recipe)	Creatorship	Idea	
5	Sell ownership	X has the right to sell ownership of the idea (e.g., recipe)	Right	Monetary	2
6	Sell copies	X has the right to sell copies of the idea (e.g., recipe)	Right	Monetary	2
7	Make money	X has the right to collect money from others who use the idea	Right	Monetary	2
8	Sell to company	X has the right to sell the idea to a company to use as a product	Right	Monetary	2

9	Distribute copies	X has the right to distribute copies of the idea for free	Right	Non-Monetary	2
10	Allow use	X has the right to allow others to use the idea at no cost	Right	Non-Monetary	2
11	Keep and not share	X has the right to keep the idea to himself and not share it with others	Right	Non-Monetary	2

## Results

For all analyses described here, we modeled the data using multilevel Bayesian regression modeling. Participant responses were modeled using *brm* in the *brms* package in R version 4.3.1 (R Core Team, 2022; Chung et al., 2013). For each model we fitted participant responses where 5 represented “strongly agree” on the 5-point scale of agreement for each DV statement (e.g., judgments about whether the vignette character was the owner, creator, or what rights were extended). Factors such as Participant sample and features of the vignettes were modeled as combinations of fixed or random factors, along with various interaction terms. In each model, we used a Gaussian distribution as a likelihood function to estimate the probability of agreement with statements regarding various DVs (See Table 5 and Table 6). We used weakly regularizing, noninformative priors centered at zero. For each model we provide a table that reports, for each factor estimated in the model, the median of the posterior distribution, a credible interval (CI) based on the 90% HDI (High Density Interval) of the posterior, and the probability of direction (pd)—a variable that ranges between .5 and 1.0 and represents the certainty which with an effect goes in a particular direction, either positive or negative (pd = 0.5 indicates no directional effect, and pd = 1.0 equals a highly directional effect of the factor in question). Figures show estimated posterior distributions of specific combinations of factors investigated in the models. Tables in the Supplementary Materials report estimates of those distributions (medians and 90% HDIs) for each specific combination of factor values shown in the plots (see SM S2). Where relevant, we report some of these statistics in the main text.

We created two statistical models. Model 1 examined the ownership DVs (ownership of object and idea) across the 3 vignettes, 3 Author types, and the study sites. Model 2 examined the rights variables, monetary and non-monetary, also across the 3 vignettes, 3 Author types, and the study sites.

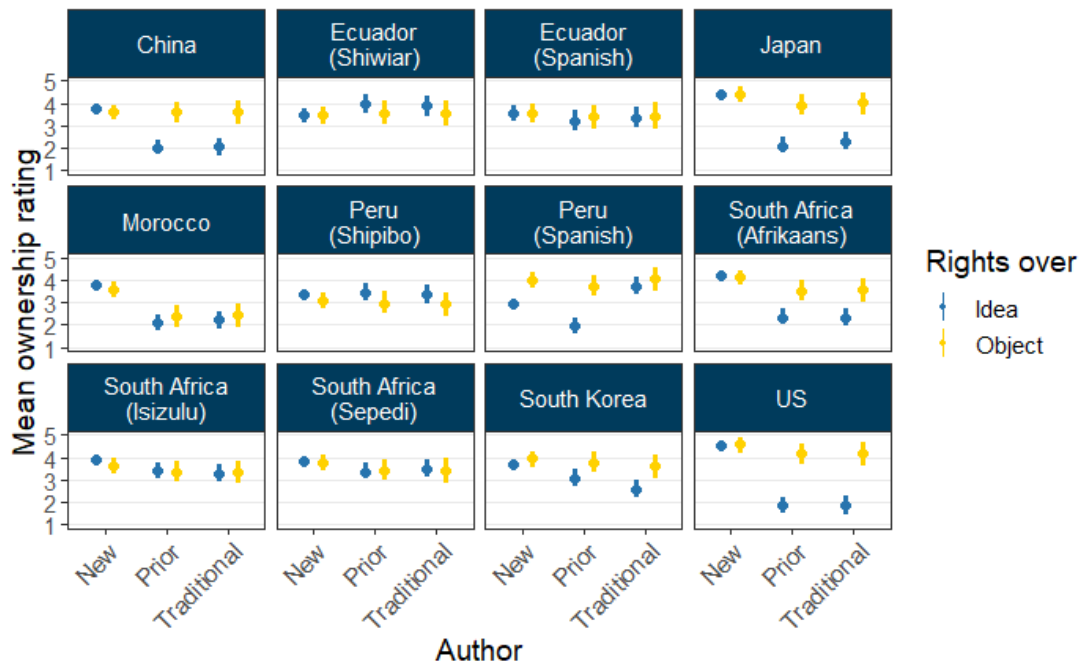
### Tangible vs Intangible Ownership

#### *Model 1: Attributions of Ownership over physical objects vs the ideas*

Model 1 examines attributions of ownership over physical objects vs the ideas those objects instantiate (e.g., ownership over a recipe book vs the recipes contained within). In Model 1 we fit the model to regress ratings of ownership on to the Author (New, Prior, Traditional), rights over the Idea vs Objects, and their interaction (See Figure 2.2). Random intercepts and slopes were modeled for Participant Sample and Vignettes. Additionally, random intercepts were modeled for Participants.

**Figure 2.2. Probability of Ownership Extended Across Participant Samples.**

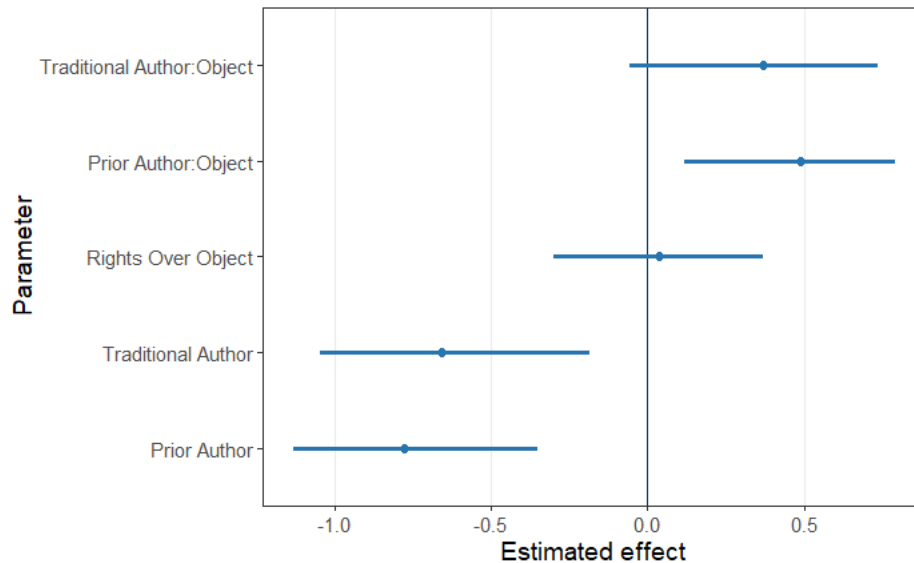
Points are the median and 90% HCI of the predicted means for each condition from the models.



**Table 2.6. Mean and Standard Deviation of Ownership Ratings by Author and Vignettes, Pooled Across Participant Samples.**

Author	Question	Mean	SD
New	Idea	3.9	1.2
New	Object	3.9	1.2
Prior	Idea	2.5	1.3
Prior	Object	3.5	1.3
Traditional	Idea	2.7	1.4
Traditional	Object	3.6	1.3

**Figure 2.3. Mean Difference in Ownership Ratings Extended to Objects vs Ideas Across Authors, Pooled Across Participant Samples.**



**Table 2.7. Parameter estimates of Model 1: Attributions of Ownership Ratings over Objects vs Ideas, Pooled Across Participant Samples.**

Variable	Median	90%CI	pd
Prior Author	-0.76	[-1.15, -0.37]	0.994
Traditional Author	-0.64	[-1.05, -0.23]	0.989
Ownership	0.04	[-0.29, 0.35]	0.586
Prior Author: Object	0.48	[0.11, 0.81]	0.979
Traditional Author: Object	0.37	[-0.06, 0.73]	0.924

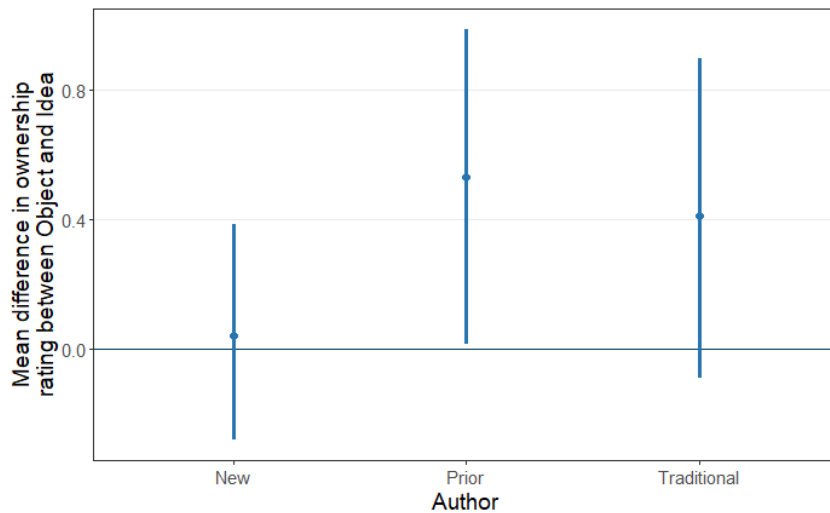
Table 2.6 presents the median and 90% CI of the estimated coefficients from the model.

Since the model is coded with New Author and Idea (Intangible) as baselines, coefficients in

Table 2.7 are differences in the attribution of ownership from that cell. Here we see a strong

main effect in where Ideas(Intangible) in the Prior (Med = -0.76, 90% CI: -1.15, -0.37, pd= .994) and the Traditional (Med = -0.64, 90% CI: -1.05, -0.23, pd= .989) Author scenarios had less ownership attributed when compared to Ideas in the New Author condition, but this difference was smaller for ownership extended to Objects (Tangible) in the Prior (Med = 0.48, 90% CI: 0.11, 0.81, pd= .979) and Traditional (Med = 0.37, 90% CI: -0.06, 0.73, pd= .924) Author scenarios; there was no difference in the ownership extended to Ideas and Objects for New Author (See Figure 2.3).

**Figure 2.4. Mean Difference in Ownership Ratings Across Objects and Ideas by Author, Pooled Across Participant Samples.**



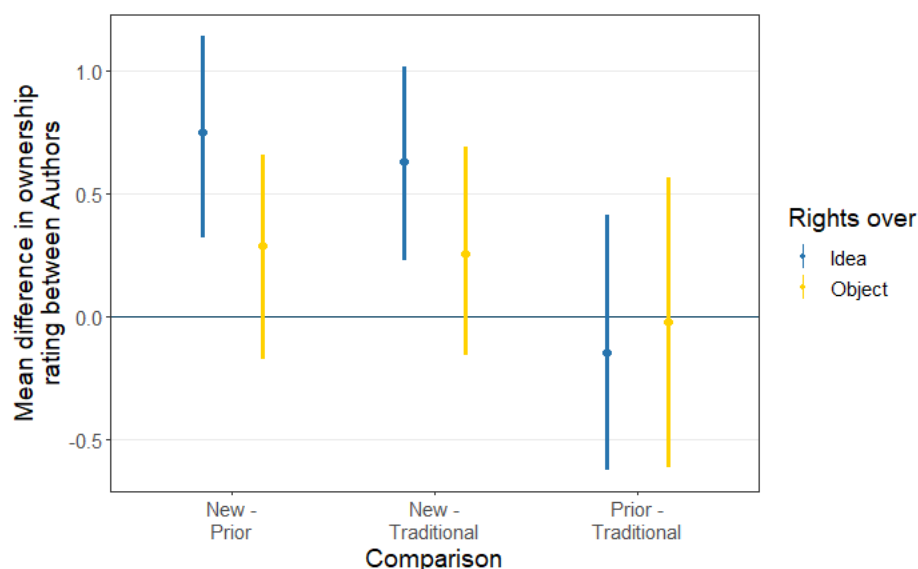
We next examined the interactions in Model 1 by looking at the difference in ownership over Objects and Ideas by author. Here we see a strong main effect between ownership ascribed to Objects and Ideas when pooled together in Prior (Med = 0.52, 90% CI: 0.05, 1.01, pd= .951) and Traditional (Med = 0.41, 90% CI: -0.10, 0.89, pd= .903) Author scenarios but not New (Med = 0.04, 90% CI: -0.29, 0.35, pd= .586) Author scenarios (See Figure 2.4).

**Table 2.8. The Median and 90% HCI of the Estimated Difference in Ownership Ratings Across Objects and Ideas by Author, Pooled Across Participant Samples**

Author	Median	90%CI	pd
New	0.04	[-0.29, 0.35]	0.586

Prior	0.52	[0.05, 1.01]	0.951
Traditional	0.41	[-0.10,0.89]	0.903

**Figure 2.5. Difference in Ownership Ratings Extend to Objects and Ideas across Author Categories, Pooled Across Participant Samples.**



Additionally, in Model 1 we examined the interaction in the other direction, by comparing differences between Authors for each right. For Ownership extended to Ideas, there were differences between New/ Prior (Med = 0.74, 90% CI: 0.35, 1.15, pd= .993) Author and New/ Traditional (Med = 0.63, 90% CI: 0.25, 1.03, pd= .989) Author scenarios; for Object, these differences were smaller. There was no difference in the attribution of ownership between Prior and Traditional Authors (See Figure 2.5).

**Table 2.9. The Median and 90% HCI of the Estimated Difference in Ownership Attribution Extend to Objects and Ideas between Authors Pooled Across Participant Samples.**

Question	Comparison	Median	90 CI%	pd
Idea	New - Prior	0.75	[0.35, 1.15]	0.993
Idea	New - Traditional	0.63	[0.25, 1.03]	0.989
Idea	Prior - Traditional	-0.14	[-0.62, 0.41]	0.670
Object	New - Prior	0.29	[-0.15, 0.67]	0.866
Object	New - Traditional	0.26	[-0.14, 0.71]	0.853
Object	Prior - Traditional	-0.02	[-0.50, 0.66]	0.524

Model 1 showed a strong main effect in the ascription of ownership to Objects in the Prior (Med = -0.76, 90% CI: -1.15, -0.37, pd= .994) and Traditional (Med = -0.64, 90% CI: -1.05, -0.23, pd= .989) Author conditions across the participant samples when pooled together (See Table 2.7). On the other hand, Ideas had lower rates of ownership extended to them when they are in the in the Prior (Med = -0.76, 90% CI: -1.15, -0.37, pd= .994) and Traditional (Med = -0.64, 90% CI: -1.05, -0.23, pd= .989) Author conditions across the participant samples when pooled together.

A further look into the total effects of Model 1 show that there is a pattern among the same participant samples, in where they are ascribing higher rates of ownership both in the Prior: China (Med = 1.75, 90% CI: 1.44, 2.04, pd= 1), US (Med = 2.27, 90% CI: 1.96, 2.58, pd= 1), Japan (Med = 1.80, 90% CI: 1.50, 2.11, pd= 1), SA-Afrikaans (Med = 1.32, 90% CI: 1.03, 1.62, pd= 1), and South Korea (Med = 0.43, 90% CI: 0.14, 0.75, pd= .977), and the Traditional: China (Med = 1.75, 90% CI: 1.35, 2.04, pd= 1), US (Med = 2.30, 90% CI: 1.93, 2.65, pd= 1), Japan (Med = 1.68, 90% CI: 1.32, 2.05, pd= 1), SA-Afrikaans (Med = 1.36, 90% CI: 1.00, 1.71, pd= 1), and South Korea (Med = 0.77, 90% CI: 0.41, 1.11, pd= .997) Author scenarios.

The inverse of this effect was shown with the same participant samples where there was a lower ascription of ownership of Ideas in the Prior: China (Med = -1.79, 90% CI: -2.04, -1.44, pd= 1), US (Med = -2.71, 90% CI: -3.01, -2.39, pd= 1), Japan (Med = -2.29, 90% CI: -2.58, -1.96, pd= 1), SA-Afrikaans (Med = -1.92, 90% CI: -2.23, -1.61, pd= 1), and South Korea (Med = -0.61, 90% CI: -0.90, -0.29, pd= .988), and Traditional: China (Med = -1.79, 90% CI: -2.04, -1.44, pd= 1), US (Med = -2.71, 90% CI: -3.01, -2.39, pd= 1), Japan (Med = -2.29, 90% CI: -2.58, -1.96, pd= 1), SA-Afrikaans (Med = -1.91, 90% CI: -2.23, -1.61, pd= 1), and South Korea (Med = -1.10, 90% CI: -1.43, -0.75, pd= 1) Author scenarios.

Model 1 indicated that participants sampled in Morocco demonstrated higher rates of ownership attribution to Objects under both the Prior author scenarios (Median = 0.48, 90% CI:

0.15, 0.77,  $p < .001$ ) and the Traditional scenarios (Median = 0.42, 90% CI: 0.05, 0.78,  $p < .001$ ). Similar trends were observed among other groups in terms of the ascription ownership, although not consistently across both the Prior and Traditional Author scenarios. Specifically, participants from Peru extended ownership to Objects linked with a Prior Author (Median = 0.70, 90% CI: 0.38, 1.01,  $p < .001$ ), while participants from South Africa (Sepedi) ascribed ownership to Objects in the Traditional Author (Median = 0.33, 90% CI: -0.04, 0.67,  $p < .001$ ) scenarios.

Furthermore, the total effects of Model 1 showed that participants in the Ecuador (Shiwiar) sample ascribed higher rates of ownership to Ideas in the Prior (Median = 0.51, 90% CI: 0.09, 0.95,  $p < .001$ ) and Traditional (Median = 0.41, 90% CI: -0.03, 0.86,  $p < .001$ ) Author scenarios. A similar pattern was also seen in the Peru (Spanish) participant sample, but they only displayed increased rates of ownership to Ideas associated with Traditional Author (Median = 0.79, 90% CI: 0.47, 1.15,  $p = 1$ ) scenarios.

### ***Model 2: Attributions of Rights over Use, Distribution, and Profit***

Model 2 examines the attributions of rights over use, distribution, and profit. In Model 2 we fit the model to regress ratings for attributions of each right on to Author (New, Prior, Traditional), the right in question (monetary vs non-monetary) and their interaction (See Figure 2.8). Random intercepts and slopes were modeled for Participant sample and vignette type. Additionally, random intercepts were modeled for participant samples.

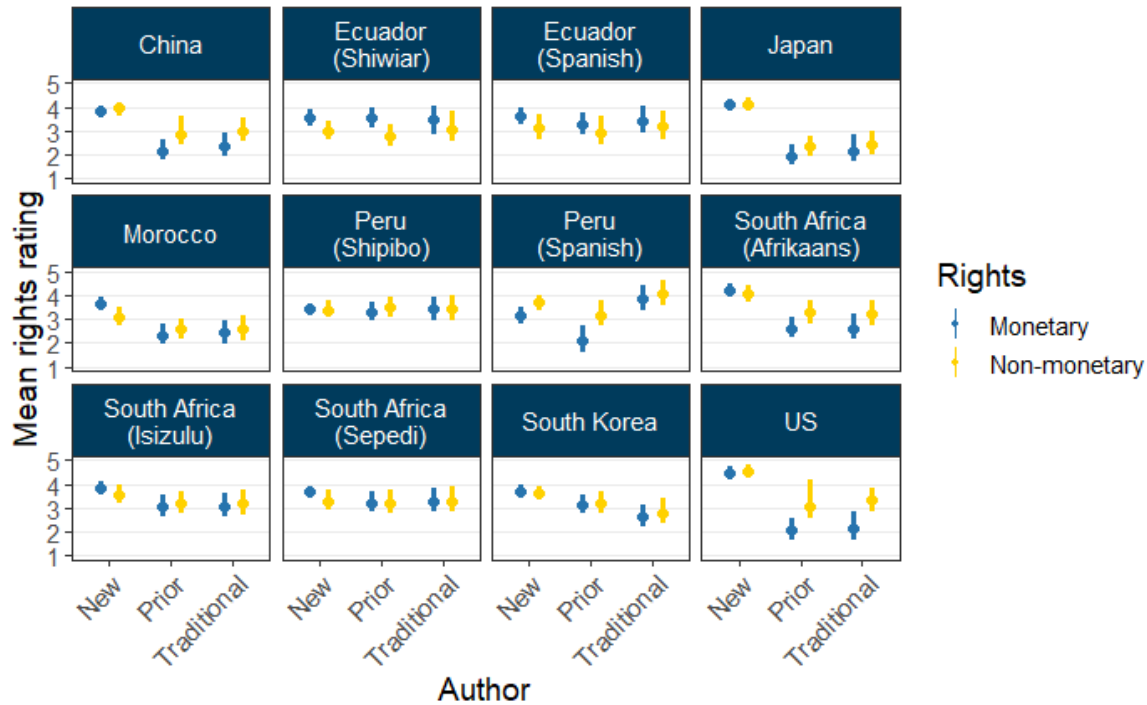
**Table 2.10. Model 2 Total Effects Across Participant Samples.**

Participant Sample	Parameter	Median	90% CI	pd
China	Prior Author	-1.79	[-2.04, -1.44]	1.000
China	Traditional Author	-1.74	[-2.07, -1.41]	1.000
China	Rights Over Object	-0.17	[-0.47, 0.12]	0.845
China	Prior Author: Object	1.75	[1.44, 2.04]	1.000
China	Traditional Author: Object	1.71	[1.35, 2.04]	1.000
Ecuador (Shiwiar)	Prior Author	0.51	[0.09, 0.95]	0.982
Ecuador (Shiwiar)	Traditional Author	0.41	[-0.03, 0.85]	0.943
Ecuador (Shiwiar)	Rights Over Object	0.02	[-0.36, 0.42]	0.529
Ecuador (Shiwiar)	Prior Author: Object	-0.40	[-0.83, 0.06]	0.933
Ecuador (Shiwiar)	Traditional Author: Object	-0.36	[-0.86, 0.14]	0.883
Ecuador (Spanish)	Prior Author	-0.33	[-0.84, 0.11]	0.877

Ecuador (Spanish)	Traditional Author	-0.17	[-0.68, 0.33]	0.711
Ecuador (Spanish)	Rights Over Object	0.03	[-0.39, 0.44]	0.539
Ecuador (Spanish)	Prior Author: Object	0.15	[-0.33, 0.66]	0.684
Ecuador (Spanish)	Traditional Author: Object	0.06	[-0.53, 0.59]	0.569
Japan	Prior Author	-2.29	[-2.58, -1.96]	1.000
Japan	Traditional Author	-2.07	[-2.40, -1.71]	1.000
Japan	Rights Over Object	0.04	[-0.27, 0.34]	0.590
Japan	Prior Author: Object	1.80	[1.50, 2.11]	1.000
Japan	Traditional Author: Object	1.68	[1.32, 2.05]	1.000
Morocco	Prior Author	-1.70	[-1.99, -1.36]	1.000
Morocco	Traditional Author	-1.58	[-1.92, -1.24]	1.000
Morocco	Rights Over Object	-0.19	[-0.51, 0.09]	0.871
Morocco	Prior Author: Object	0.48	[0.15, 0.77]	0.981
Morocco	Traditional Author: Object	0.42	[0.05, 0.78]	0.956
Peru (Shipibo)	Prior Author	0.08	[-0.27, 0.40]	0.665
Peru (Shipibo)	Traditional Author	0.02	[-0.33, 0.39]	0.528
Peru (Shipibo)	Rights Over Object	-0.24	[-0.59, 0.07]	0.900
Peru (Shipibo)	Prior Author: Object	-0.22	[-0.54, 0.15]	0.851
Peru (Shipibo)	Traditional Author: Object	-0.22	[-0.62, 0.17]	0.830
Peru (Spanish)	Prior Author	-1.00	[-1.29, -0.66]	0.999
Peru (Spanish)	Traditional Author	0.79	[0.47, 1.15]	1.000
Peru (Spanish)	Rights Over Object	1.07	[0.79, 1.41]	1.000
Peru (Spanish)	Prior Author: Object	0.70	[0.38, 1.01]	0.995
Peru (Spanish)	Traditional Author: Object	-0.76	[-1.13, -0.40]	0.999
South Africa (Afrikaans)	Prior Author	-1.91	[-2.23, -1.61]	1.000
South Africa (Afrikaans)	Traditional Author	-1.90	[-2.25, -1.56]	1.000
South Africa (Afrikaans)	Rights Over Object	-0.11	[-0.41, 0.19]	0.746
South Africa (Afrikaans)	Prior Author: Object	1.32	[1.03, 1.62]	1.000
South Africa (Afrikaans)	Traditional Author: Object	1.36	[1.00, 1.71]	1.000
South Africa (Isizulu)	Prior Author	-0.52	[-0.81, -0.18]	0.980
South Africa (Isizulu)	Traditional Author	-0.62	[-0.95, -0.27]	0.990
South Africa (Isizulu)	Rights Over Object	-0.25	[-0.55, 0.06]	0.921
South Africa (Isizulu)	Prior Author: Object	0.24	[-0.08, 0.53]	0.894
South Africa (Isizulu)	Traditional Author: Object	0.33	[-0.04, 0.67]	0.918
South Africa (Sepedi)	Prior Author	-0.46	[-0.76, -0.14]	0.975
South Africa (Sepedi)	Traditional Author	-0.35	[-0.70, -0.01]	0.936
South Africa (Sepedi)	Rights Over Object	-0.04	[-0.34, 0.27]	0.594
South Africa (Sepedi)	Prior Author: Object	0.10	[-0.20, 0.43]	0.722
South Africa (Sepedi)	Traditional Author: Object	-0.02	[-0.39, 0.33]	0.537
South Korea	Prior Author	-0.61	[-0.90, -0.29]	0.988
South Korea	Traditional Author	-1.10	[-1.43, -0.75]	1.000
South Korea	Rights Over Object	0.29	[-0.01, 0.59]	0.941
South Korea	Prior Author: Object	0.43	[0.14, 0.75]	0.977
South Korea	Traditional Author: Object	0.77	[0.41, 1.11]	0.997
US	Prior Author	-2.71	[-3.01, -2.39]	1.000
US	Traditional Author	-2.70	[-3.02, -2.32]	1.000
US	Rights Over Object	0.06	[-0.24, 0.37]	0.638
US	Prior Author: Object	2.27	[1.96, 2.58]	1.000
US	Traditional Author: Object	2.30	[1.93, 2.65]	1.000

**Figure 2.6. Probability of Rights ratings Extended across Participant Samples.**

The points are the median and 90% HDI of the estimated mean rights attribution by sample and author.

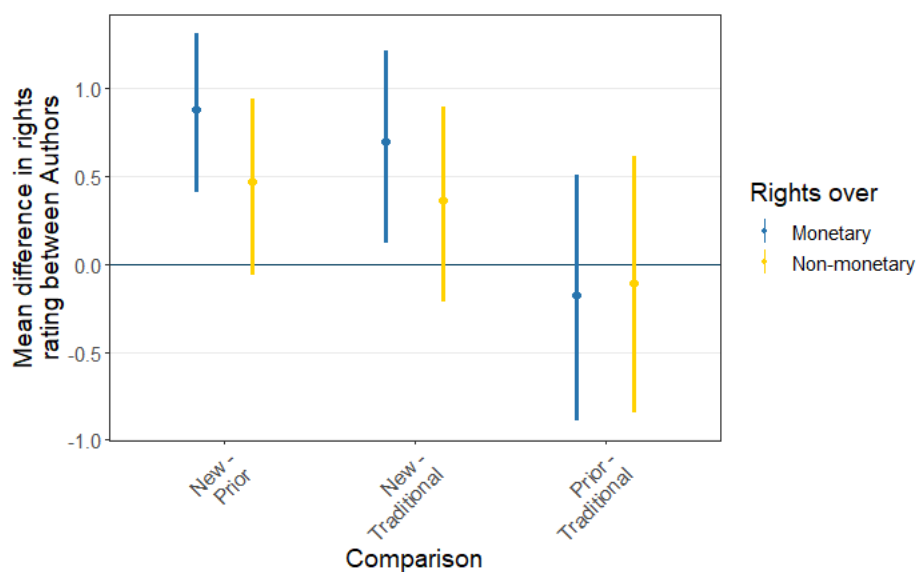


**Table 2.11. The Mean and Standard Deviation of Rights ratings by Authors and Vignette, Pooled Across Participant Samples.**

Author	Question	Type	Mean	SD
New	Sell to company	Monetary	3.8	1.2
New	Distribute copies	Non-Monetary	3.7	1.2
New	Keep and not share	Non-Monetary	3.8	1.2
New	Allow use	Non-Monetary	3.6	1.3
New	Make money from users	Monetary	3.7	1.2
New	Sell copies	Monetary	3.9	1.2
New	Sell ownership	Monetary	3.9	1.2
Prior	Sell to company	Monetary	2.5	1.4
Prior	Distribute copies	Non-Monetary	2.9	1.3
Prior	Keep and not share	Non-Monetary	3.3	1.3
Prior	Allow use	Non-Monetary	2.9	1.3
Prior	Make money from users	Monetary	2.5	1.3
Prior	Sell copies	Monetary	2.8	1.3
Prior	Sell ownership	Monetary	2.5	1.3
Traditional	Sell to company	Monetary	2.7	1.4
Traditional	Distribute copies	Non-Monetary	3.0	1.3
Traditional	Keep and not share	Non-Monetary	3.2	1.3

Traditional	Allow use	Non-Monetary	3.0	1.3
Traditional	Make money from users	Monetary	2.8	1.4
Traditional	Sell copies	Monetary	2.7	1.4
Traditional	Sell ownership	Monetary	2.7	1.4

**Figure 2.7. Difference in Mean Attribution Rights ratings between Author, Pooled Across Participant Samples.**



In Model 2 we collapsed the Rights into monetary and non-monetary (See SM). New Author scenarios were ascribed higher Monetary Rights when compared to the Prior (Med = 0.88, 90% CI: 0.42, 1.32,  $pd = .997$ ), and Traditional (Med = -0.17, 90% CI: -0.92, 0.48,  $pd = .660$ ) Author scenarios. New Author scenarios were ascribed higher Non-Monetary Rights when compared to the Prior (Med = 0.47, 90% CI: -0.05, 0.95,  $pd = .927$ ), and Traditional (Med = 0.36, 90% CI: -0.17, 0.93,  $pd = .858$ ) Author scenarios. There was no significant difference in the ascription of ownership between the Prior and Traditional (Med = -0.10, 90% CI: -0.86, 0.59,  $pd = .598$ ) Author scenarios (See Table 2.12).

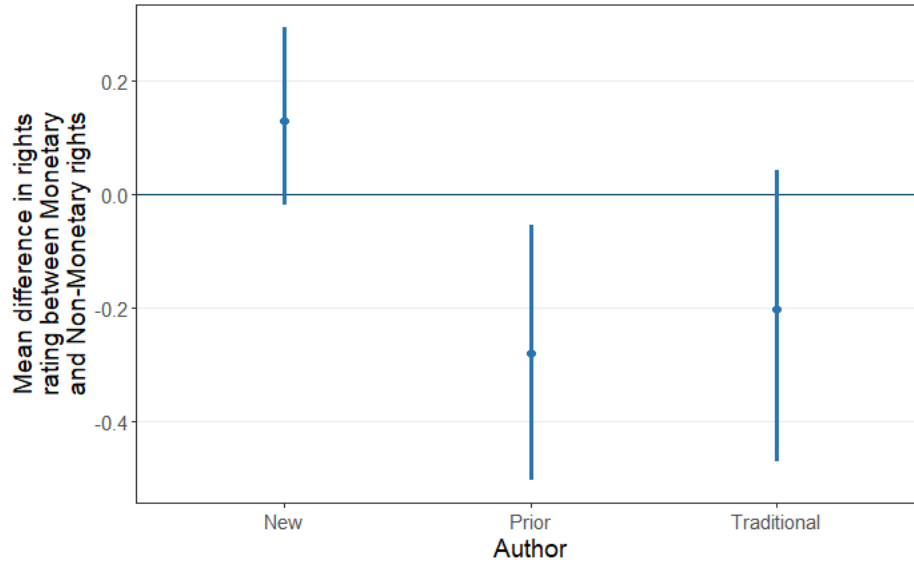
**Table 2.12. The Median and 90% HCI of the Estimated Difference in Rights ratings between Authors, Pooled Across Participant Samples.**

Question	Comparison	Median	LCI	HCI	pd
Monetary	New - Prior	0.88	0.42	1.32	0.997
Monetary	New - Traditional	0.70	0.15	1.24	0.974
Monetary	Prior - Traditional	-0.17	-0.92	0.48	0.660

Non-monetary	New - Prior	0.47	-0.05	0.95	0.927
Non-monetary	New - Traditional	0.36	-0.17	0.93	0.858
Non-monetary	Prior - Traditional	-0.10	-0.86	0.59	0.598

**Figure 2.8. Difference in Mean Attribution of Rights ratings by Authors, Pooled Across Participant Samples.**

Points show the median and bars show the 90% HCI of the difference in mean attribution over monetary and non-monetary rights by Author.



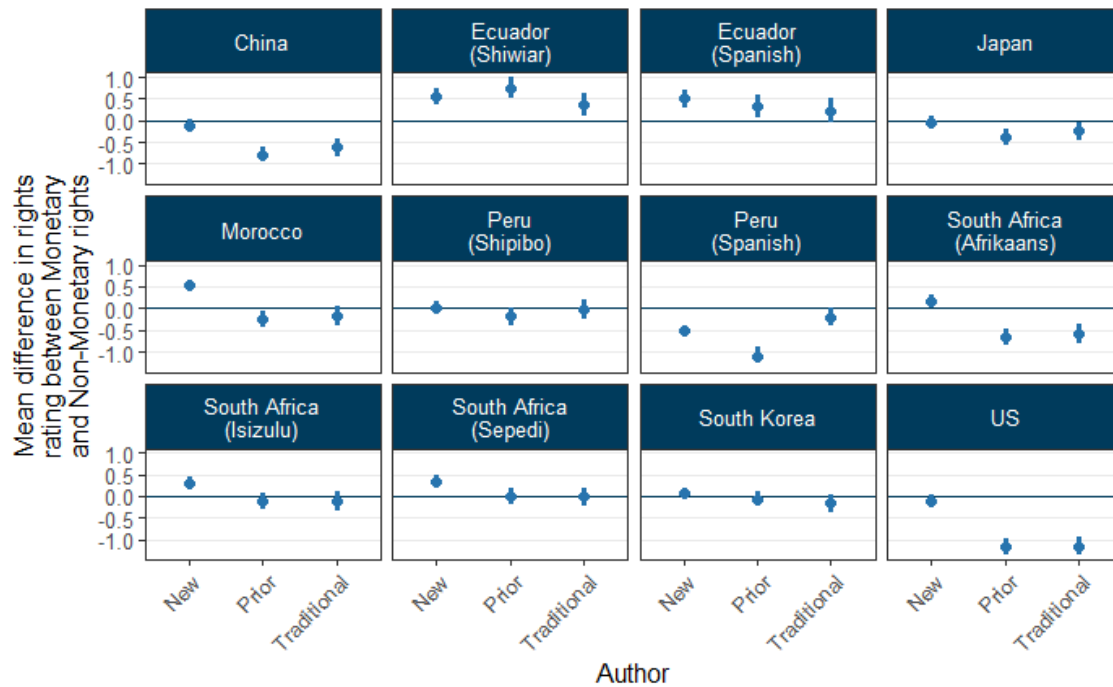
We next examined the mean differences in the attribution of monetary and non-monetary rights broken down by Author (See Figure 2.6). Participants attributed far more Monetary rights to New Author (Med=0.13, 90%CI: -0.02, 0.29, pd=0.924), whereas when there was a Prior (Med=-0.28, 90%CI: -0.52, -0.07, pd=0.984), or Traditional (Med=-0.20, 90%CI: -0.44, -0.06, pd=0.912) Author, there were more Non-Monetary rights extended than Monetary rights (See Table 2.13).

**Table 2.13. The Median and 90% HCI of the Estimated Difference Rights ratings across Authors, Pooled Across Participant Samples.**

Author	Median	90% CI	pd
New	0.13	[-0.02, 0.29]	0.924
Prior	-0.28	[-0.52, -0.07]	0.984
Traditional	-0.20	[-0.44, 0.06]	0.912

**Figure 2.9. Difference in Mean Attribution of Rights between Rights ratings Extended across Participant Samples.**

The points are the median and 90% HDI of the difference in mean attribution across participant samples.



Model 2 expands the findings from Model 1 by examining the difference in the attribution of monetary and non-monetary rights across the given Author scenarios.

The following participant samples were less likely to attribute Monetary rights to the Prior and Traditional Author scenarios when compared to the New Author scenarios: China (Prior: Med= -0.78, 90%CI: -0.96, -0.59, pd=1; Traditional: Med= -0.62, 90%CI: -0.82, -0.41, pd=1), US (Prior: Med= -1.17, 90%CI: -1.34, -0.96, pd=1; Traditional: Med= -1.15, 90%CI: -1.35, -0.94, pd=1 ), Japan (Prior: Med= -0.40, 90%CI: -0.60, -0.22, pd=.998; Traditional: Med= -0.25, 90%CI: -0.45, -0.03, pd=.970 ), and South Africa (Afrikaans) (Prior: Med= -0.68, 90%CI: -0.87, -0.50, pd=1; Traditional: Med= -0.58, 90%CI: -0.82, -0.40, pd=1). This aligns with the

pattern of ownership attribution in Model 1, lower rates of ownership ascribed to the Prior and Traditional Author scenarios when compared to the New Author scenarios (See Table 2.11).

Model 2 further showed that participants in Morocco (Prior: Med= -0.26, 90%CI: -0.44, -0.07, pd=.981; Traditional: Med= -0.17, 90%CI: -0.39, -0.03, pd=.917), and Peru (Spanish) (Prior: Med= -1.09, 90%CI: -1.27, -0.90, pd=1; Traditional: Med= -0.20, 90%CI: -0.40, -0.03, pd=.936) ascribed less Monetary rights to the Prior and Traditional Author scenarios when compared to the New Author scenarios, aligning with the pattern of ownership attribution in Model 1 (See Table 2.11). Similar trends were observed among other groups in terms of the ascription of Monetary rights, although not consistently across both the Prior and Traditional Author scenarios. Specifically, participants from Peru (Shipibo) extended less Monetary rights in the Prior (Med= -0.19, 90%CI: -0.38, -0.02, pd=.940) Authors, while participants from South Korea extended less Monetary rights in the Traditional (Med= -0.16, 90%CI: -0.38, -0.03, pd=.906) Author scenarios.

Furthermore, Model 2 showed that that Ecuador (Shiwiar) (New: Med= 0.56, 90%CI: 0.39, 0.76, pd=1; Prior: Med= 0.74, 90%CI: 0.49, 0.96, pd=1; Traditional: Med= 0.37, 90%CI: 0.08, 0.61, pd=.988) and Ecuador (Spanish) (New: Med= 0.50, 90%CI: 0.27, 0.69, pd=1; Prior: Med= 0.32, 90%CI: 0.08, 0.57, pd=.982; Traditional: Med= 0.22, 90%CI: -0.05, 0.50, pd=.905) participants extended Monetary rights fairly evenly across all the Author conditions (See Table 2.14).

**Table 2.14. Difference in Mean Attribution of Rights between Rights ratings across Participant Samples**

Participant Sample	Author	Median	90% CI	pd
China	New	-0.12	[-0.26, 0.00]	0.934
China	Prior	-0.78	[-0.96, -0.59]	1.000
China	Traditional	-0.62	[-0.82, -0.41]	1.000
Ecuador (Shiwiar)	New	0.56	[0.39, 0.76]	1.000
Ecuador (Shiwiar)	Prior	0.74	[0.49, 0.96]	1.000

Ecuador (Shiwiar)	Traditional	0.37	[0.08, 0.61]	0.988
Ecuador (Spanish)	New	0.50	[0.27, 0.69]	1.000
Ecuador (Spanish)	Prior	0.32	[0.08, 0.57]	0.982
Ecuador (Spanish)	Traditional	0.22	[-0.05, 0.50]	0.905
Japan	New	-0.04	[-0.17, 0.11]	0.692
Japan	Prior	-0.40	[-0.60, -0.22]	0.998
Japan	Traditional	-0.25	[-0.45, -0.03]	0.970
Morocco	New	0.52	[0.38, 0.65]	1.000
Morocco	Prior	-0.26	[-0.44, -0.07]	0.981
Morocco	Traditional	-0.17	[-0.39, 0.03]	0.917
Peru (Shipibo)	New	0.00	[-0.14, 0.16]	0.521
Peru (Shipibo)	Prior	-0.19	[-0.38, 0.02]	0.940
Peru (Shipibo)	Traditional	-0.03	[-0.24, 0.20]	0.601
Peru (Spanish)	New	-0.53	[-0.67, -0.40]	1.000
Peru (Spanish)	Prior	-1.09	[-1.27, -0.90]	1.000
Peru (Spanish)	Traditional	-0.20	[-0.40, 0.03]	0.936
South Africa (Afrikaans)	New	0.17	[0.01, 0.29]	0.980
South Africa (Afrikaans)	Prior	-0.68	[-0.87, -0.50]	1.000
South Africa (Afrikaans)	Traditional	-0.58	[-0.82, -0.40]	1.000
South Africa (Isizulu)	New	0.31	[0.17, 0.44]	0.999
South Africa (Isizulu)	Prior	-0.13	[-0.31, 0.06]	0.857
South Africa (Isizulu)	Traditional	-0.12	[-0.34, 0.09]	0.818
South Africa (Sepedi)	New	0.33	[0.19, 0.46]	1.000
South Africa (Sepedi)	Prior	0.00	[-0.18, 0.19]	0.511
South Africa (Sepedi)	Traditional	-0.01	[-0.22, 0.21]	0.540
South Korea	New	0.07	[-0.06, 0.20]	0.792
South Korea	Prior	-0.08	[-0.24, 0.12]	0.747
South Korea	Traditional	-0.16	[-0.38, 0.03]	0.906
US	New	-0.11	[-0.26, 0.02]	0.907
US	Prior	-1.17	[-1.34, -0.96]	1.000
US	Traditional	-1.15	[-1.35, -0.94]	1.000

\* A positive value indicates that Participant Sample gives more monetary rights for the given author condition than for the other author conditions.

## Discussion

Our results yield several main conclusions. Model 1 investigated the attribution of ownership of intangible ideas, versus objects (tapes, books) in which physical manifestations of those ideas (songs, designs, recipes) were contained. Model 1 observed that participants extended less ownership to Ideas when there was a prior author, or when they were traditional, compared to when the character themselves were the author (New author scenario). This difference in the attribution of ownership wasn't as strong when it came to Objects in the Prior

and Traditional Author scenarios, meaning that there was an equal amount of attribution of ownership to Objects in both the Prior and Traditional Author scenarios. In the New Author scenarios there was no difference in the attribution of ownership between Objects and Ideas: Participant samples tended to attribute higher rates of ownership across both Objects and Ideas in the New Author scenarios (See Figure 2.2).

Furthermore, in Model 1, we analyzed the interactions from another perspective, assessing the differences between Authors for each right. Concerning ownership as it pertains to Ideas, there tended to be more of a difference in the ascription of ownership between the New/Prior Author and New/Traditional Author scenarios when compared. This means that participants ascribed the higher rates of ownership to Ideas in the New Author scenarios when compared to the Prior and Traditional Author scenarios.

A deeper examination of Model 1's overall effects revealed a pattern in the attribution of ownership between Ideas and Objects under the Prior and Traditional Author scenarios across various participant samples. In both the Prior and Traditional Author scenarios of ownership of an Object, participants in China, the United States, Japan, South Africa (Afrikaans) and South Korea attributed higher rates of ownership.

In general, the results from Model 1 consistently show that participants tend to ascribe higher ownership to Objects than to Ideas in the Prior and Traditional Author scenarios when participant samples were pooled together. One of the possibilities for a higher attribution of ownership to Objects versus Ideas may be that Objects and the purchasing of them, as stated in the scenarios, is less ambiguous but does not necessarily grant the individual that purchased the item ownership of the IP that the item may contain (Song, Recipe, Design).

In regards to participants ascribing a higher rate of ownership to Ideas in the New Author scenarios when compared to the Prior and Traditional Author scenarios, it may be that New

Authors may be perceived as being the owner because they are seen as the creator, leading to a greater inclination to attribute ownership (Lueck, 1995). Additionally, Ideas associated with a Prior or Traditional Author might be viewed as already individually owned property (Prior Author) or collective cultural heritage (Traditional Author). This may also be reflective of legal frameworks within places like China, the United States, Japan, South Africa (Afrikaans) and South Korea shaping how people view ownership. In particular, people may be more accustomed to quickly attributing ownership to Objects as they can be easily purchased and possessed versus Ideas that may possess less clearly defined frameworks of ownership for the layperson.

In Model 2, the Rights were categorized into monetary and non-monetary. The findings in Model 2 indicate that characters in the New Author scenarios are perceived as having more monetary and non-monetary rights to ideas they created, when compared to Prior and Traditional Author. No difference in rights was observed between Prior and Traditional Author scenarios. Participants generally attributed higher monetary rights, except when dealing with Prior or Traditional authors, where non-monetary rights were more prevalent. The findings in Model 2 reinforce those of Model 1, showing a consistent attribution of monetary and non-monetary rights across various authors. Participants from countries like China, the US, Japan, South Africa (Afrikaans), Morocco, and Peru (Spanish) were less inclined to assign Monetary rights to Prior and Traditional authors, aligning with Model 1's results as they relate to the attribution of ownership. Only in the Peru (Shipibo) participant sample were there less Monetary rights assigned to both the Prior or Traditional Author scenarios. Additionally, participants from both the Ecuador (Shiwiar and Spanish) extended Monetary rights across all Author conditions.

Model 2 highlights a distinct preference by participants to assign both monetary and non-monetary rights to the New Author scenarios in contrast to the Prior and Traditional Author scenarios. This may be due to the possible relationship between ownership and rights, as the

attribution of a greater number of rights often corresponds to an intensified perception of ownership in a Western legal tradition (Walterscheid, 1994; Riley, 2000).

## **Conclusion**

Having examined intuitions regarding ownership of information across a sample of 12 societies distributed across four continents, our study illustrates a series of patterns that suggest variations in the attribution of ownership to Ideas versus Objects. The first of these can be seen in the difference in attributions between participants from Morocco consistently displayed higher rates of ownership attribution to Objects in both Prior and Traditional author scenarios. Similar trends were observed among other participant groups, albeit unevenly across both the Prior and Traditional Author scenarios. For instance, participants from Peru (Spanish) attributed ownership to Objects associated with a Prior Author, while participants from South Africa (Sepedi) assigned ownership to Objects in the Traditional Author scenarios. Furthermore, participants in Morocco and Peru (Spanish) attributed fewer monetary rights to the Prior and Traditional Author scenarios compared to the New Author scenarios. Similar tendencies were noted in other groups concerning the ascription of monetary rights, albeit inconsistently across both the Prior and Traditional Author scenarios. For instance, participants from Peru (Shipibo) extended fewer monetary rights to Prior Authors, while participants from South Korea assigned fewer monetary rights to Traditional Authors. Within these participant samples, differences emerged in the way ownership was attributed to both Objects and Ideas across the various author scenarios. Notably, these attributions did not exhibit a distinct clustering pattern in that there was variation in ownership across the scenarios between these samples.

A deeper look at the data, we see that participants in the US, China, Japan, and South Africa (Afrikaans) tended to have similar patterns in judgments about ownership as it pertains to physical Objects and Ideas. These four countries (e.g., US, China, Japan, South Africa

(Afrikaans) and to an extent South Korea assign ownership rights to both physical objects and ideas when they are associated with innovation (e.g., New Author) but to a far lesser degree to objects when they are associated with a Prior and Traditional Author, and don't extend ownership rights to ideas that have an association with a Prior or Traditional Author. It appears that the countries with the most patents, US, China, Japan, and South Korea as of 2022, seem to distribute the highest rates of ownership rights across the innovation conditions in this present study (WIPO, 2022). Out of these four countries, three (US, China, Japan) are the top three countries with the highest GDP in 2022 with South Korea coming in at number 10 on the list (World Bank, 2022). This further supports the idea in the capitalist cultural tradition, the idea of the individual author / creator / inventor is paramount, and the ability to capitalize on one's own inventions is seen as a right. The low ascription of ownership rights to Ideas in the Prior and Traditional Author conditions does not mean that these things aren't seen as ownable, rather it highlights a potential preference to ascribe ownership to the first to innovate in these conditions (e.g., A prior author or a cultural group that used the traditional idea) (Lueck, 1995).

That said, it is interesting to note that among the participant sampled, the two that were most likely to extend monetary rights to Ideas across all three author conditions were the Ecuador (Spanish) and Ecuador (Shiwiar). This is an interesting find as these two samples are both part Indigenous community samples from *Aents chicham* speaking groups (e.g., Achuar, Shiwiar). These groups have strong individualized and communal norms as it pertains to types of information that can be owned. *Aents chicham* communities have bodies of knowledge, *anent* that are treated as both individual and communal knowledge that can be sold. These *anent* are seen as having an individual owner but can also be owned by the a family, as they are traditionally transferred within a lineage, and considered to be part of a larger cultural heritage that can be disseminated and sold however those in that family see fit (Descola, 1986;

Rubenstein, 2002). It may be that the Ideas are treated as belonging to more than one individual but rather to a collection of individuals within the cultural group or family within the Ecuador (Spanish) and Ecuador (Shiwiari) samples.

These conjectures about societal variations in patterns of ownership judgments are post hoc, because our study was not designed in advance to test specific hypotheses about the societal-level variation we subsequently observed. Our findings lead to numerous further inquiries that subsequent research should explore, and for now, we can only speculate on these. One area of curiosity is the cause of the cultural variations we noticed. Additionally, there's a question regarding the applicability of our findings, not only across different sectors and groups but also within the same groups we examined, especially considering the experimental and scenario-based approach of our study.

What are the reasons for the population differences we observed? We speculate that these disparities may arise from differing cultural perceptions of ownership. However, the findings do make sense considering the ethnographic observations and histories of cultural differences, colonialism, and what is known about ownership norms and laws as it pertains to Intellectual property.

Our research leaves some queries regarding the broader applicability of our findings. Initially, there's the issue of the external credibility of our scenario-focused results. How closely do people's decisions in these scenarios align with their ownership views in actual situations? This limitation is inherent in studies centered on scenarios, as compared to direct behavioral observations. Still, we posit that such studies likely shed light on societal norms, given they capture participants' overt responses on ownership in fictional contexts. Whether these norms genuinely dictate real-life ownership perspectives is another matter, but this concern is common to many studies, especially in psychological research.

Finally, there are reasons to suspect that our findings reflect more general differences between our sampled societies attitudes, values, and worldviews. The societies that we sampled that had the highest rates of patent claims as of 2023 (US, China, Japan, South Korea) showed a robust attribution of ownership rights ideas that were most often seen as newly innovated. The differences seen in the Ecuadorian samples dovetail with the ethnographic observations that have been made about *Aents chicham* language groups as it pertains to values and attitudes about the monetary compensations for their songs (Descola, 1986; Rubenstein, 2002). This is an interesting finding as many Indigenous communities' regard cultural knowledge and practices (e.g., ecological knowledge, songs, stories, language) to be communally held and individually possessable, but not "owned" in the highly individualistic way that intellectual property (IP) is treated in U.S. and European law (Brown, 2009; Carpenter et al., 2009; Hammer et al., 2013; Nagan et al., 2010; Riley, 2000). That however does not mean that there cannot be a possibility to garner a monetary gain from the traditions, traditions not seen as individually owned but rather collectively.

**Acknowledgments:** This work was supported by the Geography of Philosophy Project, funded by John Templeton Foundation Grant 60813.

## Appendix B

### Contents

S1) Vignette texts in English

S2) Model 1 Additional Figures and Tables

S3) Model 1 Additional Figures and Tables

### S1) Vignette texts in English

**Table S1.** Design key for 3x3 Domain-Origin crossings, represented by number-letter combinations.

Origin	Domain		
	Song (1)	Recipe (2)	Design (3)
Prior Author (A)	1A	2A	3A
New Author (B)	1B	2B	3B
Traditional (C)	1C	2C	3C

**Table S2.** Vignettes used in each block between subjects, with order of vignettes randomized within each block.

Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
1A	1A	1B	1B	1C	1C
2B	2C	2A	2C	2A	2B
3C	3B	3C	3A	3B	3A

### Domain 1: Song (copyright)

#### Origin A: Prior author

A musician, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old cassette tapes, many of which are unmarked. When he is listening to these tapes later at home, he finds a very good song that was clearly written by a talented songwriter. The tape is not marked and the identity of the creator of the song is unknown.

#### Origin B: New author

A musician, [locally appropriate name], is at home playing his instrument. As he is playing, he has a new idea for a song. He spends several hours composing the song. When he has finished composing the song and has practiced playing it many times, he turns on his cassette recorder and records himself playing the song.

**Origin C: Traditional**

A musician, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old cassette tapes, many of which are unmarked. When he is listening to these tapes later at home, he finds a very good recording of an old, traditional song. He recognizes this as a very old traditional style of song that is rarely heard now. The tape is not marked and the identity of the person performing the song is unknown.

**Block 1 Questions:**

We would like to learn your opinions about [name]'s relationship to the song and the recording of the song. Your opinions may differ from what the law might say about this relationship.

Please answer the questions below with your own personal opinion.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**[name] should be considered:**

1. The owner of the tape on which the song is recorded
2. The owner of the song itself
3. The creator of the recording of the song
4. The creator of the song itself

**Block 2 Questions:**

We would like to learn your opinions about what rights [name] should have. Your opinion may differ from their actual legal rights in the law of your country. Please respond to the statements below with your own personal opinion

Indicate how strongly you agree or disagree with each of the statements below.

**[name] should have:**

1. The right to sell ownership of the song
2. The right to sell copies of the song
3. The right to collect money from others who perform the song
4. The right to distribute copies of the recording of the song at no cost
5. The right to allow others to perform the song at no cost
6. The right to keep the song to himself and not share it with others
7. The right to sell the song to a company to use as a theme song for its product

**Block 3 Questions:**

We would like to learn what you think the law in your country says about [name] and his relationship to the song and the recording of the song. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would be considered:**

- 1) The owner of the tape on which the song is recorded
- 2) The owner of the song itself
- 3) The creator of the recording of the song

- 4) The creator of the song itself

**Block 4 Questions:**

We would like to learn what you think the law in your country says about what rights [name] has. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please indicate how strongly you feel that each right is a legal right that [name] has in your country, on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would have:**

1. The right to sell ownership of the song
2. The right to sell copies of the song
3. The right to collect money from others who perform the song
4. The right to distribute copies of the recording of the song at no cost
5. The right to allow others to perform the song at no cost
6. The right to keep the song to himself and not share it with others
7. The right to sell the song to a company to use as a theme song for its product

**Domain 2: Recipe (patent)**

**Origin A: Prior author**

A doctor, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a recipe for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. The recipe appears to have been created by a chemist or a physician, but the identity of the creator of the recipe is unknown.

**Origin B: New author**

A doctor, [locally appropriate name], has been reading about the potential healing properties of different kinds of plants. He has a new idea for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. He creates a batch of this medicine and over the coming months tries it out on himself and his friends and family. He writes down the recipe for this remedy in his notebook.

**Origin C: Traditional**

A doctor, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a recipe for a medicine that can be used to treat wounds, which is made by combining the extracts of three plants along with several off-the-shelf chemicals. He recognizes this combination of three plant ingredients as an old, traditional folk remedy. This is a very old traditional type of remedy that is rarely used now. The person who wrote down this remedy is not identified in the text.

**Block 1 Questions:**

We would like to learn your opinions about [name]'s relationship to the song and the recording of the song. Your opinions may differ from what the law might say about this relationship.

Please answer the questions below with your own personal opinion.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**[name] should be considered:**

1. The owner of the book with the medicinal recipe in it
2. The owner of the medicinal recipe itself
3. The creator of the book with the medicinal recipe in it

4. The creator of the medicinal recipe itself

**Block 2 Questions:**

We would like to learn your opinions about what rights [name] should have. Your opinion may differ from their actual legal rights in the law of your country. Please respond to the statements below with your own personal opinion

Indicate how strongly you agree or disagree with each of the statements below.

**[name] should have:**

1. The right to sell ownership of the medicinal recipe
2. The right to produce the medicine from the recipe and sell it for money
3. The right to collect money from others when they produce the medicine from the recipe and sell it for profit
4. The right to distribute the medicinal recipe at no cost
5. The right to allow others to create the medicine from the recipe at no cost
6. The right to keep the medicinal recipe to himself and not share it with others
7. The right to sell the medicinal remedy to a company that would be the sole producer of the remedy

**Block 3 Questions:**

We would like to learn what you think the law in your country says about [name] and his relationship to the song and the recording of the song. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would be considered:**

1. The owner of the book with the medicinal recipe in it
2. The owner of the medicinal recipe itself
3. The creator of the book with the medicinal recipe in it
4. The creator of the medicinal recipe itself

**Block 4 Questions:**

We would like to learn what you think the law in your country says about what rights [name] has. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please indicate how strongly you feel that each right is a legal right that [name] has in your country, on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would have:**

1. The right to sell ownership of the medicinal recipe
2. The right to produce the medicine from the recipe and sell it for money
3. The right to collect money from others when they produce the medicine from the recipe and sell it for profit
4. The right to distribute the medicinal recipe at no cost
5. The right to allow others to create the medicine from the recipe at no cost
6. The right to keep the medicinal recipe to himself and not share it with others
7. The right to sell the medicinal remedy to a company that would be the sole producer of the remedy

**Domain 3: Design (trademark)**

**Origin A: Prior author**

An artist, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a beautiful design. It is an abstract, geometric representation of a bird. The design was clearly drawn by a very skilled artist, but the identity of artist is unknown.

**Origin B: New author**

An artist, [locally appropriate name], is at home working on some drawings. As he is working, he has a new idea for a design. It is an abstract, geometric representation of a bird. He spends several hours working on versions of the idea until he perfects it. He draws the new design in his notebook.

**Origin C: Traditional**

An artist, [locally appropriate name], is shopping at a public market where old used goods are sold. He buys a collection of old books. When he is reading these books later at home, he finds a beautiful design. It is an abstract, geometric representation of a bird. He recognizes this as an ancient, sacred symbol of a local Indigenous group, drawn in a traditional style of design that is rarely seen now. The person who drew the design in the book is not identified.

**Block 1 Questions:**

We would like to learn your opinions about [name]'s relationship to the song and the recording of the song. Your opinions may differ from what the law might say about this relationship.

Please answer the questions below with your own personal opinion.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**[name] should be considered:**

1. The owner of the book with the design in it

2. The owner of the design itself
3. The creator of the book with the design in it
4. The creator of the design itself

**Block 2 Questions:**

We would like to learn your opinions about what rights [name] should have. Your opinion may differ from their actual legal rights in the law of your country. Please respond to the statements below with your own personal opinion

Indicate how strongly you agree or disagree with each of the statements below.

**[name] should have:**

1. The right to sell ownership of the design
2. The right to create reproductions of the design and sell them for money
3. The right to collect money from others to produce the design
4. The right to distribute the design at no cost
5. The right to allow others to reproduce the design at no cost
6. The right to keep the design to himself and not share it with others
7. The right to sell the design to a company to use as their corporate logo

**Block 3 Questions:**

We would like to learn what you think the law in your country says about [name] and his relationship to the song and the recording of the song. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please give your opinion on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would be considered:**

1. The owner of the book with the design in it
2. The owner of the design itself
3. The creator of the book with the design in it
4. The creator of the design itself

**Block 4 Questions:**

We would like to learn what you think the law in your country says about what rights [name] has. If you do not know what the law in your country says, please give your best guess for each item below.

For each of the following, please indicate how strongly you feel that each right is a legal right that [name] has in your country, on a scale from "strongly disagree" to "strongly agree".

**According to the law in my country, [name] would have:**

1. The right to sell ownership of the design
2. The right to create reproductions of the design and sell them for money
3. The right to collect money from others to produce the design
4. The right to distribute the design at no cost
5. The right to allow others to reproduce the design at no cost
6. The right to keep the design to himself and not share it with others
7. The right to sell the design to a company to use as their corporate logo

**End of Survey Questions**

For each of the following statements, indicate how much you agree or disagree with the statement, on the following scale: **Strongly Disagree, Disagree, Neutral (neither Agree nor disagree), Agree, Strongly Agree**

1. People should be allowed to own their ideas
2. People's right to their personal property is their most important right

3. Songs can be owned
4. Stories can be owned
5. Designs can be owned
6. Recipes can be owned
7. Clinical medicinal remedies can be owned
8. Traditional medicinal remedies can be owned
9. If knowledge is not kept secret, it will lose its value
10. The government has the right to decide what can and can't be owned
11. It is okay for an individual to modify another individual's ideas for their own use
12. It is okay for an individual to modify traditional knowledge of a group of people for their own use
13. People should be allowed to own different types of ideas
14. People should be allowed to own forms of knowledge associated with their cultural group

### **Study-specific Demographic Questions**

How would you describe your political orientation?

How would you rate your knowledge of your country's legal system?

What is your view of the role that the government should play in regulating interactions between individuals?

What is your profession or occupation?

### **Demographic wave 2: GPP**

[see separate demographics template sent previously]

### **Debriefing question**

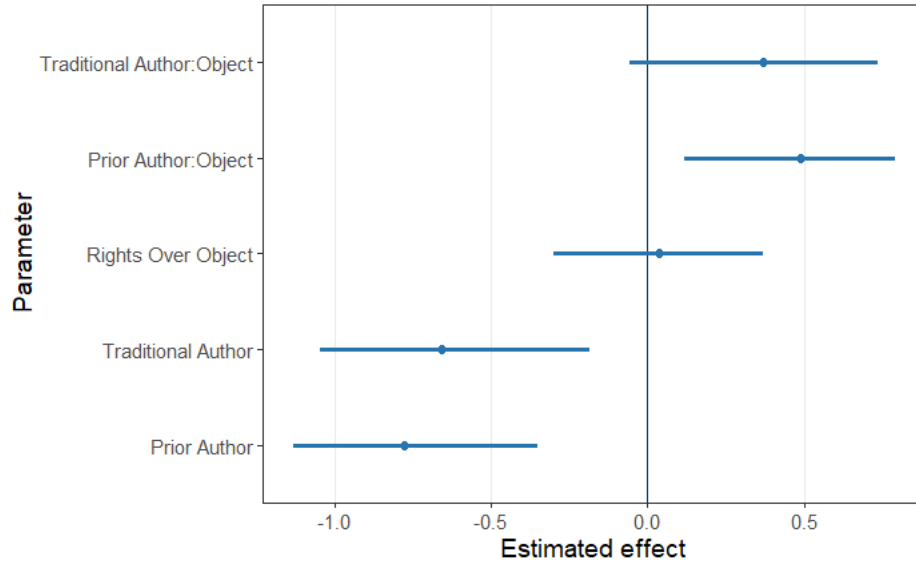
Do you have any comments about this survey? (Ex: questions were clear; survey was too long or repetitive; etc.). Please also tell us if you experienced any technical issues while taking the

survey. Furthermore, if you would like to clarify or explain any of your responses, do so here.

[fill in]

**S2: Model 1 Additional Figures and Tables**

**Figure S1. Figure: Differences in Ownership attribution Across Authors**

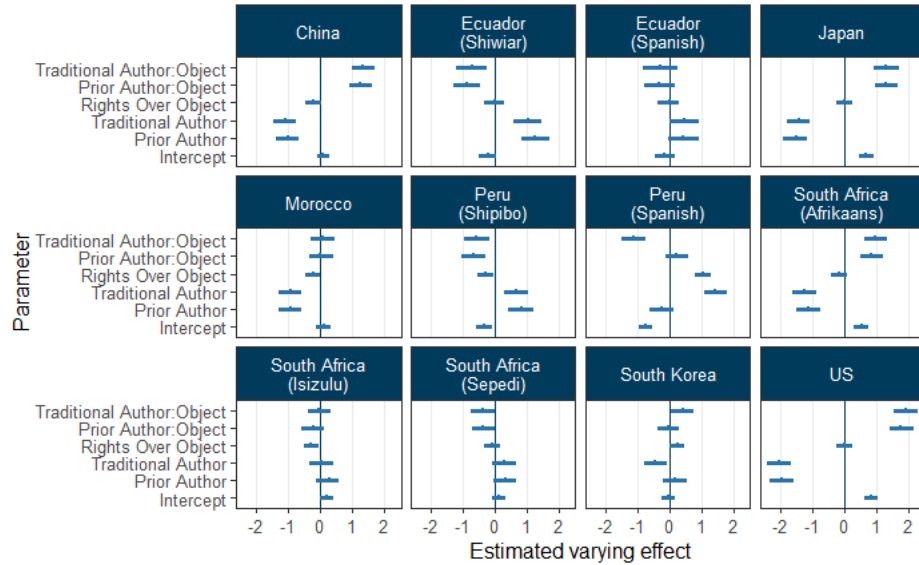


**Table S3. Mean and SD of Variation in Ownership attribution Across Authors**

Society	Author	Question	Mean	SD	N
China	New	Idea	3.8	1.2	305
China	New	Object	3.6	1.3	308
China	Prior	Idea	2.0	1.1	297
China	Prior	Object	3.6	1.3	301
China	Traditional	Idea	2.0	1.1	300
China	Traditional	Object	3.6	1.3	302
Ecuador (Shiwiar)	New	Idea	3.4	1.1	51
Ecuador (Shiwiar)	New	Object	3.5	1.0	52
Ecuador (Shiwiar)	Prior	Idea	4.1	0.8	56
Ecuador (Shiwiar)	Prior	Object	3.6	1.0	58
Ecuador (Shiwiar)	Traditional	Idea	3.9	0.9	54
Ecuador (Shiwiar)	Traditional	Object	3.6	1.0	55
Ecuador (Spanish)	New	Idea	3.5	1.2	31
Ecuador (Spanish)	New	Object	3.6	1.1	31
Ecuador (Spanish)	Prior	Idea	3.2	1.2	39
Ecuador (Spanish)	Prior	Object	3.4	1.2	39
Ecuador (Spanish)	Traditional	Idea	3.3	1.3	35
Ecuador (Spanish)	Traditional	Object	3.5	1.2	35
Japan	New	Idea	4.4	0.8	229
Japan	New	Object	4.4	0.9	229
Japan	Prior	Idea	2.1	1.1	229
Japan	Prior	Object	3.9	1.1	229
Japan	Traditional	Idea	2.3	1.2	229
Japan	Traditional	Object	4.1	1.0	229
South Korea	New	Idea	3.6	1.2	281

South Korea	New	Object	4.0	1.0	281
South Korea	Prior	Idea	3.0	1.4	283
South Korea	Prior	Object	3.8	1.1	283
South Korea	Traditional	Idea	2.5	1.2	285
South Korea	Traditional	Object	3.7	1.1	285
Morocco	New	Idea	3.8	1.0	245
Morocco	New	Object	3.6	1.2	248
Morocco	Prior	Idea	2.1	1.0	247
Morocco	Prior	Object	2.4	1.2	248
Morocco	Traditional	Idea	2.2	1.1	248
Morocco	Traditional	Object	2.5	1.2	246
Peru (Shipibo)	New	Idea	3.4	1.3	144
Peru (Shipibo)	New	Object	3.1	1.4	148
Peru (Shipibo)	Prior	Idea	3.4	1.2	143
Peru (Shipibo)	Prior	Object	3.0	1.4	144
Peru (Shipibo)	Traditional	Idea	3.4	1.2	144
Peru (Shipibo)	Traditional	Object	2.9	1.4	147
Peru (Spanish)	New	Idea	2.9	1.6	243
Peru (Spanish)	New	Object	4.0	1.3	243
Peru (Spanish)	Prior	Idea	2.0	1.2	249
Peru (Spanish)	Prior	Object	3.8	1.4	249
Peru (Spanish)	Traditional	Idea	3.7	1.6	246
Peru (Spanish)	Traditional	Object	4.1	1.3	246
US	New	Idea	4.6	0.7	240
US	New	Object	4.6	0.7	240
US	Prior	Idea	1.8	1.0	240
US	Prior	Object	4.2	1.1	240
US	Traditional	Idea	1.8	1.0	240
US	Traditional	Object	4.2	1.1	240
South Africa (Afrikaans)	New	Idea	4.3	1.1	242
South Africa (Afrikaans)	New	Object	4.2	1.2	242
South Africa (Afrikaans)	Prior	Idea	2.3	1.3	242
South Africa (Afrikaans)	Prior	Object	3.6	1.4	242
South Africa (Afrikaans)	Traditional	Idea	2.3	1.3	240
South Africa (Afrikaans)	Traditional	Object	3.6	1.4	242
South Africa (Isizulu)	New	Idea	3.9	1.0	243
South Africa (Isizulu)	New	Object	3.7	1.3	243
South Africa (Isizulu)	Prior	Idea	3.4	1.2	242
South Africa (Isizulu)	Prior	Object	3.4	1.3	243
South Africa (Isizulu)	Traditional	Idea	3.3	1.3	243
South Africa (Isizulu)	Traditional	Object	3.4	1.2	243
South Africa (Sepedi)	New	Idea	3.9	1.1	241
South Africa (Sepedi)	New	Object	3.8	1.1	241
South Africa (Sepedi)	Prior	Idea	3.4	1.2	242
South Africa (Sepedi)	Prior	Object	3.5	1.2	242
South Africa (Sepedi)	Traditional	Idea	3.5	1.2	240
South Africa (Sepedi)	Traditional	Object	3.4	1.2	241

**Figure S2. Varying effects from the model by sample; these values are differences from the population-level effects.**



**Tables S4. Varying effects from the model by sample; Differences from the Population-level effects.**

Society	Parameter	Median	LCI	HCI	pd
China	Intercept	0.10	-0.12	0.31	0.773
China	Prior Author	-1.01	-1.39	-0.69	1.000
China	Traditional Author	-1.10	-1.45	-0.73	1.000
China	Rights Over Object	-0.20	-0.43	0.04	0.928
China	Prior Author:Object	1.26	0.91	1.60	1.000
China	Traditional Author:Object	1.34	0.97	1.69	1.000
Ecuador (Shiwar)	Intercept	-0.22	-0.51	0.07	0.897
Ecuador (Shiwar)	Prior Author	1.28	0.85	1.72	1.000
Ecuador (Shiwar)	Traditional Author	1.04	0.62	1.49	1.000
Ecuador (Shiwar)	Rights Over Object	-0.03	-0.34	0.30	0.559
Ecuador (Shiwar)	Prior Author:Object	-0.88	-1.31	-0.43	0.999
Ecuador (Shiwar)	Traditional Author:Object	-0.72	-1.20	-0.24	0.994
Ecuador (Spanish)	Intercept	-0.15	-0.46	0.19	0.765
Ecuador (Spanish)	Prior Author	0.43	-0.05	0.90	0.928
Ecuador (Spanish)	Traditional Author	0.47	-0.03	0.96	0.939
Ecuador (Spanish)	Rights Over Object	-0.01	-0.37	0.33	0.520
Ecuador (Spanish)	Prior Author:Object	-0.33	-0.78	0.16	0.868
Ecuador (Spanish)	Traditional Author:Object	-0.30	-0.84	0.22	0.832
Japan	Intercept	0.68	0.47	0.92	1.000
Japan	Prior Author	-1.52	-1.86	-1.14	1.000
Japan	Traditional Author	-1.43	-1.81	-1.08	1.000
Japan	Rights Over Object	0.00	-0.25	0.24	0.501
Japan	Prior Author:Object	1.31	0.96	1.67	1.000
Japan	Traditional Author:Object	1.31	0.92	1.69	1.000
Morocco	Intercept	0.10	-0.12	0.32	0.773
Morocco	Prior Author	-0.92	-1.26	-0.55	1.000
Morocco	Traditional Author	-0.94	-1.29	-0.55	1.000
Morocco	Rights Over Object	-0.23	-0.49	0.00	0.942

Morocco	Prior Author:Object	-0.01	-0.34	0.35	0.514
Morocco	Traditional Author:Object	0.05	-0.33	0.40	0.593
Peru (Shipibo)	Intercept	-0.33	-0.57	-0.09	0.987
Peru (Shipibo)	Prior Author	0.86	0.47	1.23	0.999
Peru (Shipibo)	Traditional Author	0.66	0.25	1.02	0.998
Peru (Shipibo)	Rights Over Object	-0.28	-0.55	-0.03	0.966
Peru (Shipibo)	Prior Author:Object	-0.70	-1.07	-0.34	0.999
Peru (Shipibo)	Traditional Author:Object	-0.58	-0.98	-0.20	0.991
Peru (Spanish)	Intercept	-0.73	-0.96	-0.52	1.000
Peru (Spanish)	Prior Author	-0.22	-0.59	0.12	0.855
Peru (Spanish)	Traditional Author	1.43	1.05	1.77	1.000
Peru (Spanish)	Rights Over Object	1.03	0.79	1.28	1.000
Peru (Spanish)	Prior Author:Object	0.21	-0.12	0.58	0.852
Peru (Spanish)	Traditional Author:Object	-1.13	-1.51	-0.78	1.000
South Africa (Afrikaans)	Intercept	0.55	0.31	0.76	1.000
South Africa (Afrikaans)	Prior Author	-1.13	-1.49	-0.78	1.000
South Africa (Afrikaans)	Traditional Author	-1.26	-1.63	-0.91	1.000
South Africa (Afrikaans)	Rights Over Object	-0.15	-0.40	0.09	0.847
South Africa (Afrikaans)	Prior Author:Object	0.83	0.50	1.19	1.000
South Africa (Afrikaans)	Traditional Author:Object	0.99	0.63	1.37	1.000
South Africa (Isizulu)	Intercept	0.21	-0.02	0.42	0.941
South Africa (Isizulu)	Prior Author	0.26	-0.10	0.61	0.886
South Africa (Isizulu)	Traditional Author	0.03	-0.34	0.38	0.544
South Africa (Isizulu)	Rights Over Object	-0.30	-0.52	-0.04	0.980
South Africa (Isizulu)	Prior Author:Object	-0.24	-0.59	0.10	0.882
South Africa (Isizulu)	Traditional Author:Object	-0.04	-0.41	0.32	0.576
South Africa (Sepedi)	Intercept	0.13	-0.08	0.36	0.851
South Africa (Sepedi)	Prior Author	0.32	-0.04	0.66	0.924
South Africa (Sepedi)	Traditional Author	0.29	-0.06	0.66	0.905
South Africa (Sepedi)	Rights Over Object	-0.08	-0.32	0.15	0.717
South Africa (Sepedi)	Prior Author:Object	-0.38	-0.73	-0.05	0.961
South Africa (Sepedi)	Traditional Author:Object	-0.39	-0.76	-0.02	0.955
South Korea	Intercept	-0.03	-0.24	0.20	0.577
South Korea	Prior Author	0.17	-0.19	0.52	0.780
South Korea	Traditional Author	-0.45	-0.84	-0.12	0.983
South Korea	Rights Over Object	0.25	0.00	0.47	0.958
South Korea	Prior Author:Object	-0.05	-0.40	0.28	0.609
South Korea	Traditional Author:Object	0.40	0.05	0.77	0.970
US	Intercept	0.85	0.62	1.07	1.000
US	Prior Author	-1.93	-2.29	-1.57	1.000
US	Traditional Author	-2.05	-2.43	-1.69	1.000
US	Rights Over Object	0.02	-0.22	0.27	0.546
US	Prior Author:Object	1.79	1.44	2.15	1.000
US	Traditional Author:Object	1.92	1.55	2.31	1.000

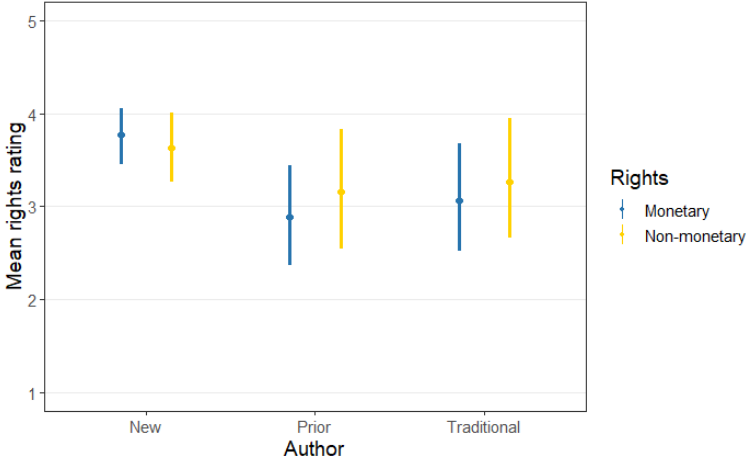
**Table S5. Total Effects of Model 1 (the varying effect + the population effect) by Society**

<b>Society</b>	<b>Parameter</b>	<b>Median</b>	<b>LCI</b>	<b>HCI</b>	<b>pd</b>
China	Prior Author	-1.79	-2.04	-1.44	1.000
China	Traditional Author	-1.74	-2.07	-1.41	1.000
China	Rights Over Object	-0.17	-0.47	0.12	0.845
China	Prior Author:Object	1.75	1.44	2.04	1.000
China	Traditional Author:Object	1.71	1.35	2.04	1.000
Ecuador (Shiwiar)	Prior Author	0.51	0.09	0.95	0.982
Ecuador (Shiwiar)	Traditional Author	0.41	-0.03	0.86	0.943
Ecuador (Shiwiar)	Rights Over Object	0.02	-0.36	0.42	0.529
Ecuador (Shiwiar)	Prior Author:Object	-0.40	-0.83	0.06	0.933
Ecuador (Shiwiar)	Traditional Author:Object	-0.36	-0.86	0.14	0.883
Ecuador (Spanish)	Prior Author	-0.33	-0.84	0.11	0.877
Ecuador (Spanish)	Traditional Author	-0.17	-0.68	0.33	0.711
Ecuador (Spanish)	Rights Over Object	0.03	-0.39	0.44	0.539
Ecuador (Spanish)	Prior Author:Object	0.15	-0.33	0.66	0.684
Ecuador (Spanish)	Traditional Author:Object	0.06	-0.53	0.59	0.569
Japan	Prior Author	-2.29	-2.58	-1.96	1.000
Japan	Traditional Author	-2.07	-2.40	-1.71	1.000
Japan	Rights Over Object	0.04	-0.27	0.34	0.590
Japan	Prior Author:Object	1.80	1.50	2.11	1.000
Japan	Traditional Author:Object	1.68	1.32	2.05	1.000
Morocco	Prior Author	-1.70	-1.99	-1.36	1.000
Morocco	Traditional Author	-1.58	-1.92	-1.24	1.000
Morocco	Rights Over Object	-0.19	-0.51	0.09	0.871
Morocco	Prior Author:Object	0.48	0.15	0.77	0.981
Morocco	Traditional Author:Object	0.42	0.05	0.78	0.956
Peru (Shipibo)	Prior Author	0.08	-0.27	0.40	0.665
Peru (Shipibo)	Traditional Author	0.02	-0.33	0.39	0.528
Peru (Shipibo)	Rights Over Object	-0.24	-0.59	0.07	0.900
Peru (Shipibo)	Prior Author:Object	-0.22	-0.54	0.15	0.851
Peru (Shipibo)	Traditional Author:Object	-0.22	-0.62	0.17	0.830
Peru (Spanish)	Prior Author	-1.00	-1.29	-0.66	0.999
Peru (Spanish)	Traditional Author	0.79	0.47	1.15	1.000
Peru (Spanish)	Rights Over Object	1.07	0.79	1.41	1.000
Peru (Spanish)	Prior Author:Object	0.70	0.38	1.01	0.995
Peru (Spanish)	Traditional Author:Object	-0.76	-1.13	-0.40	0.999
South Africa (Afrikaans)	Prior Author	-1.91	-2.23	-1.61	1.000
South Africa (Afrikaans)	Traditional Author	-1.90	-2.25	-1.56	1.000
South Africa (Afrikaans)	Rights Over Object	-0.11	-0.41	0.19	0.746
South Africa (Afrikaans)	Prior Author:Object	1.32	1.03	1.62	1.000
South Africa (Afrikaans)	Traditional Author:Object	1.36	1.00	1.71	1.000
South Africa (Isizulu)	Prior Author	-0.52	-0.81	-0.18	0.980
South Africa (Isizulu)	Traditional Author	-0.62	-0.95	-0.27	0.990
South Africa (Isizulu)	Rights Over Object	-0.25	-0.55	0.06	0.921
South Africa (Isizulu)	Prior Author:Object	0.24	-0.08	0.53	0.894
South Africa (Isizulu)	Traditional Author:Object	0.33	-0.04	0.67	0.918
South Africa (Sepedi)	Prior Author	-0.46	-0.76	-0.14	0.975
South Africa (Sepedi)	Traditional Author	-0.35	-0.70	-0.01	0.936

South Africa (Sepedi)	Rights Over Object	-0.04	-0.34	0.27	0.594
South Africa (Sepedi)	Prior Author:Object	0.10	-0.20	0.43	0.722
South Africa (Sepedi)	Traditional Author:Object	-0.02	-0.39	0.33	0.537
South Korea	Prior Author	-0.61	-0.90	-0.29	0.988
South Korea	Traditional Author	-1.10	-1.43	-0.75	1.000
South Korea	Rights Over Object	0.29	-0.01	0.59	0.941
South Korea	Prior Author:Object	0.43	0.14	0.75	0.977
South Korea	Traditional Author:Object	0.77	0.41	1.11	0.997
US	Prior Author	-2.71	-3.01	-2.39	1.000
US	Traditional Author	-2.70	-3.02	-2.32	1.000
US	Rights Over Object	0.06	-0.24	0.37	0.638
US	Prior Author:Object	2.27	1.96	2.58	1.000
US	Traditional Author:Object	2.30	1.93	2.65	1.000

**S3: Model 2.**

**Figure S3: Probability of Non-Monetary and Monetary Rights Extended Across Authors**  
 The points are the median and 90% HCI of the estimated mean attribution.



**Figure S4. Probability of Rights Extended Across Author and Rights.**  
 Points are the median and 90% HCI of the predicted means for each condition from the models.

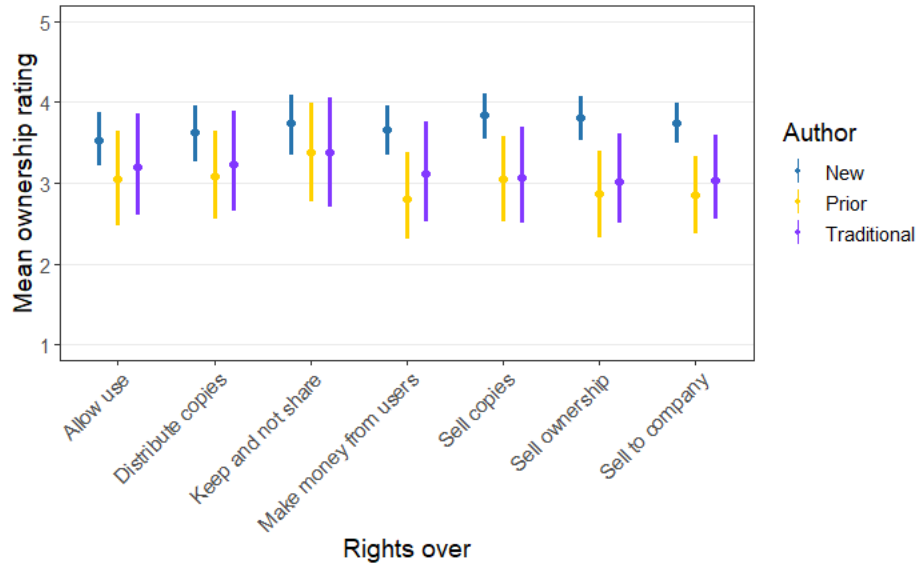
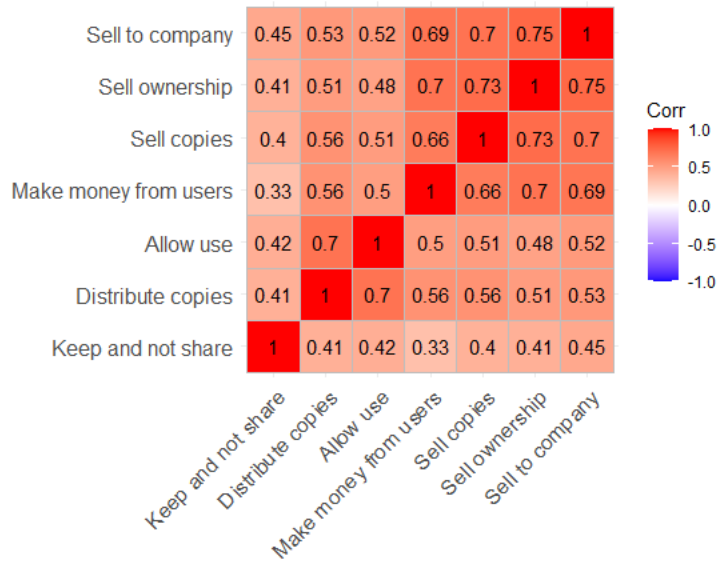


Figure 8. shows that for the Rights Allow Use (allow others to use at no cost), Distribute copies (distribute at no cost), and Keep and not share (keep to oneself and not let others access), the difference between the New author and Prior/Traditional authors is smaller than the remaining rights. Allow use, Distribute copies, and Keep and not share involve no monetary exchange and or direct monetary benefit, while Make money from users, Sell copies, Sell ownership, and Sell to company do. The difference in the attribution of rights between these two groups suggests that there is a distinction between non-monetary and monetary rights.



To explore this possibility, we examined the correlations in Figure 9. The rights involving money are all strongly correlated with each other, while allow others to use for free and distribute are strongly correlated with each other; keep and not share are only moderately correlated with each other.

## References

- Artursson, Magnus, T. Earle and J. Brown (2015) 'The Construction of Monumental Landscapes in Low-density Societies: New Evidence from the Early Neolithic of Southern Scandinavia (4000–3300 BC) in Comparative Perspective'. *Journal of Anthropological Archaeology* 41: 1–18
- Bakeman, R., & Brownlee, J. R. (1982). Social rules governing object conflicts in toddlers and preschoolers. In *Peer relationships and social skills in childhood* (pp. 99-111). Springer, New York, NY.
- Bracha, O. (2007). \*Owning ideas: A history of Anglo-American intellectual property\*. Scribe Publications.
- Beggan, J. K., & Brown, E. M. (1994). Association as a psychological justification for ownership. *The Journal of Psychology*, 128(4), 365-380.
- Blake, P. R., & Harris, P. L. (2009). Children's understanding of ownership transfers. *Cognitive Development*, 24(2), 133-145.
- Boyle, J. (2003). \*Shamans, software, and spleens: Law and the construction of the information society\*. Harvard University Press.
- Brown, M. (1985). *Tsewa's gift: Magic and meaning in an Amazonian society*. University of Alabama Press.
- Brown, M. F. (2005). Heritage trouble: Recent work on the protection of intangible cultural property. *IJCP*, 12, 40.
- Brown, M. F. (2009). *Who owns native culture?*. Harvard University Press.
- Carpenter, K. A., Katyal, S. K., & Riley, A. R. (2009). In defense of property. *Yale IJ*, 118, 1022.

- Carter, H., Snyder, C. A., & Imre, A. (2007). Library faculty publishing and intellectual property issues: A survey of attitudes and awareness. *Portal: Libraries and the Academy*, 7(1), 65–79.
- Colson, E., & Gluckman, M. (Eds.). (1961). *Seven Tribes of British Central Africa*. Manchester University Press.
- Correa, C. M. (2007). Trade-related aspects of intellectual property rights. In *\*Intellectual Property: A Handbook of Contemporary Research\**. Edward Elgar Publishing.
- Da Silva, S., Moreira, B., & Da Costa Jr, N. (2014). Preschoolers and the endowment effect. *PloS one*, 9(10), e109520.
- Debenport, E. (2015). *Fixing the books: Secrecy, literacy, and perfectibility in Indigenous New Mexico*. SAR Press.
- Descola, P. (1986). *In the society of nature: a native ecology in Amazonia*. Cambridge University Press.
- Earle, Timothy (1998) 'Property Rights and the Evolution of Hawaiian Chiefdoms'. *Property in Economic Contexts*. Eds. R. Hunt and A. Gilman. *Monographs in Economic Anthropology*. Lanham, ML: University Press of America: 89.
- Ficsor, M. (2001). *Law of copyright and the internet: The WIPO treaties and their implementation*. Oxford University Press, Inc..
- Firth, R. (1965). Family in Tikopia. *Comparative Family Systems*, 105.
- Friedman, O. (2008). First possession: An assumption guiding inferences about who owns what. *Psychonomic Bulletin & Review*, 15, 290-295.
- FreeWorldMaps. (2023) *Miller cylindrical projections, unlabeled world map with country borders*.

- Friedman, O. (2010) Necessary for possession: How people reason about the acquisition of ownership. *Personality and Social Psychology Bulletin*, 36(9), 1161–69. Doi: 10.1177/0146167210378513.
- Friedman, O. (2011) Principles guiding young children's reasoning about ownership. In *Presentation at the October 11 Colloquium at the Rutgers University Center for Cognitive Science*. New Brunswick: NJ.
- Friedman, O. & Neary, K. R. (2008) Determining who owns what: Do children infer ownership from first possession? *Cognition*107(3):829–49. doi: 10.1016/j.cog-nition.2007.12.002.
- Friedman, O., Neary, K. R., Defeyter, M. A. & Malcolm, S. L. (2011) Ownership and object history. In: *Origins of ownership of property: New directions for child and adolescent development*, vol. 132, ed. H. H. Ross & O. Friedman, pp. 79–90. Wiley.
- Furby, L. (1978). Possession in humans: An exploratory study of its meaning and motivation. *Social Behavior and Personality: an international journal*, 6(1), 49-65.
- Gluckman, M. (1965;2017). *Politics, law and ritual in tribal society*. Routledge.
- Goody, J. (1962). *Death, Property and the Ancestors: a study of the mortuary customs of the LoDagaa of West Africa*. Stanford University Press.
- Graziadei, M., & Smith, L. (Eds.). (2017). *Comparative Property Law: Global Perspectives*. Edward Elgar Publishing.
- Greene, C. S., & Drescher, T. D. (1994). The Tipi with Battle Pictures: The Kiowa tradition of intangible property rights. *Trademark Rep.*, 84, 418.
- Greene, S., Banerjee, S., Bannister, K., Brush, S., Castree, N., Dhillion, S., Hayden, C., Lewis, W., Lamas, G., & Vaisberg, A. (2004). Indigenous people incorporated? Culture as politics, culture as property in pharmaceutical bioprospecting. *Current Anthropology*, 45(2), 211–237.

- Gurven, M., Hill, K., & Jakugi, F. (2004). Why do foragers share and sharers forage? Explorations of social dimensions of foraging. In *Socioeconomic aspects of Human Behavioral Ecology* (pp. 19-43). Emerald Group Publishing Limited.
- Halls, W. D., & Mauss, M. (1925:2002). *The Gift: The Form and Reason for Exchange in Archaic Societies*.
- Hammer, C., Jintiach, J. C., & Tsakimp, R. (2013). Practical developments in law science and policy: efforts to protect the traditional group knowledge and practices of the Shuar, an Indigenous people of the Ecuadorian Amazon. *Policy Sciences*, 46, 125-141.
- Hann, C. M. (Ed.). (1998). *Property relations: renewing the anthropological tradition*. Cambridge University Press.
- Heller, M., & Salzman, J. (2021). *Mine!: How the Hidden Rules of Ownership Control Our Lives*. Atlantic Books.
- Hume, D. (2003). *A treatise of human nature*. Courier Corporation.
- Kanngiesser, P., Gjersoe, N., & Hood, B. M. (2010). The effect of creative labor on property-ownership transfer by preschool children and adults. *Psychological science*, 21(9), 1236-1241.
- Kanngiesser, P., Itakura, S., & Hood, B. M. (2014). The effect of labour on ownership decisions in two cultures: Developmental evidence from Japan and the United Kingdom. *British Journal of Developmental Psychology*, 32(3), 320-329.
- Kanngiesser, P., Itakura, S., Zhou, Y., Kanda, T., Ishiguro, H., & Hood, B. (2015). The role of social eye-gaze in children's and adults' ownership attributions to robotic agents in three cultures. *Interaction Studies*, 16(1), 1-28.
- Kanngiesser, P., Rossano, F., & Tomasello, M. (2015). Late emergence of the first possession heuristic: Evidence from a small-scale culture. *Child Development*, 86(4), 1282-1289.

- Kretschmer, M., Klimis, G. M., & Wallis, R. (1999). The changing location of intellectual property rights in music: A study of music publishers, collecting societies and media conglomerates. *Prometheus*, 17(2), 163–186.
- Ku, R. S. R. (2002). The creative destruction of copyright: Napster and the new economics of digital technology. *The University of Chicago Law Review*, 263-324.
- Kuah, K. E., & Liu, Z. (Eds.). (2016). *Intangible Cultural Heritage in Contemporary China: The Participation of Local Communities*. Taylor & Francis.
- Leach, J. (2016). Foreward. Pp. ix-xii in Brightman, M., Fausto, C., & Grotti, V. (Eds.). (2016). *Ownership and nurture: studies in native Amazonian property relations*. Berghahn Books.
- Levene, M., Starmans, C., & Friedman, O. (2015). Creation in judgments about the establishment of ownership. *Journal of Experimental Social Psychology*, 60, 103-109.
- Li, V., Shaw, A., & Olson, K. R. (2013). Ideas versus labor: What do children value in artistic creation?. *Cognition*, 127(1), 38-45.
- Li, Z., Qi, M., Yu, J., & Zhu, L. (2018). Who is the rightful owner? Young children's ownership judgments in different transfer contexts. *Frontiers in Psychology*, 9, 1314.
- Litman, J. (2001). *\*Digital copyright\**. Prometheus Books.
- Lowie, R. H. (1928). Incorporeal property in primitive society. *The Yale Law Journal*, 37(5), 551-563.
- Lixinski, L. (2013). *Intangible cultural heritage in international law*. OUP Oxford.
- Lueck, D. (1995). The rule of first possession and the design of the law. *The Journal of Law and Economics*, 38(2), 393-436.
- Luhrmann, T. M. (1989). The magic of secrecy. *Ethos*, 17(2), 131-165.

- Malinowski, B. (1935). *Coral Gardens and Their Magic: A Study of the Methods of Tilling the Soil and of Agricultural Rites in the Trobriand Islands. II, the Language of Magic and Gardening*. Routledge Falmer.
- Macpherson, C. B. (1962). *The political theory of possessive individualism: Hobbes to Locke*. Clarendon Press, Oxford.
- May, C., & Sell, S. K. (2006). *\*Intellectual property rights: A critical history\**. Lynne Rienner Publishers.
- Morgan, L. H. (2009). *Ancient society (1877)*. General Books.
- Nagan, W. P., & Hammer, C. (2013). The conceptual and jurisprudential aspects of property in the context of the fundamental rights of Indigenous people: the case of the Shuar of Ecuador. *NYL Sch. L. Rev.*, 58, 875.
- Noles, N. S., & Keil, F. C. (2011). Exploring ownership in a developmental context. *New Directions for Child and Adolescent Development*, 2011(132), 91-103.
- Palamar, M., Le, D. T., & Friedman, O. (2012). Acquiring ownership and the attribution of responsibility. *Cognition*, 124(2), 201-208.
- Patterson, L. R. (1968). *\*Copyright in Historical Perspective\**. Vanderbilt University Press.
- Postigo, H. (2008). Video game appropriation through modifications: Attitudes concerning intellectual property among modders and fans. *Convergence*, 14(1), 59–74.
- R Core Team (2023). R: A language and environment for statistical computing. *R Foundation for Statistical Computing, Vienna, Austria*. URL <https://www.R-project.org/>.
- Ramsey, P. G. (2001). Possession episodes in young children's social interactions. *Journal of Genetic Psychology*, 148, 315–325.

- Rees, H. (2003). The age of consent: Traditional music, Intellectual Property and Changing Attitudes in the People's Republic of China. *British Journal of Ethnomusicology*, 12(1), 137–171.
- Riley, A. R. (2000). Recovering Collectivity: Group Rights to Intellectual Property in Indegenous Communities. *Cardozo Arts & Ent. LJ*, 18, 175.
- Rochat, P. (2011). Possession and morality in early development. *New Directions for Child and Adolescent Development*, 2011(132), 23-38.
- Rochat, P., Robbins, E., Passos-Ferreira, C., Oliva, A. D., Dias, M. D., & Guo, L. (2014). Ownership reasoning in children across cultures. *Cognition*, 132(3), 471-484.
- Rubenstein, S. (2002). Alejandro Tsakimp: a Shuar healer in the margins of history. U of Nebraska Press.
- Saez, C. (2018, December 11). Indigenous Knowledge Misappropriation: The Case Of The Zia Sun Symbol Explained At WIPO. Intellectual Property Watch. <https://www.ip-watch.org/2018/12/11/Indigenous-knowledge-misappropriation-case-zia-sun-symbol-explained-wipo>.
- Santos-Granero, F. (2009). *The occult life of things: Native Amazonian theories of materiality and personhood*. University of Arizona Press.
- Santos-Granero, F. (2019). Amerindian political economies of life. *HAU: Journal of Ethnographic Theory*, 9(2), 461-482.
- Saxe, Arthur (1970) Social Dimensions of Mortuary Practices. Unpublished PhD. Dissertation. Ann Arbor, MI: University of Michigan.
- Simmel, G. (1906). The sociology of secrecy and of secret societies. *American journal of sociology*, 11(4), 441-498.

- Shaw, A., Li, V., & Olson, K. R. (2012). Children apply principles of physical ownership to ideas. *Cognitive science*, *36*(8), 1383-1403.
- Shiva, V. (2007). Bioprospecting as sophisticated biopiracy. *Signs: Journal of Women in Culture and Society*, *32*(2), 307–313.
- Strowel, A. (1994). *Of Authors and Origins, Essays on Copyright Law*.
- Smith, L., & Akagawa, N. (2008). *Intangible heritage*. Routledge.
- Stone, C. R. (2008). What plagiarism was not: Some preliminary observations on classical Chinese attitudes toward what the West calls intellectual property. *Marq. L. Rev.*, *92*, 199.
- Sun, X., Zhou, X., Wang, Q., Tang, P., Law, E. L.-C., & Cobb, S. (2019). Understanding attitudes towards intellectual property from the perspective of design professionals. *Electronic Commerce Research*, 1–23.
- Tambo, J. A., Baraké, E., Kouevi, A., & Munthali, G. T. (2020). Copyright or copyleft: An assessment of farmer-innovators' attitudes towards intellectual property rights. *Journal of Rural Studies*, *74*, 133–141.
- 't Hoen, E. F. M. (2002). TRIPS, pharmaceutical patents, and access to essential medicines: A long way from Seattle to Doha. *Chicago Journal of International Law*, *3*(1)
- Verkuyten, M., Sierksma, J., & Thijs, J. (2015a). First arrival and owning the land: How children reason about ownership of territory. *Journal of Environmental Psychology*, *41*, 58-64.
- Verkuyten, M., Sierksma, J., & Martinovic, B. (2015b). First arrival and collective land ownership: How children reason about who owns the land. *Social Development*, *24*(4), 868-882.
- Walker, B. L. (2001). *The conquest of Ainu lands: Ecology and culture in Japanese expansion, 1590-1800*. Univ of California Press.

Walterscheid, E. C. (1994). To promote the progress of science and useful arts: The background and origin of the intellectual property clause of the United States Constitution. \*Journal of Intellectual Property Law, 2\*(1).

World Intellectual Property Organization. (2022.). Wipo Ip Facts and figures 2022. WIPO.  
<https://www.wipo.int/publications/en/details.jsp?id=4642>

Yang, F., Shaw, A., Garduno, E., & Olson, K. R. (2014). No one likes a copycat: A cross-cultural investigation of children's response to plagiarism. *Journal of Experimental Child Psychology, 121*, 111-119.

### **Chapter 3**

Indigenous Perspectives: An Ethnographic Case Study of the Ownership of Knowledge among  
Achuar Communities.

Ulises Espinoza<sup>1</sup>

<sup>1</sup>Department of Anthropology, University of California, Los Angeles, California, U.S.A.

## Abstract

Within the Achuar community of San Lorenzo, a dynamic interplay between tradition and modernity shapes knowledge circulation and control. Amidst rapid technological advances, traditional knowledge, such as *anent*, are experiencing oscillations from being privately held to becoming publicly valued commodities outside of Achuar communities. This transformation prompts questions regarding intellectual boundaries, authenticity, and the commodification of knowledge. Ethnographic findings spotlight the tensions arising from these shifts. While technology broadens knowledge access, it also raises ethical dilemmas around ownership and the moral implications of commodifying Indigenous identity. The community wrestles with the delicate balance of preserving their cultural heritage and navigating the evolving landscape of knowledge dissemination in an era of increased connectivity and economic opportunity. This study underscores the importance of understanding the multifaceted negotiations of identity, sovereignty, and the ethical distribution of knowledge within Indigenous communities as they confront the challenges and opportunities of the digital age.

### Section 3.1. Introduction

This chapter, unlike the prior two which focused on quantitative methods, adopts an ethnographic approach to explore ownership intuitions among Achuar communities. It aims to counteract the often reductionist view in experimental research that sees human communities merely as sources of knowledge production or extraction (Barret, 2022<sup>1</sup>; Beliso-DeJesús, Pierre, and Rana, 2023<sup>2</sup>). By centering on community members' viewpoints, this approach emphasizes

---

<sup>1</sup>Barrett, 2022 is calling for the need of a reflexive lens that considers epistemic commitments when it comes to the choices the social sciences community makes about where to get their data from (small scale societies).

<sup>2</sup> Beliso-DeJesús, Pierre, and Rana (2023) engage with the history of anthropology and provide a detailed critique of anthropology's role in the creation for racial science through who the field has chosen to study.

the deep moral, political, and social ties of Indigenous knowledge to the individual concerns and values of the community members.

In this chapter I pay attention to how people talk about knowledge circulation as it relates to expertise and knowledge keepers, the dynamics of who is on the inside and who is on the outside when it comes to knowledge circulation, generational differences, affordances of knowledge, and the commodification of knowledge. This is not meant to be an ethnographic chapter from the perspective of an insider at the level of Achuar community member, rather it is an ethnographic examination of the ethical work that takes place around knowledge circulation and the ways in which individuals and communities structure their social relationships with one another, and others as well as reflecting on what is seen as something worthy of having moral weight extended to it (Zigon, 2008; 2009; Robbins, 2004; 2009; Throop, 2010). In the case of Achuar communities, there are a genre of ritual songs, known as *anent*, that function as a fruitful starting point to begin to look at how types of knowledge are embodied through practice and brought to the forefront with moments of interaction within and outside Achuar notions of knowledge production, thus allowing for moments of reflexivity to take place (Rubenstein, 2002). In these moments of reflexivity, we see ideologies of Achuar notions of how knowledge should be circulated within and outside of the community context with an eye towards and the possibility for the examination of ethics as it pertains to knowledge circulation and identity.

This chapter draws inspiration from anthropological work focused on value, exchange, and ownership, ethnographically grounded projects in Amazonia, and scholarship on Indigenous knowledge practices (Mauss, 1925; Malinowski, 1935; Fausto, 2008; Santos-Granero, 2009; Brightman, Fausto, and Grotti, 2022). In particular, thinking about the ways in which ownership of knowledge is often not solely about the ideas being possessed but rather about how they are embedded in social relationships (Mauss, 1925) and often come with a serious of power

dynamics and restrictions about who can and can't own and or access them (Malinowski, 1935). The anthropological work that has been done on the ownership of intangible goods, specifically in Indigenous Amazonian communities, has shown that shamanic practices, ceremonial objects, and songs are considered to be owned to varying degrees (Fausto, 2008; Santos-Granero, 2009; Brightman, Fausto, and Grotti, 2022).

The ethnographic work described here is inspired by a phenomenological approach that aims to bring the modalities of human existence to the forefront within the temporal changes in an individual or group's lifetime (Throop, 2010; Desjarlais and Throop, 2011). The ethnographic moments detailed here, in where individuals are reflecting on their dispositions and emotions as they pertain to their knowledge provide insight into moments of moral reflection. I looked at such forms of explicit reflection on moral life in relation to ownership of knowledge and other forms of intangible information in the previous chapters. This was done by providing a series of experimental vignettes, inspired by methodologies put forward by Knobe et al.(2012) and Barrett et al.(2016), that were meant to probe peoples' underlying beliefs and conceptual structures by presenting them with a series hypothetical scenarios in where various types of ownership claims were presented (resembling real world ones) and asked them to make judgments about them—including judgments about what is right, wrong, reasonable and, acceptable.

In this chapter, the ethnographic methods seek to delve into everyday events, experiences, and interactions with the of critically expanding the scope of what moral sensibilities may arise within a community that must preserve, circulate, and create knowledge in a context where new forms of information transfer have rapidly arisen with increasing globalization in the region (Bremner and Lu, 2006; Bilborrow, Bremner, Lu 2008; Barrett, 2018). Of particular interest here, are the potentially uneven ways that such transformations in moral orientations to the ownership of knowledge and other intangible forms of information can

take hold. As phenomenologists have taught us, beyond clearly formulated forms of ethical reflection, there exists a range of experiences related to various bodies of knowledge and the ways in which they are moralized that exist on the fringes of our abilities to communicate and interpret (Husserl, 1962; Throop, 2010; Desjarlais and Throop, 2011). We thus need to use a “phenomenological reduction (epoché) to penetrate the unquestioned acceptance of the ‘natural attitude’ in order to reveal the fundamental structures of consciousness that underlie it” (Throop and Murphy, 2002, 191). These modalities of experiences that are often so hard to communicate, highlight the possibility of these moral ways of being (how knowledge should be owned, duties, and rights associated with owning), and can remain as part of a *habitus*—“acquired dispositions functioning on the practical level as categories of perception and assessment or as classificatory principles as well as being the organizing principles of action” (Bourdieu, 1990, 12)— that we generally do not acknowledge until sudden moments of reflexivity bring it to the forefront (Bourdieu, 1990; 2016 Csordas 1990, 1994a, 1999b; Duranti 2010, Jackson 1996).

Accordingly, forms of moral experience that are yet to be explicitly reflected upon and remain largely unexamined, may thus operate in ways that continue to reconstitute preexisting community norms and values. Such moral sensibilities, whether reflected upon or not, are thus complexly implicated in various “technologies of the self<sup>3</sup>” (see Foucault, 1984; 2005) in which particular forms of “ethical work” are performed as part of a cycle of self-formation that is responsive to a set of more or less articulated norms and values that make one an ethical subject. These “technologies of the self” can be seen in the ways Achuar communities express and or talk about their bodies of knowledge as well as how they respond to what is expected (norms around

secrecy) of them as it pertains to their knowledge. It's in these instances that they may constitute and transform their own identity in connection to their knowledge.

### **Section 3.2. Methods**

To this end, a large part of the methodology that is used for this chapter centers on the ways in which Achuar individuals subjectively (feelings and reflections of interlocutors), interactionally (real-time, face-to-face interactions), and discursively (larger discourses that exist in the community) communicate about their lived experiences, thus providing a means of examining the moral valences surrounding their various forms of knowledge, the rights and duties associated with such knowledge, and how their identities are constructed as part of knowledge practices. I will pay close attention to the moments of hesitation, which, as anthropologist C.J. Throop posits are important due to their ability to reveal layers of ethical accumulation over time (Throop, 2010). Hesitations indicate the operations of a habitus partly<sup>4</sup> upholding these time-honored ideals as they relate to knowledge and ownership.

The questions being explored in this chapter are: What types of intangible Achuar cultural knowledge, including anent, can be understood as property? Who can own such forms of knowledge like anent, under what conditions can they be possessed, and how must knowledge be transmitted and controlled? How are systems of value around knowledge in Achuar communities changing in terms of what it means to keep, and possibly own, traditional knowledge as communities that are fully immersed in the process of globalization? In addition, I examine the ethical issues surrounding attitudes towards ownership of cultural property<sup>5</sup>. I ask: how are ideas

---

<sup>4</sup> Here I use the term "partly" because I am working from a version of Habitus put forward by Husserl, and further theorized by (Throop and Murphy, 2002), which is one that explicitly allows for possibility that an individual can strive "to establish this habitus voluntarily" (Husserl, 1973 [1948]: 123)

<sup>5</sup> Cultural property is defined as elements of culture that are considered part of a community's patrimony: art, music, folklore, and even landscapes (Brown, 2009).

about reciprocity and obligation understood with respect to intellectual property, how are processes of knowledge transmission or control viewed as ethical acts that transform moral life, and in what ways do these practices help to maintain or create distance from the status quo? Through focusing the ethnographic methods such as participant observation and open-ended interviews, this chapter expands beyond explicit discourse surrounding moments of conscious reevaluation of appropriate ethical responses to knowledge circulation and ownership, especially as related to the types of knowledge used in the experimental vignettes in the first two chapters of this dissertation. This approach aims to better contextualize and think about the everyday, and perhaps less explicitly thematized, ways that people make decisions with respect to their cultural property and self-determine (Clifford, 1988; Povinelli, 2002; Barker, 2011; Bruyneel, 2007; Richland, 2007; Rifkin, 2009; Cattelino, 2008;2010;).

### **3.2.2: Information Control: Anent**

In the case of Achuar communities, there exists several types of traditional knowledge, such as anent, that function as a fruitful starting point to begin to look at how types of knowledge are controlled within and outside the community setting (Brown, 2009). Before delving into my experiences (including silences and hesitations around hearing anent) I will now provide some background on these cultural practices.

Anent are part of a suite of cultural and personal Achuar practices and beliefs oriented towards influencing outcomes (Brown, 1984; Descola, 1986;1996). They are best thought of as magical songs that are invoked in a wide range of circumstances and serve as a form of message transmission between the individual invoking the song and a wide array of receivers. Anent are seen as being able to transmit one's inner most secret thoughts to receivers far beyond earshot and are an interesting starting point when thinking about ownership of knowledge and knowledge circulation in Achuar communities. This is because unlike myths, which are seen as

belonging to the community as a whole, these magical songs are seen as individual types of knowledge that belong to a single individual or set of individuals (for example, families) (Brown, 1984; Descola, 1996; Rubenstein, 2002). They are highly controlled and jealously guarded due to the perception that they are not meant to be heard by beings outside of the ones they are meant to invoke. For this reason, they are rarely ever sung in public and if they are, they are sung in almost at a whisper or in one's head.

Anent are typically transmitted only by close kin of the same gender (e.g., mother to daughter, father to son, father to son in law, mother to daughter in law). They can sometimes be acquired through other means such as through dreams or visions induced from the use of *natem* (ayahuasca)<sup>6</sup>. In order to learn these anent, a series of ceremonial steps are needed which begin with the drinking of tobacco water while the owner of the anent stands next to the person signing the song over and over until it has been memorized. In order for the anent to be effective they need to be sung in isolation in the forest, accompanied with thoughts of affection for the person who taught them (Brown, 1984; Descola, 1986; 1996; Rubenstein, 2002).

### **3.2.3. Ethnographic Timeline**

The ethnographic field work for this project was initiated in the summer of 2017 and has continued up until 2023 within San Lorenzo<sup>7</sup>, an Achuar community in the Pastaza region of Southeastern Ecuador. Fieldwork has consisted of a total of 13 months since 2017 of ethnographic observations while living in the community, over 50 hours of open and semi-structured interviews and focus groups, and a series of follow up interviews using video conference calls (WhatsApp and Zoom). The mixed methods of this study are informed by those

---

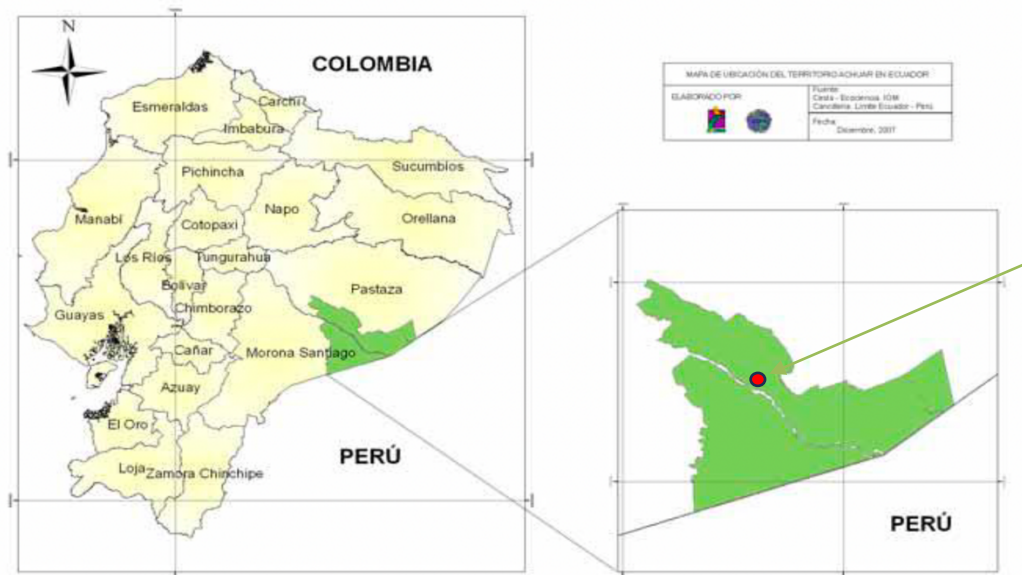
<sup>6</sup> Natem or ayahuasca is a plant-based psychedelic made of two plants and mixed in a brew. It is often used by as means of gaining visions of the one's future, healing (shamans only), and for transferring certain types of knowledge (Rubenstein, 2002).

<sup>7</sup> San Lorenzo as well as any other community names along with individual names are pseudonyms.

who have re-conceptualized “the field” as an assemblage of the various sites through which one’s interlocutors move (Gupta and Ferguson 1997, Lakoff & Collier 2004). The ethnographic observations highlighted in this chapter are not meant to be an exhaustive list of every interaction, but rather are used to highlight various key themes that came up repeatedly. The names and places of locations have been changed to preserve the anonymity of my interlocutors.

This research, while providing valuable insights, does come with certain limitations, particularly in the context of its participant sampling. The prevailing gendered norms in San Lorenzo have considerable influence over interpersonal interactions, especially for women and men outside of their immediate family circle. Such societal norms limited the depth and range of interactions I could appropriately have, leading to a challenge in data collection. Consequently, in the ethnographic interviews, the representation of women is less than desired for a holistic analysis of ownership norms. This underrepresentation might result in potential biases or gaps in the findings, underscoring the need for cautious interpretation and recognizing the potential for missed nuances or perspectives.

**Figure 3.2.1. Map of San Lorenzo Region (Map by Ecociencia)**



This research took place primarily in a small village in the Pastaza basin, San Lorenzo, in the Pastaza province of Southeastern Ecuador (Fig. 32.1). San Lorenzo is made up of about 25 nuclear families that are related through their various kinship links to three larger, extended families. The social structure of the community has been directly shaped by its founder, “Don”, the patriarch of the community. Don is an older individual who broke away from another Achuar community and established San Lorenzo in the late 1990s. Don’s decision to leave his natal community was tied to his conversion to Evangelical Christianity and his ensuing frustrations with his community of origin when they remained unwilling to convert. Don established San Lorenzo with his two wives and his sons whose families would later, through their marriages, come to comprise a large portion of the extended families that make up the community.

The economy of the community has until recently been based on hunting, foraging, fishing, and horticulture (Bremner and Lu, 2006; Bilsborrow, Bremner, Lu 2008; Barrett, 2018). People from the community, primarily the men, have been able to get some cash by working as

“*macheteros*<sup>8</sup>” in communities that are closer to the city, as river guides, and day laborers. Additionally, men of varying ages migrate temporarily to the city to work as laborers or obtain technical knowledge (military, police, primary school teachers). Many of the men and some of the women in the community of San Lorenzo, have been able to go to the city to study to be schoolteachers and are currently employed in the local school, thus allowing them to receive a consistent salary. This incoming cash gets redistributed in many ways to community members through the contracting out of jobs (e.g., cutting lumber with chainsaw, other manual work). The dynamics of employment, which are, significantly, organized according to who is a schoolteacher and who is not, feeds into the reproduction of inequalities at the individual level. Teachers are able to use their plots of land to build bigger homes with windows and metal sheet roofs along with traditional Achuar homes with thatched roofs. They also have better access to technology such as cell phones, solar panels, satellites with internet and cable access, and personal computers.

As of 2022, a road has reached the village directly north of San Lorenzo and is a ten-to-fifteen-minute canoe ride or 45-minute minute walk. That road now has a bus service coming to and from the city twice a day. Prior to this, the access to the village was only possible by airplane or by a full day’s journey via canoe down the Pastaza River and then walking through dense jungle. With the recent emergence of the road, many locals are now employed by the construction companies that are building the thoroughfare, leading to a highly visible economic transformation. Similar to other villages—and notably in San Miguel, a village to the north of San Lorenzo—the advent of the road has ushered in a variety of new economic prospects for local inhabitants. These opportunities range from selling timber to city merchants, a practice

---

<sup>8</sup> Macheteros are day laborers who often used machetes to clear land for various industries or individuals in the region.

which unfortunately often accelerates deforestation. Additionally, women have begun to prepare food to sell near the road which is mostly consumed by road workers and wood traders. This has led to the San Miguel villagers selling goods such as beer, soda, candy, and *chicha*, a drink made from fermented yucca or manioc that is traditionally offered for free,<sup>9</sup> to visitors taking the bus to the end of the road. The emergence of these individual enterprises is in many ways coming into contention with Achuar norms about ownership and hospitality norms that are often accompanied by disapproval of things that could lead to selfish behavior. The following ethnographic examples that I discuss here have taken place during this time of transition in which there was an intensification of the monetization of cultural practices that is leading the community to a highly market integrated economy.

#### **Section 3.2.4. Primary locations of Knowledge Circulation**

In the Achuar cultural tradition, there are several locations where types of traditional knowledge are spoken about and circulated. During my ethnographic fieldwork I have witnessed several of these exchanges, the most reoccurring being during early morning *guayusa* ceremonies, communal meetings, and in individual households during the evenings.

Guayusa ceremonies have functioned as a space where older community members are able to guide, lend instruction, give advice, and exchange bodies of knowledge such as songs and myths to younger members of the community/family. The guayusa leaf used in these ceremonies comes from the guayusa tree, which is part of the *Aquifoliaceae* family, similar to other infusion plants such as Yerba Mate which is highly consumed across South America. Similar to Yerba Mate, guayusa has a high caffeine content. In Achuar communities, guayusa is harvested, dried

---

<sup>9</sup>Chicha can be sold at multi-community events like large soccer games or fairs. In these instances, it is seen as okay to sell these goods to other Achuar individuals. Most individuals in San Lorenzo view this as okay, but think it's wrong when it sold to non-Achuar visitors as it violates hospitality norms (Descola, 1986; Rubenstein, 2022)

out, then boiled in a large pot. Once boiled, it is allowed to cool and then poured into *pilches* (serving cups made of dried out gourds) and presented to those who will be drinking. The consumption of guayusa takes place near the fire, near logs that burn at the ends for prolonged periods of time, usually early in the morning, typically around 3 or 4 in the morning. Typically, this early morning ceremony requires drinking several pilches of guayusa until full and then participants walk to the outskirts of the plot housing area and induce vomiting. This is done using a small branch, typically of yucca plant stem. Through conversation, community members have stated that keeping all that guayusa in one's stomach would create discomfort and the stimulation effect from the caffeine would feel too strong throughout the day. The frequency of use of guayusa in the mornings varies from community to community. When I first started working San Lorenzo, it was done every morning, but as the years have passed it seems the frequency of the ceremony has dropped due to the younger men being more preoccupied with heading to work and opting into the use of instant coffee in many households.

Another space in which knowledge circulation takes places is in the public community meetings, often referred to as *assembleas*, that take happen in the *casa communal* (communal house). These assembleas, are public meetings that function as a space for all community members to come together and have conversations around shared dilemmas, community goals, and overall cultural exchanges (e.g., these are spaces where you typically see Achuar dances and songs that are not anent performed). These meetings are convened by elected community members who announce it on a horn. As one waits for the meeting to start, people are often engaging in conversations and drinking chicha. Meetings can be upwards of 5-10 hours depending on what is being discussed and the fact that everyone in the community is allowed to give their input, leading to long speeches, interjections, and call and responses. These community meetings function as a public space where discourse about community goals can be

agreed upon, thus making this a significant space for the circulation of knowledge that directly impacts the way in which the community views itself as a space of Achuar identity. My experience with these meetings came early in my fieldwork. My very ability to work in San Lorenzo was dependent on me presenting the goals of my project publicly and having the members of San Lorenzo vote on whether I could stay or not. The necessity for the whole community to vote on the presence of visitors would arise again when tourists or shunned Achuar members would show up to community, topics I discuss later in this Chapter.

Home visits, particularly in the evening when the men and women of the household are back from their daily work, also function as a space in where knowledge is circulated. Typically, the household patriarch would come home and shower down by the river, and once everything was settled, and dinner was served, the conversations about the day, community politics, and various other issues pertaining to Achuar concerns began to take place. In my experience, these settings were where the most person-to-person knowledge transmission took place, often involving chicha drinking late into the night.

**Table 3.2.1. Knowledge Circulation in San Lorenzo.**

Genre of Knowledge Circulation	Approximate Number of Participants	Settings
Guayusa Ceremony	1 to 1	Private, possibly private within a public space
Assembleas	+3 to +3	Public
Home Visits	1 to 1, or 1 to +3	Private
Forest/Waterfalls	1 to 1	Private within a public space

Finally, additionally, spaces deep in the forest, often near isolated waterfalls, have traditionally been utilized as spaces where knowledge is transmitted. Given the changing dynamics of this community, one that was founded by an Achuar convert to Evangelical Christianity, the use of the forest and waterfalls spaces is changing. These would traditionally have been spaces where natem was taken with the intent of gaining visions and power that are believed could lead things

such as better hunting and crop yields as well as understanding one's future (Rubenstein, 2002). Given my status as an *apach*<sup>10</sup> (an outsider that is not Achuar and is not of Ecuadorian decent)<sup>11</sup>, I was limited in my ability to be allowed within these spaces. Access to these spaces with the intent of transmitting knowledge is often limited to elders and younger community members.

### **Section 3.2.5: Themes of Knowledge Circulation:**

In trying to theorize patterns of knowledge circulation and what it means to act ethically in relation to bodies of knowledge as an Achuar person, we need to begin to examine the local ideologies that directly impact the way information control takes place. Building on the foundational understanding of secrecy and its implications in social dynamics, we need to consider the approaches to the study of circulation of knowledge and the ways it is concealed and circulated (Simmel, 1906; Lurhmann 1989a;1989b; Jones, 2012; Masco, 2002; 2006; Debenport, 2014). In particular, thinking about Simmel (1906)'s analysis of secrecy and the ways it creates boundaries for entry, for those who are in the know and those that are not, while at the same time offering "temptation to break through the barrier of gossip and confession" (466) is helpful when thinking about the ways particular bodies of Achuar knowledge can be known about but not known directly (unless allowed) and how they play into the formation of hierarches (Masco, 2002; 2006). Luhrmann (1989a;1989b)'s and Jones (2012)'s work on secrecy among various magic practitioners has shed light on the way the secrecy both "creates property" (Luhrmann,1989a 136) and "produces value through the exclusion of outsiders" (Jones, 2012, 78) through the back-and-forth dynamic that comes with knowing something no one else knows and wanting to know what that something is. This is important analysis when thinking about

---

<sup>11</sup> I am not of Ecuadorian decent but because of my background as Latino and my dark complexion this title was often ascribed to me.

ownership of knowledge in an Achuar setting. As we will later show, forms of Achuar knowledge are sold between Achuar persons, and their worth in many ways is based on the efficacy that comes with the knowledge being concealed<sup>12</sup> and desired. Finally, in thinking about the way discretion and revelation play out in San Lorenzo, Debenport (2015)'s analysis among Keiwa communities, in particular thinking about how revelation is an integral part of the "logic of concealment" (2015, 48) and for secrecy to have any grounds by which to support social cohesion, there needs to be revelation. This tension between concealment and revelation is important to consider when reflecting on the moments of hesitation that emerge in San Lorenzo when the ethics around of bodies of knowledge are being reflected on by Achuar persons.

Because I was given permission to live in San Lorenzo and develop connections over long periods of time, this Chapter is that of an outsider who knows the Achuar language and has established relationships within San Lorenzo that have afforded me some cultural understandings. In hopes of maintaining anonymity and keeping certain types of knowledge shared with me private and, I gave my word that particularities of songs (recordings and or transcripts of recordings) and stories (transcripts of stories) shared with me would stay with me and not be shared to broader publics (Academia) outside of San Lorenzo. Rather, I focus my lens on how people are thinking, feeling, reflecting, and interacting (verbally and non-verbally) on what it means to own their knowledge.

### **Section 3.3. Results**

#### **Section 3.3.2 Expertise and Knowledge Keepers**

Early during my fieldwork in 2017, I began to see the ways in which anent are both valorized and concealed in everyday interactions, and I recall several recaller key events involving this

---

<sup>12</sup> Particular forms of songs are sold because of they are associated with making one better at desired skills (Hunting, Gardening).

particular genre of knowledge transmission. One instance took place in San Lorenzo, with Don, the founder of the community and one of the oldest men living there, who I would come to find out later had an extensive knowledge and collection of anent. At his house, as we were drinking guayusa in the early morning, Don asked me more about my project and the research that I was doing. I had been working in the community for weeks at this point, asking questions about ownership, in particular ownership about anent.

1. (Don laughs as he approaches me)
2. Don: Apach don't know anything about anent. How did you know about anent?
3. Ulises: I read a lot about them but have never actually heard one.
4. D: (laughs to himself)
5. D: You won't hear them much anymore, and if anyone knows them, they aren't likely to let you hear them.
6. U: Why do you say that? Do people not share them openly with others?
7. D: Well, it used to be that they weren't shared in the open. The only way you'd hear them is if I were to share it with you and that would mean we are related, you'd have to be one of my sons, or if you paid me for one of them. I have many.
8. U: Why weren't they shared in the open?
9. D: Well you see, anent have a lot of power. When you sing them, and you do it correctly they have the power to bring the animals to you. When women sing them, the chakras are full of food, the plants grow when the women sing them. They are tools we used to help us. If everyone knows your anent, it won't work anymore, and the animals will stop coming, the plants will stop growing.
10. U: Earlier you mentioned being paid for anent, how did that happen? Is that allowed? Do others feel anything about that?
11. D: It's allowed. It's up to the owner to decide if they want others to know it or not. When I was younger, I was a good hunter and was often asked how I was able to hunt so well. I would not tell people how, but people knew it was because of how powerful my anent were. I sold mine for a really good shotgun before and for a *peke peke* (e.g., small-motorized canoe engine). It worked well for the person who traded me the shotgun for it, the other guy was not so lucky.

12. U: How did they know? How did you get them to be so powerful? If sold, does it work the same for others as for you?
13. D: They knew because every time I went to hunt by myself I would come back with something. Big or small, I'd always get something. The one I used for hunting was taught to me by my father, he died when I was young, but he was also a great hunter. He took me by a waterfall late at night and we drank tobacco water and did natem, then he taught it to me. Since then, I have been a good hunter. He told me not to tell it to anyone but my sons, but my sons aren't all interested in learning it. I've taught the older two but the younger ones, didn't seem to want to learn it. It works if it's taught correctly.
14. D: The person who traded me the shotgun for the song had lots of success with hunting. The other person didn't (e.g., traded for boat motorized engine didn't). He didn't take the time to learn it from me correctly.
15. U: Why do you think your younger sons don't seem to be interested in learning the hunting anent? Do you know if they have any other ones they may want to learn? How do you teach and or learn it correctly?
16. D: (Don takes a long pause here)
17. D: My guess is that they have other things they care more about more than hunting now. (pause)"
18. D: Hunting is still important, but there are less animals now. We have to go farther into the jungle to find them, so it seems better to go work in the city and make some money then spend all day hunting. I understand it. (Pause).
19. D: It's hard to raise children with the little animals that are around (e.g., referring to the size of the game). I don't sing them as much as I used to. I still hunt, but it's easier for me to fish. I'll sing them from time to time, but there isn't the same demand for the songs like there used to be. You used to have to really hide them.
20. U: Do you not hide them anymore?
21. D: Well we used to not sing them in front of people, even the women would sing theirs quietly and to themselves. Now I'll occasionally hear my wife sing them in the garden. I'll sing them when my grandkids come with me to hunt, they hear it but don't ask me to learn them.
22. U: Would you let me hear one?
23. D: (Don pauses, looks away from me almost as if thinking if he should) It used to be that if anent were known by everyone, they would not work anymore. People (Achuar) would look at you as if you lost your power if you let your songs be known to everyone.

Don proceeded to sing one of his anent. When I asked which one it was, he would not say. He proceeded to sing as I sat there in his home. I could appreciate the beauty of the song but there was clearly a level of understanding I was not attuned to, nor does it seem like I was meant to understand it. To Don however, based on his sudden shift in attitude. Don closed his eyes, became quiet, and seemed focused as if thinking deeply (line 25). This would later make sense when reflecting on the ethnographic literature about anent and how they are meant to be sung with a deep introspection and thoughts of affection for the person who taught them. (Rubenstein, 2002).

24. U: Were you thinking about anything as you were singing it?

25. D: About what I want the song to do. What my intentions are from my heart (pause).

26. D: If you were to record it, that recording would be worth lots of money. You'd have to be careful with it.

27. U: Why careful?

28. D: Because others could take it from you, you'd have to be careful because people can be jealous of the success the song will bring.

Shortly after this interaction, Don's son-in-law, Cristobal, came into the room and the topic around anent quickly changed to talking about the community's outlook on myths. Cristobal is Kichwa, another Ecuadorian Indigenous group, and has recently married Don's youngest daughter. This sudden shift in conversation, Don's intentional change in conversation topic as soon as Cristobal emerged, really seemed to bring to light the concealment of these anent. The night continued and I eventually made my way back to my tent, where I would stay till the next morning for 4:00 a.m. guayusa. I woke up around 3:45 a.m. to get ready to make the ¼ mile walk to Don's home. He had asked me the prior night to come back so that we could keep talking. I fumble my way through the trail that leads to his home, trying not to trip as I cross the 2x4s of wood used to keep one from stepping in deep pits of mud, as expected I didn't do such a

good job. As I arrived at Don's home, he greeted me laughing as the fact that he could hear me coming well before I stepped onto his plot of land or on in his home. "You'd make a terrible hunter, you're too fat (laughing). You are very heavy footed". I laugh and state that my lack of aim is probably going to make me a terrible hunter before my heavy feet do. Don proceeds to laugh and comment on how is anent would not be able to help be a better hunter.

We procced to drink guayusa and after gorging ourselves, we both go and purge on the outskirts of Don's plot. Once we finally settle in and begin to drink chicha, I begin to ask questions about how he sees the current value of anent playing out in relation to things like the internet (line 29).

29. D: You'd never be able to aim because the animals would be long gone. Not even my anent could help you.

30. U: Not sure if you have seen, but Achuar individuals are now posting some of their songs and myths on the internet, not necessarily anent. Is that okay? Should they be able to post anent on the internet?

31. D: Achuar can do what they want with their songs. If they want to post them, they can. Times are different now; hunting is not the same and we don't live off the land like we used to. If apach like the songs and stories, that's good. You're here because you like Achuar culture, right? So, if other people come because they see our songs and stories, that makes it better for us to collaborate.

32. U: What do you mean by collaborate?

33. D: There are lots of things but something like *cabañas*<sup>13</sup>. Like in Kapawai but these could be closer to us. One of my sons works there now and says we could do that here. The road is getting to the community north of San Lorenzo, so we could have more friends like you to come visit.

34. U: Are they wrong for posting these stories and songs online?

35. D: You can't really tell Achuar people what to do, even me as an Achuar person. Of course, they can choose to listen to what others say about it, but at the end of the day it's their right to do what they want with this songs and stories.

---

<sup>13</sup> *Cabañas* refer to eco-lodges that are used to host tourists in the region.

Here we see Don reflecting on the dynamics of change in his community as it pertains to the internet, larger publics, and the circulation of songs and stories that were once previously concealed.

This is one example of the many conversations that have taken place with Don since 2017 in where there is an assemblage of small moments, instances of questions and reflections around types of traditional knowledge and the ways in which these bodies of knowledge interact and or should interact with non-Achuar speech genres, in this particular case anent (line 31). These moments, in particular the oscillating between what used to be done and what is done now, the moments of hesitation taking place prior to the revealing of Don's anent, function as moments where ethical reflection come to the forefront (line 23). Throughout this example and many others, Don seemed to reiterate time and time again the changing of times, how things used to be done versus how they are now (line 31). Don often utilized pauses to reflect and took his time in collecting his thoughts when discussing anent in relation to his children's interest and how it gets circulated on a broader level (line 13). The moderation around anent in many ways reflect the individual and communal ethos seen in Achuar communities in the lack of consistent and direct enforcement around this form of knowledge (line 35).

On one hand, it appears that anent and their circulation function as an example of a type of knowledge that has been heavily moderated and subjected to expectations that are informed by the past. In other words, they are subjected to logics of the ways things used to be done or are done by a person with a venerated Achuar status, logics that inform the practices of what Lilith Mahmud describes as discretion—"a set of embodied practices that conceal and reveal potentially significant information" (Mahmud, 2012, 430). These discrete logics need not always be conscious choices, they may be a result of a suite of practices (line 23) that emerge as a means of concealing anent.

This comes to the forefront in various moments where what can be or should be done now versus what was done (line 22). In these instances of hesitation, a habitus around the expected logics that comprise what it means to have and circulate anent, both implicit and pre-reflective, emerges as a direct manifestation of the ideals and traditions around anent. The hesitation showcased allowed Don the chance to thoughtfully consider what he is wishing to share before doing so. Don's reflections on his emotions and desires as they pertain to anent is an important part of what it takes for concealment to occur as concealment requires intentional and measured actions (Throop, 2010).

On the other hand, the rights to control the circulation of these particular anent seem to be heavily individualized. For example, when Cristobal walked into the room, a non-Achuar man but Indigenous nonetheless, Don shifted the subject away from anent, signaling what seems to be a pattern of personal discretion around a type of knowledge that he stated prior that it is okay if it gets out or is known by others as it only has efficacy if sung under the right conditions and intentions. Don's intentional back and forth when it comes to the concealment around his anent with other Indigenous identities from him being open to trading anent only if goods such as shotguns and boat motors are provided to changing the subject when his own son in law was in proximity to possibly hearing an anent, bring to light how concealment through exclusion instantiates various forms of value around anent and creates a hierarchy of who can and can't know and or teach these bodies of knowledge (Simmel, 1990; Luhmann, 1989; Jones, 2012).

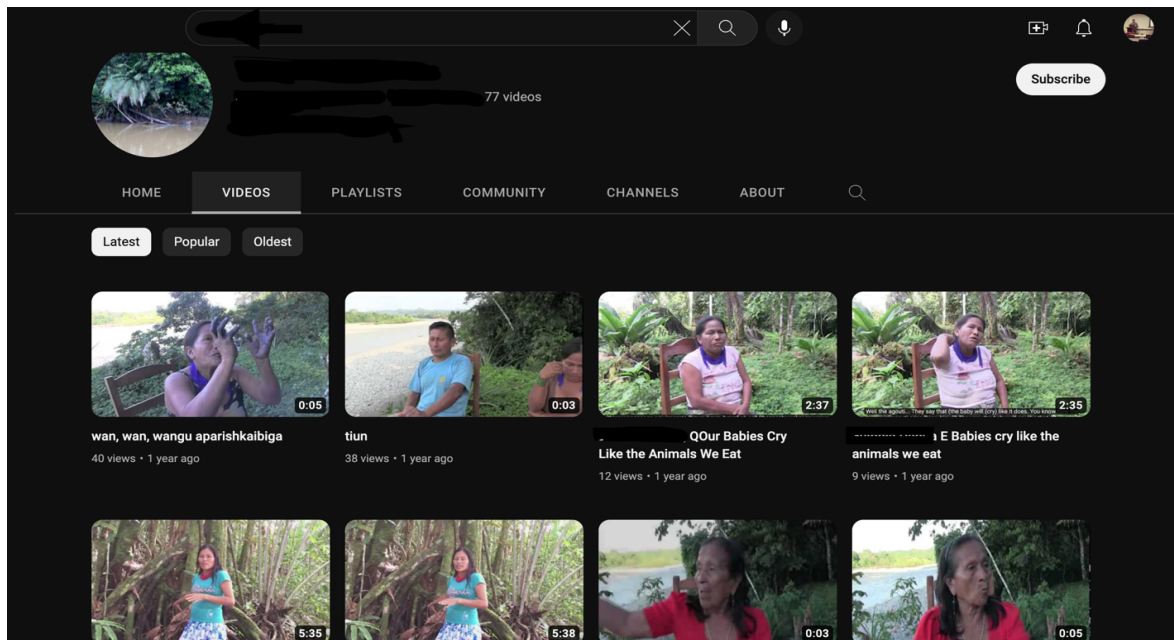
This relationship between concealing and making known seem to be a significant part of what it means to control and circulate anent. The practices around discretion and revelation as it pertains to anent within the Achuar setting are reminiscent of what Debenport (2015) refers to as revelation working in "concert with concealment" (2015,45), meaning that the value extended to anent is highly reliant on it seesawing between being secret and being known. The norms around

control over anent as a type of knowledge that if done efficaciously can give direct results (e.g., hunted game, healthy gardens) seem to be changing in the ways they are modeled at the level of the community, the individual, and those outside the Achuar realm of knowledge circulation. These changes seem to be heavily informed by the rapid shifts of technology in the region, shifts that are now making forms of knowledge that were once practiced in private, take on a multitude of new values in public domains.

When considering how forms of knowledge, such as anent, gain new significance in public spaces not always frequented by Achuar individuals, it's essential to understand the implications of these knowledge forms existing in both private and public contexts in terms of value. This value can vary in meaning depending on the identities encountering this knowledge, prompting questions about how communities like San Lorenzo address these shifts in understanding and significance.

### 3.3.3. Public and Private Circulation:

**Figure 3.2. Snapshot of Youtube page belonging to the person who came into record Yokobo’s Mother’s songs. (See line 28)**



During my stay in San Lorenzo, I observed numerous exchanges that highlighted the relationship between private and public spheres as they relate to the circulation of knowledge. These interactions shed light on how the locals navigate and embody this dynamic in their daily lives. One particularly notable interaction took place after I had been working in San Lorenzo for several years. This interaction was with Don's younger brother, Yakobo, who would visit the community from time to time, but was asked to move from the community for a disagreement that occurred between families. My interactions with Yakobo had always been pleasant, but they often ended up with an elaborate business pitch involving the suggestion that I secure funding for a sort of cabaña-like villa in San Lorenzo for tourists to come stay in.

This day in particular, I had just come back to the casa communal area after finishing an interview with Yakobo's younger brother, Adrian. I had been running interviews on and off for that day as I had just arrived two days prior. As usual, I was recording as much as I could so that I could later listen to the interviews in preparation for the next day. The idea that my research entailed recording things was known and allowed in community. However, the interaction that took place was something that I was not prepared for and in many ways was a lesson in the various ways that fieldwork could go wrong rather quickly.

1. Yakobo: Ulises, can I speak to you?
2. U: Sure, what's up?
3. Y: I was wondering if you could give me back the recordings you have of my mom singing her some of her songs for the chakra.
4. U: Wait what are you talking about? I don't have any recordings with your mom, she didn't want me to record so I didn't.
5. Y: So you weren't here two weeks ago recording her songs and myths?
6. U: No, I just arrived to community two days ago. That wasn't me.

7. Y: Are you sure that wasn't you? My nephews said they had sworn it was an apach who was the one recording?

Yakobo walked away looking concerned, almost as if distrusting of what I was telling him. I would later to come find out while sitting in the casa communal that someone else had come to community and began to record songs and Achuar myths with community members that would allow them. Towards the evening of the same day, Yakobo came up and began to explain to me why he was a bit hostile about the recording of the songs and myths (line 8).

8. Y: Ulises, I talked to my brother (Adrian), he let me know that you had just gotten into community. I'm sorry for accusing you of recording my mom's (Maria) songs.
9. U: No worries! You seemed to be very stressed about it. If you don't mind me asking, what happened?
10. Y: Well apparently, an apach who lives in Napo, came into community. He was led in by another Achuar. He came to visit you all last time you were here.
11. U: Wait are you talking about González? He was here?
12. Y: Yes. I was told he came in with this apach and thought he came in with you all. They came in and video recorded my mom singing her songs and telling Achuar myths. They didn't pay her, nor did they pay the community for this.
13. U: Oh no, I had no idea about this. I didn't know they were coming in to do that. Are they supposed to pay for the songs and stories?
14. Y: They don't have to... but they should. It is the right thing to do. My mom is the oldest woman in the area. She has so much knowledge and she should be compensated for her knowledge especially if they are going to put it on the internet.
15. U: Why is it the right thing to do?
16. Y: Because they are her songs. She kept them and used them for years and they worked. Her garden was beautiful. It's only right that they give her some type of payment for them. They will probably put them on the internet.
17. U: Are they going to put it on the internet?
18. Y: Why else would they record it? I know that outsiders like to use our community knowledge for tourism. If they are doing that and using us as promotion, then we should be paid.

19. U: What do you mean by promotion?

20. Y: They use our traditional ways of being to get people from Europe and the United States to come visit and stay in cabañas. They think Indigenous people are stupid and don't know that they are using us.

I would later come back to revisit this conversation with Yakobo in 2023 (line 21). By this point Yakoob's mother, Maria, had passed away. She was one of the two community members who died during the first Covid-19 outbreak in 2020, one of the older community members who had a recollection of life prior to the establishment of the communities. Since 2020, Yokobo been back and forth between San Lorenzo and his home in the sierra. The building out of the road has made it easier for Yakobo to make the trek into community. The following conversation took place came up during a conversation in 2022.

21. U: Do you recall when that other apach came in with González and recorded your mom's songs?

22. Y: I do. I wish they would have given us a copy of the songs and stories. We don't have any memory of those since she passed away (long pause).

23. U: Were your sisters or brothers able learn any of those songs or stories from her?

24. Y: We heard the stories growing up. My sisters learned some of the songs, the chakra ones in particular. But the songs don't have the same power. My mom had a beautiful chakra, with plenty of growth. That was cause her songs were so powerful. We lost that. And when my oldest brother (Don) dies we will lose his as well.

25. U: Can't you and your siblings just record the ones you know and save them?

26. Y: It's not the same. The words would be a bit different, nor do we all know what my mom had in mind when she was signing them. You need to know what to think about for the songs to be taught properly.

27. U: Have you heard anything about what happened with the recordings?

28. Y: I assumed that they might have ended up on the internet. If they did the family should be paid for that. It's our songs and stories, it's our traditions (See Figure 3.2).

29. U: I've noticed a lot more people uploading Achuar types of knowledge on to places like Facebook. Even using places like Facebook to sell *chimpui* (Achuar stools).

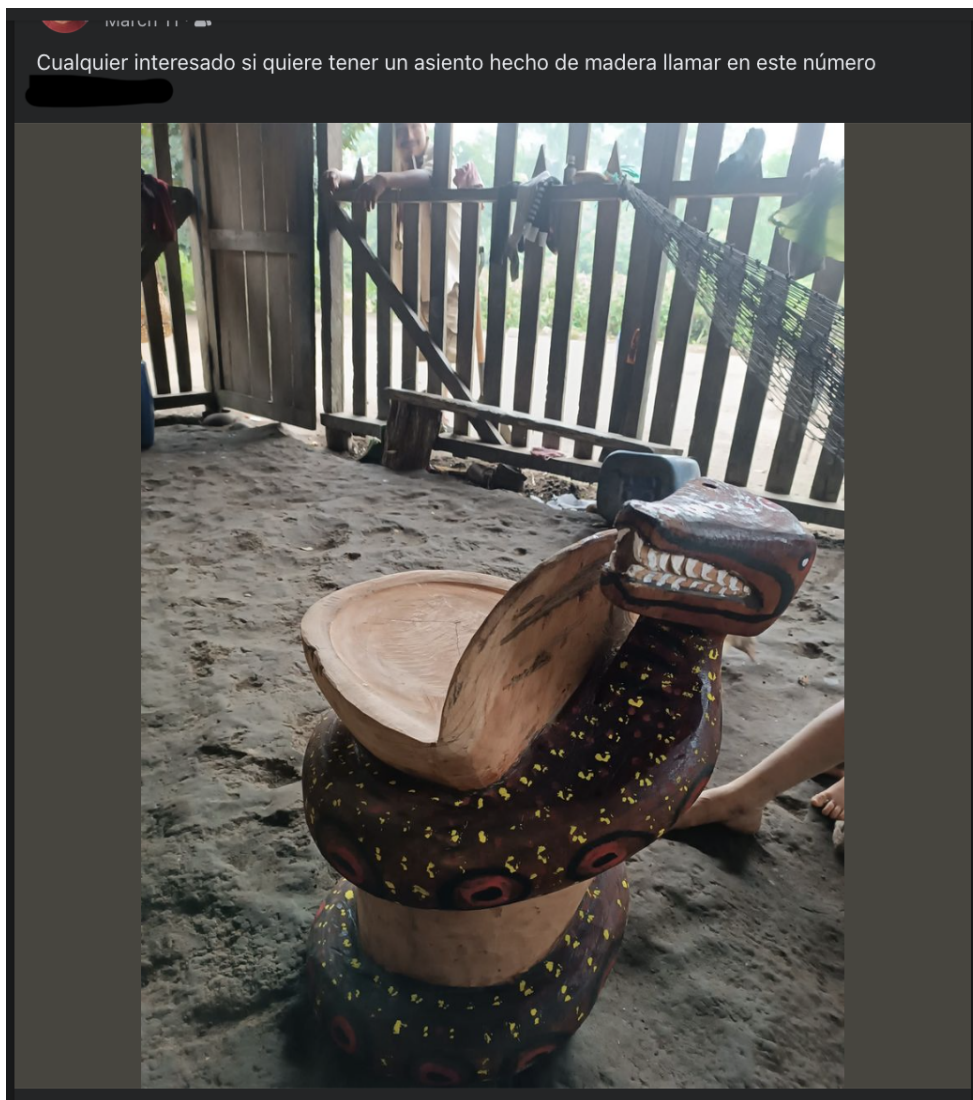
30. Y: The selling of artisanal goods has always been a thing in places like Puyo. We can now use spaces like Facebook to do this. It's up to the individual Achuar to decide if they want to do these things. For example, the community of San Miguel now has the road and they are starting to sell chimpui and *mukawaa*<sup>14</sup> to tourists who are taking the bus to the end of the road...(pause). They are even selling chicha to tourists. This was something that was given for free. I don't agree with all of it, but it's not my place to tell them what to do. (See Figure 3.3)
31. U: But is it okay to make money off these things that have traditionally been done and or given away for free?
32. Y: Of course it is. Others have done it to us. They have extracted from our land, from our knowledge. So why shouldn't we have the opportunity to better our life through the use of our knowledge?
33. U: Isn't it bad if non-Achuar people to know your knowledge though? If they exist on the internet publicly? For example, I've been told that if anent are known by others, they won't work.
34. Y: (laughs) Who told you that?
35. U: Don did.
36. Y: Anent may or may not work like they used to. I can't say. But when people know about these things, and about our types of traditional plant medicine, they are going to want to come down and learn about them. It benefits us to use our songs and stories to get people to want to visit, that could lead for more opportunities in the communities. They can't sing anent like we do because they don't know the full traditions around them, they don't know the intentions behind them. So even if they know them, they won't work for them without the proper training.
37. U: How about González? Have you heard anything about him since the incident?
38. Y: González died. You didn't hear?
39. U: I heard some rumors about it, but didn't know if it was true or not.
40. Y: Yeah... he died from Covid. It was shame that he died from it. He wasn't really welcomed here, but still, no one should die like that.
41. U: Wait, why wasn't he welcomed here?
42. Y: He did things that Achuar shouldn't do.

---

<sup>14</sup> Achuar clay pots that at times have very intricate designs that can be associated with individual styles of women in the community.

At this moment Yakobo paused and appeared to contemplate whether he should tell me the truth or not. After a pause, a Yakobo explained to me that González had somewhat of a tumultuous relationship with the communities (line 41). He was not accepted by many people there despite his son having a high-standing position in of one of the Indigenous organizations in the region.

**Figure 3.3. Facebook posting selling a Chimpui<sup>15</sup> (See line 30)**



<sup>15</sup> This particular *chimpui* is very elaborate and designed to be sold to tourists. The ones used in the home are often much simpler.

Throughout these conversations with Yakobo, the theme of the “right thing to do ”came up time and time again, pointing to aspects of what it means to act ethically around Achuar knowledge. It often seemed that the frustration with the events of the recording of Maria’s songs was not in the act of recording itself, but rather that it was done without some type of financial acknowledgment to the individual or to the community (line 12). Yakobo seemed fairly certain that the song would end up on the internet (line 16); He has lived in and out of the community, often in large cities in the *sierra* (“highlands near Quito”) so it makes sense that he is rather savvy about how information circulates on the internet as it pertains to Indigenous knowledge and tourism. As the conversation carried on, he alluded to the similar themes that Don had, that is that the way things were done then versus the way they can be done now seem to be in misalignment (line 26). In this case, anent that were once private, that is only allowed to be heard and or learned by those seen as meeting a series of criteria (e.g., payment, training, intent), are now entering a public domain in where their value is being negotiated not only by the non-Achuar identities posting them but the individuals in community itself.

When thinking about the distinction between public and private in the circulation of Achuar knowledge, we need to be careful to not to make the mistake of assuming that boundaries surrounding these bodies of knowledge are static and unresponsive to new inputs, nor to assume that these boundaries have not always been set up to deal with change. In many ways the individual nature of anent allows for individual decisions to be made about how these songs should exists in broader contexts. Both Don and Yokobo allude to the dual nature of value that these songs could have in that they could be of benefit and value to those who learn them through the adequate channels (for example Achuar personsople) while still serving as a type of cultural promotion to those on the outside (apach). According to Susan Gal (2002), when thinking of the ways cultural forms circulate, in this case knowledge seen as owned, we ought to

think of it as having a complex and systematic logic. These logics are ideological and serve as tools for understanding and instantiating logics about the social world, logics that are reflexive in how they are defined in reference to what is to be considered public and what is to be considered private. The fluctuations of publics and privates that Gal (2002) so brilliantly highlights, are extremely revealing when we take a step back and begin to bracket the individual moments of reflection around anent. In particular, the worldviews that Don and Yakobo have held about anent at the communal level of expectations, are clashing with the new possible expectations that come with technology like the internet, expectations that have unrestricted parameters, not only pertaining to Achuar identities as prior. At the individual level, both Don and Yakobo seem to be open to the idea of these bodies of knowledge circulating outside the community, as it taps into the industrious ethos at the core of what it means to be Achuar. These moments of tension and ease are indicative of anent holding a value that is accountable to the logics of tradition held at the community level and in the same vein are responsive and dynamic to new contexts encountered at the individual level.

González was brought up as an individual Achuar person who was working alongside an apach to collect Maria's and other's stories. Achuar collaboration with outsiders is not outside of the norm. I, myself am an outsider who has worked with members of San Lorenzo to be able to write this dissertation. As my understanding of the various interactions that play out in the field has expanded, the question of what constitutes an outsider versus an insider in relation to knowledge circulation has begun to complexify. In particular, my ethnographic encounters with González made me question the ramifications an Indigenous individual held as an outsider from their own ethnic identity. How does that status affect their ability, or lack thereof, to claim and engage with traditional knowledge? Rather than defining what is authentically Achuar, I aim to underscore the different ways this insider-outsider relationship is exhibited and how it impacts

who has the right to disseminate knowledge. Before fully delving into this, a bit of background on how I came to know González is needed.

### 3.3.4 Insiders and Outsiders:

I encountered González prior to beginning my work in San Lorenzo in 2017. A language training fellowship enabled me to receive Achuar language instruction in Ecuador, specifically at a field school in the area. This field school was run by the *apach*<sup>16</sup> who would later go into San Lorenzo with González to record Maria's songs and stories.

At the field school, González was my language instructor. Being relatively unfamiliar with the intricacies of the region at that time, I only later understood that my initial discussions with him about knowledge sharing and his perspectives on ownership and property within the Achuar communities had been significantly shaped by past disputes. with other community members Specifically, these rifts arose in the early 2000s between Achuar communities and *petroleros*<sup>17</sup> (individuals affiliated with petroleum companies) due to a complex set of sociopolitical developments in the area. The strained relationship frequently came to the forefront, leaving me perplexed about how one of the founding members of a prominent Indigenous organization in the region had seemingly become somewhat of an outcast among community members, a sentiment that would later surface in discussions in San Lorenzo. While at the field school, conversations with González often revolved around as what he saw as “derechos” (“rights) that he believed Achuar should have in relation to their land and knowledge. The following moment occurred

---

<sup>16</sup> This person who is called an *apach*, a term often denoted to by people in San Lorenzo would typically be referred to as an *inkis* (English speakers) if he was not born in Ecuador. This individual would often be referred to by both, especially when people found out that he was born in Ecuador to missionary parents in the late 1960s.

<sup>17</sup> *Petroleros* are individuals that work for the petrol companies (Shell) in the region. They are often the one's scouting land for potential oil wells.

during a conversation that took place at the field school, on a parcel of land belonging to a professor from a university in the United States (the apach mentioned by Yokobo).

1. U: I noticed that you were telling a story on camera earlier with the professor. What were you saying?
2. G: I was recounting an Achuar creation myth. It's a very beautiful story. We have been working on this collaboration for some time now. The professor has been recording several stories and even some anent.
3. U: Is it okay for him to record those stories and anent?
4. G: It's my knowledge to share!...(long pause)
5. G: So yes...it's okay for him to record me if I want him to.
6. U: (attempting to deescalate) I'm sorry, I didn't mean to suggest that it was wrong or right. I just don't know how things work in Achuar communities.
7. G: It's okay, I know you didn't mean to say anything bad. Traditionally, we Achuar have not shared our anent with other Achuar openly, so we didn't share them with apach either. Myths have not been as protected, typically they were shared among each other (Achuar). But that doesn't work anymore. We aren't isolated anymore. We need to share these things. We need to have collaborations with outsiders if we want to be able to have stable lives. That why I am working with the professor and sharing my stories and songs.
8. U: Who taught you your songs and stories?
9. G: My father did, before he died when I was really young.
10. U: Earlier you had mentioned collaborations, what do you mean by that?
11. G: Well these videos we are making, he is putting them on the internet to try and get people interested in preserving these things. If we can get people interested in coming down here, we can build bigger projects that would allow us to make money.
12. U: Does the whole community get the money or just certain people?
13. G: It should be whoever puts the effort to build out the project. It's fair. If the project is big enough, then we could include other communities and pay them as well.
14. U: Wouldn't this be something that one of the organizations like NAE (who?) could help with or lead?
15. G: I have worked with one of the big organizations before. Was the president of one of them. They never helped me after I stopped being president.

16. U: Why didn't they help you? What happened?
17. G: They changed their objectives. (long pause).
18. G: They didn't allow me to take lead on projects after they changed, so left me without a way to make a living.
19. U: Did you start working with the professor after that?
20. G: Oh no, that came way later.
21. U: Doesn't your oldest son work for one of the organizations now?
22. G: He does. He is actually the President of it.
23. U: You must be really proud. Are you planning to work on projects with him?
24. G: We don't talk much, but yes that would be nice.

What I would come to find out later that I didn't realize in the moment, is that I was being told something indirectly. The subtleties and pauses that González showed while disclosing his relationship to the organizations, his songs, and the frustration he seemed to show when questioned about the rights of circulating Achuar knowledge to others who aren't Achuar, highlighted a contention between exceptions and realities (line 4). On the surface, Don and Yokobo seem to hold a similar set of beliefs, balancing responsibility to community and individual needs and ideologies in the hopes of preserving Achuar "traditional" ways of being. However, how that played out in real life would be quite different from the aforementioned examples.

Weeks later, I had finally made my way to San Lorenzo and had been carrying out general interviews in the casa communal when suddenly, I heard a big commotion. A plane was about to land into the community airstrip. Everyone began to clear the runway (a couple hundred yards of cleared dirt for single engine planes to land) and out of the horizon of the tree lines a purple plane swooped in, as if Prince himself was landing in community to give a performance,

and a performance it was. Once the plane landed and it was safe to approach it, the President of one of the large Indigenous organizations in the region hopped out. As he approached the casa communal, the next person to come out of the plane was none other than González himself. Apparently, the man sitting in the front passenger seat was González's son. He was flying around the communities trying to get their vote in the upcoming reelection. I was surprised to see González there but was happy to see a familiar face. He approached me and we shook hands, in public, which led to a series of whispers by other people in the casa communal. After our short exchange, I told González that I had work to do and continued my interviews well into the night. During these interviews I was asked multiple times by various community members if I knew González, if I was friends with him, and if he was here with me. It puzzled me, as I had arrived in San Lorenzo without him, so I was unsure as to why they inquired if he accompanied me.

By the end of the night, it was clear that something was going on that was changing the dynamics of how community members were in engaging with me. Finally, I was able to catch up with Adrian, the President of the community at that time who I had developed a bond with early on during my fieldwork.

25. A: "Ulises, is he here with you? He was saying that you are his student and that he is here with you? That you invited him here?"

26. U: "He's not here with me. He was the instructor in the field school where I took Achuar classes but he's not my professor now. I didn't even know he knew what community I was going to be working at when I met him..."

27. A: "If he is here with you, you can't stay."

28. U: "(trying not to freak out) He's not here with me, I didn't even know he was coming."

29. A: "If he's not here with you, you need to tell him he can't stay with you. He was saying he was going to stay with you."

30. U: "Where in my tent?! (Asks sarcastically trying to diffuse the situation)"

31. A: "I'm serious. He can't stay. You need to talk to him."

32. U: “Okay, no problem.”

As Adrian left the schoolhouse where I had my tent set up that summer, I was left feeling both worried and confused as to what was going on and how I, an American, was going to tell another Achuar person that they could not stay in an Achuar community (line 29). Later that night I had to have the conversation with González. I stated that I only had enough supplies for myself during my stay here so he could not stay with me unless he had supplies (he did not). González eventually agreed to leave but not before asking me for a loan for the canoe ride upriver to get back to the city.

The following day I woke up confused and tired, still trying to sort through what had happened. I spent the majority of the night taking notes and relistening to audio from my zoom recordings to see if I missed anything. As I arrived to the casa communal the following day for morning guayusa, I ran into Adrian as I sat down to drink guayusa. This conversation would lead to Adrian revealing something that he wasn't completely comfortable admitting, his pauses and hesitations seemed to suggest this (line 44).

33. U: (filling pilche) Hey Adrian, what was going on yesterday?

34. A: Sorry about that, we didn't know if you were with him (González) or not. He was telling everyone that you were his student and that you were working on a project together.

35. U: None of that is true. But I am still confused as to why that would be bad?

36. A: That guy is not Achuar.

37. U: But he said he was. He even said his dad was a famous warrior that was dealing with missionaries back in the day.

38. A: (long pause as he sips from his pilche)

39. A: Well...He is Achuar, but he doesn't live like an Achuar...

40. A: He has no community. He has no land. He also has done things that shouldn't be done if you are Achuar.
41. U: You mean the project he is working on with that professor in Tena, the recording of the stories and songs?
42. A: He has no right to do that. If people want to tell them their stories and songs that's their choice. But they shouldn't. Not to him. But... that's not why we don't allow him to be here in community.
43. U: Then what do you mean? What did he do?
44. (long pause)
45. A: ...He tried to work with petroleros.
46. A: He worked with them on an extraction project. This is why he lives in Puyo and has no land and or rights in any of the communities.
47. U: I had no idea.
48. A: He hangs around Puyo trying to get apach to work with him on projects with Achuar communities. But he's not really Achuar. He has no right to do the things he does.
49. U: I'm not defending his actions. I am confused though, because isn't he born Achuar?
50. A: Yes Ulises, he was born Achuar but has never really lived like us. This is why I say he has no rights, cause he's not part of a community at this point in time. He isn't part of the organizations and has no say in issues pertaining to our communities.

After this conversation with Adrian, I would still run into González from time to time in the city, often by the city square, where he would be hanging out with some of the other day laborers, often his breath often smelling of *trago* (alcohol). He would often come up to me with a big smile and bring up working on potential projects related to Achuar cultural heritage, but nothing ever came from it. As Covid-19 ran rampant, I would eventually find out about his passing from Covid (Figure 34). I felt deeply saddened by his death because this. From our conversations, it seemed as if González deeply valued Achuar knowledge and in many ways lived his life in ways that supported that. He helped start one of the Indigenous organizations in

the region, was its president, and in many ways worked to continue to preserve Achuar cultural traditions.

**Figure 3.4. Social media post calling for taking care of elders as a response to the passing of González and others due to Covid-19**



**“We call the nationalities to take the highest care of our grandfathers, grandmothers, fathers, and mothers that are the depositories of our knowledge and security, historical legacy that maintains us alive as communities and nationalities.”**

In reflecting on my interactions with González coupled with what has been spoken about him to me by others, I begin to see aspects of an insider and outsider dynamic in relation to knowledge begin to unfold. I in no way am not interested in identifying what is “authentically Achuar” but rather am interested in highlighting the various ways that an insider and outsider dynamic are

indexed and how they pertain to who has rights when it comes to knowledge circulation from the perspective of the individual.

As Lu (2007) has stated “The conception of indigenous groups as either market-oriented or subsistence-oriented a false binary” (601), and in many ways Achuar communities are a reflection of this as they are deeply engrossed in various forms of entrepreneurship from selling artisanal goods, to selling cattle, and even selling wood to timber corporations (Lu, 2007). So, what about González working with petrol corporations was so different from other various forms of entrepreneurship in the region? He wasn’t the only individual working with these communities, and in many ways, he upheld an ethos of an entrepreneurial spirit that Achuar communities often venerate.

Having established a close relationship with Adrian over the years, in 2023 I was able to follow up on some of these early conversations and ask directly why González was wrong for working with the petroleros. After an initial hesitation on his end, as not wanting to speak ill of the dead, Adrian agreed to speak about the situation with me.

51. U: In previous conversations we had, you said that González didn’t have the right to collect Achuar stories and songs because he wasn’t really Achuar, what did you mean by that?

52. A: Well, it’s not that he wasn’t Achuar, it’s that he didn’t live nor had the experiences of someone who had grown up being immersed in an Achuar community. He wasn’t apach, but he lived like the *colonos* in Puyo. He chose to live that way. He didn’t keep a *terreno* or a *chakra*.

53. U: Can only individuals who live in these ways be considered Achuar?

54. A: Well, you have to have Achuar blood. But yes... You have to uphold our values, Achuar values about taking care of the land and being a good man to be considered Achuar.

55. U: What makes someone a good Achuar man?

56. A: Hmm. I think that depends on who you ask. My father (Don) would probably say that a good Achuar man in one that hunts well, has many children who he takes care of, and

knows our traditional ways of being. But things are changing, we no longer live like we used to. But to me, a good Achuar man is one who takes care of his land and his family, who still hunts and fishes and knows about living from the land but can also live in the city.

57. U: How does being a good Achuar person relate to how you treat your traditional knowledge?

58. A: Ah yes. I don't think we have to be as secretive as we used to be with it. We no longer move around like we used to. We live in communities, now closer the road. We should exchange our culture with people, but it should be us (Achuar) who decide how and with who we do it.

59. U: Why was González wrong for working with the petroleros? I've heard about individuals in communities cutting down trees and selling them to timber companies, how is that different from what González did?

60. A: González was wrong because he had no rights to make those decisions for the community. When petroleros come in and extract, it takes large parts of lands that impacts more than one person. With the tree cutting, it impacts the individual because it is being cut off their land.

61. U: But isn't cutting trees pretty bad too?

62. A: Well, yes, but it's not as bad. And it allows people to make some money to be able to feed their families.

It seems that the ways in which Achuar communities moralize their knowledge and who is able to circulate and create knowledge is deeply informed by a connection to the land, this connection or lack of seems to impact what it means to live morally as an Achuar person (line 54). Adrian's reflexive responses about González showcase this when asked about the rights that González should have in relation to knowledge (line 42). Adrian directly states that González's collaboration with the petroleros and the ways in which González not being linked to land or community is a direct reason that he has no say in Achuar matters. From Adrian's perspective, an individual who is highly regarded in his community and among other communities for living as what is deemed as a "moral Achuar", the lack of consideration that

González had shown in his actions is what was deemed as not living an adherence of what it means to be Achuar (line 53-55).

In thinking about how these ethnographic vignettes relate to the complexities of insider-outsider relationships and the way they can index who has or doesn't have rights to circulate knowledge Basso's work in "Portraits of a Whiteman" resonates with what is occurring here (Basso, 1979). In particular, the way Basso (1979)'s analysis of the Whiteman's misunderstandings about Apache norms functioning as a means for which to Apache to joke about the differences, thus creating an insider and outsider dynamic, is reminiscent of the ways Adrian talks about Achuar identity and the things that need to be met to be Achuar (line 49).

The ways in which Adrian formulates his idea of what it means to act ethically as an Achuar person seem to be highly reliant on discourses (line 56) around "traditional" ways of living. In this case, stewardship of land and living/growing up immersed in what he deems as "Achuar ways of life" are what feed into this identity formation. This explanation of what makes someone a good Achuar by Adrian in many ways serves to fortify a cultural unity and identity in opposition to outsider groups (line 55). In relation to González, this distinctly places him in an outsider category because of his failure to uphold what appears to be these tenants of Achuar identity. The moments of reflection that Adrian has when he is questioned about what González did versus how others extract and sell goods from their land and how they are different or the same, bring to light the tensions that underlie the complex formation of an insider-outsider dynamic (line 59-61). This ethnographic vignette depicts an interesting insight into how identity is navigated: Adrian's remark about "Well yes, but it's not as bad. And it allows people to make some money to be able to feed their families" really encapsulates the dynamic ways that stances around cultural knowledge are highly responsive actions that align with a cultural identity

schema thus setting the tone for who can be deemed as worthy of knowing, producing, and monetizing knowledge (line 61).

### **3.4. On the Horizon: Commodification of Knowledge and Affordances.**

As of 2023, the road has reached San Miguel, the community north of San Lorenzo, in where this fieldwork took place. With the emergence of the road, there has come a series of changes that we have yet to see and the ways in they may impact the ways in which knowledge, like that of anent, are valued and circulated in community. These communities have and are now actively engaged with modernity, in particular a growing interaction with the internet and tourism and all its “trashy glory” (Debenport, 2015, 135). Since I started working in the community, there have always been conversations about tourism and the idea of building of cabañas circulating among community members, often coming from men in their late 20’s. The tourism industry is not something new to Achuar communities. They have been deeply embedded with the tourism industry since the 1990s because of involvement with the Kapawi project, an ecolodge project that came about between the company Canodros and OINAE (Interprovincial Organization of the Achuar Nationality of Ecuador and NAE (Achuar Nationality of Ecuador). Canodros invested into building an ecolodge operated by the Achuar, they were trained by Canodros, in where ownership was eventually transferred over as part of the agreement in 2008 (Carpentier, 2014). On multiple occasions during my fieldwork there were interactions with tourists coming into San Lorenzo. Often these tourists were invited by *socios* (stake holding members of the community) but are not within the leadership structure of the community: This is an important fact because without some type of leadership push for them to stay, these tourists often must leave as quickly

as they came in. Achuar communities have a strong norm against outsiders, in particular foreign visitors, to come to community without community consent or by the community president<sup>18</sup>.

The first of these interactions that I witnessed involved a French anthropology graduate student, a student of a rather famous anthropologist who worked in the region prior, who was invited to San Lorenzo by one of the older village members (this community member was older but is married into Don's family). This took place in 2019, well before the road had gotten close to community, so arriving to San Lorenzo was only possible via canoe or plane. I was quite surprised to see a non-Achuar person there suddenly. At this point I had been in San Lorenzo for a few months so had grown accustomed to only running into community members. We had a brief interaction and soon after we spoke, the student was rushed off by her host, who lived on the edge of San Lorenzo's boundaries. The next day I asked around about the student, in particular I asked the then village president (e.g., Adrian). Adrian told me that they were unable to stay because they didn't ask for permission prior to coming, thus didn't allow the community time to organize an asamblea to vote on the matter.

Fast-forward to 2023, the road has now reached nearer to San Lorenzo, where a tourist event akin to previous ones occurred. Two Argentine backpackers were invited by the now new president of the community, Franklin (Don's second youngest son). Franklin married a Shuar woman who lived off the road closer to the city, so had been living away from the community for a couple of years prior to us meeting in 2017. It's important to highlight that Franklin has lived outside of the community for extended periods of time because it contextualizes his view on tourism and the commodification of traditional practices. These tourists were met with a similar reaction to the prior tourist I encountered. Since they were invited by Franklin, he was

---

<sup>18</sup> This is possibly a result of a prior migration patterns.

able to host him at his home in-between an asamblea being scheduled to vote on whether they could stay or not. Unfortunately, this never happened while I was there, as within a couple days of their arrival Franklin had severely cut into his foot with a machete while working. Due to this, the community was unable to continue to host the tourists and they were asked to leave. They were taken to the road about 45-minute walk north of San Lorenzo, where they could catch one of the busses on the road.

**Figure 3.5. YouTube video inviting people to come visit the community.** (See line 17)



I later had a conversation with Adrian and his wife, Lilly, that helped to better contextualize the oscillating dynamics around the commodification of knowledge and tourism in San Lorenzo. Specifically, as it pertains to generational differences, younger socios (voting community members) such as Franklin are now in positions of leadership and engaging with Achuar traditions in new ways (line 17-19). The following is a conversation about the changing dynamics as they relate to selling of goods that took place with Adrian, Lilly (Adrian's wife) and myself.

1. U: So the road has reached San Miguel, is it going to make it to the San Lorenzo as well?
2. A: We don't know. San Miguel doesn't seem to want the road to cut through their community. So...for now it's stopped there.

3. L: They don't want the busses to go past them. If the busses keep going, they won't have as many people stop there.
4. U: Why do they want people to stop there?
5. A: (Looks at Lilly as though she disclosed something she shouldn't have) Well (pauses) if the bus stops there, then visitors who come visit will stop there. That'll be more business for San Miguel.
6. U: More business? Last time I was there they didn't seem to have a store set up. What are they selling?
7. L: Everything..
8. A: ...They are now bringing tourists into the community. They are having dance performances for them. They are charging for tours to some of the waterfalls and tours down the river.
9. L: They are also selling chicha. You don't do that. That is not what Achuar do. I heard from someone at San Miguel that the women were singing some of their anent for money, they were letting people record them.
10. U: Oh wow, I didn't know this was happening. How are people here in San Lorenzo feeling about these things?
11. A: Some people like my brother Franklin want the road to get here so we can do the same thing.
12. L: (makes lip pursing sound)
13. U: What do you want?
14. A: (long pause followed by a sigh...) Well, I'm not sure. It would really help the community out. We would be able to get things for the school. We could get nice soccer uniforms and fix our fields with some bleachers. These are things we want.
15. U: Why aren't you sure?
16. A: It's not how we were brought up. We weren't brought up to tell our songs to just anyone, to do our dances just for anyone, to tell our stories. They are taking people to very sacred places (e.g., waterfalls) for us. Places my father went to as a child when he lived in San Miguel.
17. A: Franklin wants to push for more tourist to come. He's bringing tourists who he meets in Puyo to visit (San Lorenzo) (See Figure 3.5).
18. U: Is that bad?

19. A: Franklin grew up differently than Yakobo and I. He grew up being able to go to the city easily and lived in the city. This is why he wants the road to reach here. If the road arrives here, we will have more stability in our futures.

20. L: But San Miguel is charging for people to use natem there.

21. U: Is that bad?

22. A: Natem is not something we would sell before. Everyone knows how to make it or knows someone who knows how to make it. We would use this to understand our dreams and see out future.

23. U: Do you think it should be sold now?

24. A: (pauses)...I don't think we should sell natem. If people want to come visit, and see our beautiful land and use natem here, it would be nice if they donated a little gift for our time in helping them use it properly. But not pay for natem.

25. U: What about charging people for hearing anent or myths if the road gets here?

26. A: I think it would be okay to charge for the performance. The way musicians charge for their time to play songs. I don't think they should be recorded or spread by non-Achuar. We should be the ones doing that.

At this point Lilly left the house, sighing and nodding her head as she walked out, she seemed to be in disagreeing with some of the things Adrian had said (line 24). The conversation between Adrian and I continued until we were joined by Don, which led to a point of disagreement between Adrian and his father Don.

27. D: Natem should not be sold<sup>19</sup>. We shouldn't charge our guests who are here to use it with us. Nor we should take people to our waterfalls the way they our doing in San Miguel. I don't agree with that.

28. A: It's their choice to do what they want.

29. D: They are wrong. We never used to do that. We don't need to do that.

---

<sup>19</sup> It's typical for shamans to be paid large amounts of money to cure with natem. In these instances, it's not only the natem that is being purchased but the healing that can occur with natem when used by a shaman. In this case, the use of natem among non-shaman is typically done for free.

**Figure 3.6. Instagram post from Colonos visiting San Miguel**



*“I don't know what they want from me*

*It's like the more money we come across*

*The more problems we see.” – Kelly Price from “Mo Money, Mo Problems”*

This discussion involving Adrian and his wife, Lilly, as well as Adrian and Don, offered valuable insights into the fluctuating dynamics concerning the commercialization of knowledge in San Lorenzo. Specifically, it shed light on the impact of generational differences. Notably, younger members like Franklin now hold positions of leadership and can interact with Achuar traditions in innovative ways due to the advancements in technology that were unavailable in the past (line 17-19). This is not to suggest that commodification of knowledge was not always a possibility.

Lily's frustration concerning the commercialization of chicha in San Miguel is noteworthy as it underscores a pronounced disparity between the merchandising of knowledge and the trading of other commodities (line 9). The act of selling chicha doesn't seem to violate any existing norms against the dissemination of knowledge through trade. Rather, the agitation arises since chicha is customarily presented as a token of hospitality. When visitors are charged

for it, the traditionally personal relationship undergoes a transformation, becoming commercialized. Lilly's concerns with the commodification of chicha to guests mirrors Mauss's delineation between commodities and gifts, wherein commodities foster a "rigid separation" between "objects and individuals" during transactions (Mauss 1923: 46) while facilitate the formation of bonds amongst people through the act of giving (Mauss, 1923).

During ethnographic encounters it was recounted to me that anent were and have been sold and traded: The key feature here is that this was primarily circulated within group (e.g., Achuar to Achuar). Expanding technologies in the region have brought with them an emerging possibility space in where those who can and can't have access to this knowledge is changing based on the multitude of values that they can carry. Bodies of knowledge like anent are now circulating in spaces that include both Achuar and non-Achuar, leading creating the possibility for a feedback loop to emerge in where Achuar identities must contemplate the significance of anent both within their tradition and to outsiders. This introspection might cause tension concerning their cultural identity. Such tension is evident when Adrian is unsure about sharing his beliefs on the selling of bodies of knowledge (e.g., anent, myths), or when disagreements arise between him, his wife, or Don regarding tourism in the region. Adrian's moment of hesitation underscores the intricate layers of ethical sedimentation, layers that are "informed by the residues of the immediately passing perceptual now point but are further impacted by moral orientations sedimented in the form of a habitus" (Throop, 2010, 256; Throop and Murphy, 2002). This hesitation exemplifies the workings of a possible cultural logic around the circulation of knowledge that emerges as Adrian's memories and present moral reflections, only for the emergence of these values while offering a pivotal instance for contemplation. Adrian's moments of hesitation allow the current views and shifts in community life to surface and be weighed. Consequently, Adrian's hesitation is multifaceted, representing both reflection and the

absence of it, and reflective of possible moral conflicts occurring across Achuar communities of how one should respond to expanding value systems related to cultural knowledge and identity formation.

The concepts surrounding identity construction, particularly in the context of cultural knowledge commodification, echo the themes discussed by Jessica Cattelino in her analysis of casino wealth and its facilitation of various actions and perspectives concerning identity (Cattelino, 2008). In particular, Cattelino's analysis on the fungibility of money and its "substitutability and exchangeability for itself" (2008, 103), allows us to think about how money can be politically valued as a space of identity formation in San Lorenzo with an eye towards making or breaking connections as they relate to possible economic futures. This can be seen in the conversation in where Adrian and Lilly are contemplating on the potential economic futures and the implications those may have on the economic opportunities in San Lorenzo moving forward as the development of the road opens up a new horizon of possibilities for the region (line 26).

The expansion of the application of cultural knowledge really comes into play here when thinking about the new possible economic activities emerging from the use of things like anent. Traditionally, anent would afford its users the possibility of success when it came to things like hunting or gardening, as the anent were seen as having efficacious results for those that used them (successful hunts, healthy gardens, returned loves ones) (Descola, 1982). These contexts of use are now expanding, as the anent are now able to be used to "promote", as stated by several interlocutors, an air of authenticity to those interested in visiting San Lorenzo. In many ways, the use of anent along with other types of Achuar knowledge as features of highlighting authenticity, are transforming the value of these bodies of knowledge into possible symbols of economic self-determination within the community of San Lorenzo. The value around anent in the context

outside of San Lorenzo, outside of Achuar communities may be reliant on “their authenticity, their capacity to represent” an Achuar “self-production” (Myers, 2002, 234). Here authenticity has the capacity to serve as the realm where Indigenous distinctiveness is materialized, acting as a mechanism through which "white society" can control and dictate what aspects of Indigenous communities can be commercialized. (Raimbmon, 2005). On the other hand, this influx of economic opportunities forces San Lorenzo and other Achuar communities to “reconsider the temporality, institutional structure, and morality of their internal and external relationships” (Cattelino, 2008,61) in ways that they see best fit.

These stakes in the expansion of possible economic opportunities are not without complications. The increase in possible money circulation within and outside of San Lorenzo due to an ever-growing interaction with various technologies (the internet) and the closing in distance in proximity to the road is leading to serious of moral conundrums to emerge. The direct use of money was not often mentioned, but the mention of future stability was often invoked by Adrian, Don, Yakobo, and others and work highlight a connection to money, as stable economic futures are often deeply entangled with money. Money “strives to dissolve substance” (Simmel, 1990, 168), in other words it impacts interpersonal relationships, it can shorten or extend them, thus an influx of money is likely to impact time, institutional structures, and introduce a series of moral dilemmas as they relate to interior and exterior relationships.

The moral dilemmas are relevant to how San Lorenzo and the individuals there are self-determining as it pertains to their knowledge in relation to each other, other communities, and the state. In many ways Achuar reflections around knowledge circulation are collectively concerned with making sure to hold on to aspects of past traditions, traditions seen as Achuar making, while continuing to work towards stable economic futures In her 2008 work on tribal gaming within Seminole communities, Jessica Cattelino discusses how the advent of new

revenue streams, particularly through casinos, compels these groups to “reconsider the value and mechanism of their reproduction as a people” (2008,79). These economic futures are reminiscent of emergent themes in Kimberly Christen’s work with Warumungu women, in particular the ways in which the distribution of Warumungu women's compact disc with traditional songs serve as vessels for the revitalization of tradition and the recontextualization of indigeneity (Christen, 2006). Here the oscillating dynamics of how anent are valued, function as an example of ways in which the boundaries and use value of Achuar knowledge are being reimaged to strive for economic independence while maintaining an Achuar ethos of communal and individual autonomy.

### **3.5. Discussion**

In the intricate realm of knowledge circulation and control in San Lorenzo, several prevailing themes have emerged during my fieldwork, illustrating the rich complexities and subtle nuances of these practices among Achuar communities. The insights garnered from the ethnographic observations and interviews, as they pertain to knowledge ownership, rights, and duties, challenge us to rethink the conventional narratives about knowledge circulation and ownership among Indigenous communities. We observe how expertise is not merely a matter of intellectual accumulation, but a legacy held and nurtured by knowledge keepers. The dichotomy between insiders and outsiders also illuminates the dynamics of privileged access and inherent exclusivity that define the boundaries of this esoteric knowledge. Moreover, the intersection of traditional wisdom with modernity, where affordances become a crucial part of the discourse, shines light on the commodification of this knowledge. Such commodification, while preserving and disseminating traditional wisdom, also poses critical questions about the value, authenticity, and ownership of this intellectual heritage. Thus, the study of knowledge circulation and control

becomes an exploration of social structures, power relations, identity, and transformation in the face of technological expansion.

The numerous dialogues that have taken place since 2017, serve as an illustration of the myriad instances of probing and contemplation surrounding the interactions and possible interactions between traditional knowledge and non-Achuar environments, in this case anent. This oscillation in the moments of reflective hesitations, between what was done and what is possible now, bring to the forefront moral dilemmas (Robbins, 2004; Zigon, 2009; Throop, 2010) that act as stages for ethical considerations to play out. In particular, conversations with Don often emphasized the changing of things as they relate to Achuar bodies of knowledge and what it means to act ethically in relation to these bodies of knowledge. He often had moments of introspection when speaking about anent as they pertain to his children's interest and its wider circulation. The handling of anent often appeared to mirror the individual and community ethos in Achuar societies, an intricate dance between direct and indirect control that is both individualized and responsive to community concerns. On one hand, anent are representative of a kind of embodied knowledge that is strictly regulated and shaped by historical expectations at the community level in how they are meant to be play out (Brown, 1984; Descola, 1996; Mahmud, 2012). On the other hand, the individual right of how to control the dissemination of anent seems to be intensely personalized. Don's wavering between openness and concealment concerning his anent sheds light on how selective exclusion can generate diverse forms of value and create a hierarchy of knowledge access (Simmel, 1990; Luhrmann, 1989; Jones, 2012).

The balance between hiding and revealing appears to be a critical aspect of controlling and sharing anent. The norms around anent ownership, which can yield direct results if applied efficaciously, seem to be changing at the community, individual, and non-Achuar levels. This shift seems heavily influenced by the region's rapid technological expansions, transforming

private knowledge into publicly valuable commodities. In reflecting on the implications of knowledge forms like anent gaining prominence in public spaces - spaces not always dominated by Achuar identities – we must grapple with the concept of value as these forms of knowledge navigate both private and public realms, and how these shifts are managed in communities like San Lorenzo. Time and time again, ethnographic interviews around this public and private distinction, often returned to the topic of doing the right thing. In particular, there seemed to be themes of the discrepancy between old practices and current realities. In this context, anent that were once private are now public, with their value being negotiated by both non-Achuar identities and the individuals within the community. In understanding the public and private circulation of Achuar knowledge, we must avoid the mistake of viewing these knowledge boundaries as rigid and unresponsive to change. Both Don and Yakobo suggested that these songs could hold dual value, being beneficial to those who learn them through appropriate channels (Achuar persons), while also promoting the culture to outsiders (apach). These logics inform our understanding of the social world and are reflexive in these definitions of what is public and private. The views about anent at the community level clash with the new expectations brought on by technology, creating tensions at the individual level.

Reflections on these tensions require us to think about what constitutes an outsider and an insider in terms of knowledge circulation and what it means to ethically live as an Achuar. Achuar communities have always been involved in various entrepreneurial activities, from selling handicrafts to selling cattle and timber to large corporations. It seems the moralization of knowledge sharing and its creation within Achuar communities is tied to their relationship with the land, directly their understanding of living an ethical Achuar life. This can be observed in the responses of Adrian, a respected figure in his community, who pointed out that González's collaboration with oil companies and lack of connection to the land and community is the reason

why he doesn't have a say in Achuar matters. The way Adrian defines a moral Achuar life heavily relies on symbols and language that create an Achuar identity in relation to others, including the stewardship of land. This identity formation serves to strengthen cultural unity and distinguish them from outsider groups, positioning González as an outsider due to his failure to uphold Achuar values. Conversations around these dynamics and how they determine who has the right to produce and monetize knowledge reveal an interesting insight into identity navigation.

Later discussions with Adrian and his wife, Lilly, helped to further contextualize the shifting dynamics around knowledge commodification in San Lorenzo. Technological advancements have led to a shift in who can access and disseminate Achuar knowledge now that it circulates among both Achuar and non-Achuar communities. This has led to moments of tension in Achuar communities, with differing views on how to approach tourism and what aspects of Achuar knowledge can be sold. As the road looms on the horizon, people in San Lorenzo are pondering the potential economic implications of the commodification of Achuar knowledge and what it means for identity and commodification of cultural knowledge moving forward. As examples, traditional Achuar practices like *anent* can be used to signal authenticity to tourists, thus commodifying Indigenous identity (Cattelino, 2008). Increasing financial flows within and outside San Lorenzo due to expanding technology use and proximity to the road pose moral dilemmas. Achuar communities are grappling with maintaining their cultural traditions while striving for economic stability. The influx of money has the potential to impact social relations and ethical considerations.

### **3.7. Conclusion**

The relationship between sovereignty and anent serves as an example of how the boundaries and value of Achuar knowledge are being reimagined to achieve economic independence while preserving Achuar values of communal and individual autonomy. San Lorenzo, once a fairly remote community, is now in the throes of a digital transformation, symbolized by the nearing of the road and establishment of an internet hub. The expansion of the technology available to the community of San Lorenzo is not a breach in time but represents a change in their narrative, highlighting the community's resilience and adaptability. As Achuar community members of San Lorenzo move back and forth between the city and pay to utilize the internet hub within San Lorenzo, they develop a rich and nuanced understanding of non-Achuar worldviews. This is profoundly changing the dynamics of knowledge circulation and control. The advent of the new technologies like the internet has created a new avenue for the dissemination of Achuar knowledge, transitioning its distribution from being predominantly interpersonal and localized to increasingly global. This cultural expansion brings complex implications, broadening the audience of Achuar wisdom while also redefining ownership boundaries. As knowledge once tightly held within the community becomes more broadly shared, the preservation of cultural authenticity and ethical considerations of intellectual property enter the spotlight. We must resist painting these communities as relics of a bygone era or trapping them in static depictions. Instead, we should understand the Indigenous communities in San Lorenzo as dynamic entities capable of embracing, adapting to, and reshaping their cultural heritage in response to technological shifts. The community's interaction with expanding technologies is testament to their ability to integrate new tools into their social fabric while maintaining a firm grasp on their cultural values and practices.

*“I’m not sure what’s going to happen to our anent and myths. They won’t be forgotten; they will simply be used in different ways by this younger generation. What that is, I don’t know. I won’t be around to find out” - Don*

## References

- Barker, J. (2011). *Native Acts*. Duke University Press.
- Barrett, H. C., Bolyanatz, A., Crittenden, A. N., Fessler, D. M., Fitzpatrick, S., Gurven, M., ... & Laurence, S. (2016). Small-scale societies exhibit fundamental variation in the role of intentions in moral judgment. *Proceedings of the National Academy of Sciences*, *113*(17), 4688-4693.
- Barrett, H. C. (2022). Psychology within and without the state. *Annual review of psychology*, *73*, 461-487.
- Beliso-DeJesús, A. M., Pierre, J., & Rana, J. (2023). White Supremacy and the Making of Anthropology. *Annual Review of Anthropology*, *52*.
- Bourdieu, P. (1990). *In other words: Essays toward a reflexive sociology*. Stanford University Press.
- Bourdieu, P. (2016). Distinction. In *Social Theory Re-Wired* (pp. 198-215). Routledge.
- Bremner, J., & Lu, F. (2006). Common property among Indigenous peoples of the Ecuadorian Amazon. *Conservation and Society*, *4*(4), 499.
- Brightman, M., Fausto, C., & Grotti, V. (Eds.). (2022). *Ownership and nurture: studies in native Amazonian property relations*. Berghahn Books.
- Brown, M., & Brown, M. F. (2006). *Tsewa's gift: Magic and meaning in an Amazonian society*. University of Alabama Press.
- Brown, M. F. (2009). *Who owns native culture?*. Harvard University Press.
- Brown, M. F. (1984). The role of words in Aguaruna hunting magic. *American Ethnologist*, *11*(3), 545-558.
- Bruyneel, K. (2007). *The third space of sovereignty: The postcolonial politics of US-Indigenous relations*. U of Minnesota Press.

- Carpentier, J. (2014). The Achuar and the ecotourism. A sustainable strategy for self development?. *Bulletin de l'Institut Francais d'Etudes Andines*, (43 (1)), 133-158.
- Csordas T. 1990. Embodiment as a paradigm for anthropology. *Ethos* 18:5–47
- Csordas T. 1994. *The Sacred Self: A Cultural Phenomenology of Charismatic Healing*. Berkeley: Univ. Calif. Press.
- Csordas T. 1999. Embodiment and cultural phenomenology. In *Perspectives on Embodiment*, ed. G Weiss, HvHaber, pp. 143–162. New York: Routledge.
- Cattelino, J. (2008). *High stakes: Florida Seminole gaming and sovereignty*. Duke University Press.
- Cattelino, J. R. (2010). The double bind of American Indian need-based sovereignty. *Cultural Anthropology*, 25(2), 235-262.
- Christen, K. (2006). Tracking properness: repackaging culture in a remote Australian town. *Cultural Anthropology*, 21(3), 416-446.
- Clifford, J. (1988). Identity in Mashpee. IN J. Clifford, *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art*.
- De Castro, Eduardo Viveiros. "Images of nature and society in Amazonian ethnology." *Annual review of Anthropology* 25, no. 1 (1996): 179-200.
- Debenport, E. (2015). *Fixing the books: Secrecy, literacy, and perfectibility in Indigenous New Mexico*. SAR Press.
- Descola, P. (1982). Territorial adjustments among the Achuar of Ecuador. *Social Science Information*, 21(2), 301-320.
- Descola, P. (1986). *In the society of nature: a native ecology in Amazonia*. Cambridge University Press.

- Descola, P. (1996). *The spears of twilight: life and death in the Amazon jungle*. New York: new Press
- Desjarlais, Robert, and C. Jason Throop. 2011. Phenomenological approaches in anthropology. *Annual Review of Anthropology* 40:87–102.
- Duranti A. 2010. Husserl, intersubjectivity, and anthropology. *Anthropol. Theory* 10:1–20
- Fausto, C. (2008). Too many owners: mastery and ownership in Amazonia. *Mana*, 4(SE), 0-0.
- Foucault, M. (1984). Space, knowledge and power. *The foucault reader*, 239(256).
- Foucault, Michel (2000a), “Technologies of the Self,” in P. Rabinow (ed.), *Ethics: Subjectivity and Truth*, London: Penguin Books.
- Gal, S. (2002). A semiotics of the public/private distinction. *Differences: a journal of feminist cultural studies*, 13(1), 77-95.
- Gupta, A., & Ferguson, J. (Eds.). (1997). *Culture, power, place: Explorations in critical anthropology*. duke University press.
- Husserl, Edmund (1973 [1948]) *Experience and Judgment*. Evanston: Northwestern University Press.
- Jones, G. (2012). *Trade of the tricks: Inside the magician's craft*. Univ of California Press.
- Knobe, J., Buckwalter, W., Nichols, S., Robbins, P., Sarkissian, H., & Sommers, T. (2012). Experimental philosophy. *Annual review of psychology*, 63, 81-99.
- Lakoff, A., & Collier, S. J. (2004). Ethics and the anthropology of modern reason. *Anthropological Theory*, 4(4), 419-434.
- López, S., Beard, R., & Sierra, R. (2013). Landscape change in western Amazonia. *Geographical Review*, 103(1), 37-58.
- Luhmann, T. M. (1989)a. The magic of secrecy. *Ethos*, 17(2), 131-165.

- Luhrmann, T. M. (1989)b. *Persuasions of the witch's craft: Ritual magic in contemporary England*. Harvard University Press.
- Mahmud, L. (2012). "The world is a forest of symbols": Italian Freemasonry and the practice of discretion. *American Ethnologist*, 39(2), 425-438.
- Malinowski, B. (1935). *Coral Gardens and Their Magic: A Study of the Methods of Tilling the Soil and of Agricultural Rites in the Trobriand Islands. II, the Language of Magic and Gardening*. Routledge Falmer.
- Masco, J. (2002). Lie detectors: On secrets and hypersecurity in Los Alamos. *Public Culture*, 14(3), 441-467.
- Masco, J. (2006). *The nuclear borderlands: The Manhattan project in post-cold war New Mexico*. Princeton University Press.
- Mankekar, Purnima, and Akhil Gupta. "Affective Sovereignities" in Thomas, D. A., & Masco, J. (Eds.). (2023). *Sovereignty Unhinged: An Illustrated Primer for the Study of Present Intensities, Disavowals, and Temporal Derangements*. Duke University Press.
- Mauss, M. (1925;2022) *The gift: The form and reason for exchange in archaic societies*. Routledge.
- Myers, F. R. (2002). *Painting culture: the making of an aboriginal high art*. Duke University Press.
- Moreton-Robinson, A. (2015). *The white possessive: Property, power, and Indigenous sovereignty*. U of Minnesota Press.
- Raibmon, P. (2005). *Authentic Indians: Episodes of encounter from the late-nineteenth-century northwest coast*. Duke University Press.
- Richland, J. B. (2007). Pragmatic paradoxes and ironies of indigeneity at the "edge" of Hopi sovereignty. *American Ethnologist*, 34(3), 540-557.

- Rifkin, M. (2009). Indigenizing Agamben: Rethinking sovereignty in light of the "peculiar" status of Native peoples. *Cultural Critique*, (73), 88-124.
- Robbins, Joel. (2004). *Becoming Sinners: Christianity and Moral Torment in a Papua New Guinea Society*. Berkeley: University of California Press.
- Robbins, J. (2009). Value, structure, and the range of possibilities: A response to Zigon. *Ethnos*, 74(2), 277-285.
- Rubenstein, S. (2002). *Alejandro Tsakimp: a Shuar healer in the margins of history*. U of Nebraska Press.
- Santos-Granero, F. (Ed.). (2009). *The occult life of things: Native Amazonian theories of materiality and personhood*. University of Arizona Press.
- Simmel, G. (1906). The sociology of secrecy and of secret societies. *American journal of sociology*, 11(4), 441-498.
- Throop CJ. (2009). Intermediary varieties of experience. *Ethnos* 74:535–58
- Throop, Jason. (2010). *Suffering and Sentiment*: Berkeley: University of California Press.
- Throop, C. J., & Murphy, K. M. (2002). Bourdieu and phenomenology: A critical assessment. *Anthropological theory*, 2(2), 185-207.
- Zigon, Jarrett. (2008). *Morality: An Anthropological Perspective*. Bloomsbury Academic.
- Zigon, J. (2009). Within a range of possibilities: morality and ethics in social life. *Ethnos*, 74(2), 251-276.