UC Santa Cruz
UC Santa Cruz Electronic Theses and Dissertations

Title

Ungrammatical Double-Island Sluicing as a Diagnostic of Left-Branch Positioning

Permalink

https://escholarship.org/uc/item/4sb6n8kd

Author

Cantor, Sara

Publication Date

2013

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
SANTA CRUZ

UNGRAMMATICAL DOUBLE-ISLAND SLUICING AS A DIAGNOSTIC OF LEFT-BRANCH POSITIONING

A thesis submitted in partial satisfaction
of the requirements for the degree of

MASTER OF ARTS

in

LINGUISTICS

by

Sara Cantor

June 2013

The Thesis of Sara Cantor
is approved:

_____

Professor Jorge Hankamer, Chair

_____

Professor Sandy Chung

_____

Professor Pranav Anand

_____

Tyrus Miller
Vice Provost and Dean of Graduate Studies

Contents

Abstract

Ungrammatical Double-Island Sluicing as a Diagnostic of

Left-Branch Positioning

Sara Cantor

Sluicing, as described by Ross (1969), Chung, Ladusaw, and McCloskey (1995), and Merchant (2001), ameliorates island violations. In this paper, I identify constructions in which sluicing does not ameliorate island violations. I conclude that islands inside of left branches will not be ameliorated by sluicing. I then use this generalization to develop a diagnostic for left branch positioning and apply this diagnostic to various controversial structures.

1 Introduction

In this paper, I challenge prevailing theories of sluicing and island violations through the introduction of previously unseen data patterns. It is not the case, as previously believed, that sluicing uniformly ameliorates island violations.

Previous research (Ross 1969, Chung, Ladusaw and McCloskey 1995, Merchant 2001) has explored the behavior of sluicing (pronunciation of a wh-word without the corresponding IP) when the correlate is inside of a single island, as in the following:

(1)   I bought a car that was owned by someone famous, but I don't know who.

In this example, the correlate (*someone famous*) is inside a relative clause (*that was owned by someone famous*). The full wh-question is ungrammatical because the wh-element moved from a position within a relative clause:

(2)   *I bought a car that was owned by [someone famous]$_i$, but I don't know who I bought a car that was owned by t_i.

The fact that the sluiced version of this sentence is grammatical has been attributed to an island-ameliorating property of sluicing. Various theories have been proposed to account for this property, but all maintain that sluicing ameliorates island violations.

However, this is not always the case when multiple islands are stacked. Some combinations of islands, such as relative clauses and adjuncts, do not prevent grammatical sluicing from occurring:

(3)   I bought a car that was totaled because it hit someone, but I don't know

who.

In this example, the correlate (*someone*) is inside an adjunct (*because it hit some-one*), which is itself contained within a relative clause (*that was totaled because it hit someone*). The fact that sluicing ameliorates both island violations indicates that sluicing can, in fact, ameliorate more than one island violation per sentence.

Other configurations do not allow for grammatical sluicing. For example, when the correlate is in an island inside of a subject, the resulting sluice will be ungrammatical:

(4)   *A car that someone spraypainted crashed into the wall last night, but I don't know who.

In this paper, I detail the range of constructions that will produce ungrammatical sluices, eventually proposing a generalization about island amelioration by sluicing: islands will not be ameliorated by sluicing if they are contained in a left branch of a syntactic tree.

I then use this generalization to develop a diagnostic for direction of movement: if sluicing from an island inside a given XP is ungrammatical, that XP is in a left branch. If it is grammatical, the XP is in right branches all the way down. I apply this diagnostic to two controversial constructions: coordinate structures and Heavy NP Shift.

In this paper, I will demonstrate that previous accounts of sluicing do not account for the data. I propose that there is a restriction on sluicing such that violations of islands contained within left branches will not be ameliorated by sluicing. I then report on the implications of this generalization for syntactic the-

ory in general: it can be used as a diagnostic for rightward vs. leftward movement. I explore this possibility through analysis of coordinate structures and Heavy NP Shift.

2 The Problem

Sluicing, first described by Ross (1969), is a construction in which a *wh*-phrase is present without the corresponding IP, as in (5).

(5)   I caught a cold from someone, but I'm not sure who.

The wh-element (*who*) is co-referent with an indefinite (the correlate: *someone*) that is contained within a fully articulated CP (the antecedent: *I caught a cold from someone*).

One of the biggest mysteries about sluicing is its ability to ameliorate island violations. Structures that are ungrammatical due to island violations (the (a) examples in the following) become grammatical when the IP is not pronounced due to sluicing (the (b) examples in the following):

(6)   Complex Noun Phrase (Relative Clause)

    a. *I don't remember which Balkan language they want to hire someone who speaks.

    b. They want to hire someone who speaks a Balkan language, but I don't remember which one.

(7)   Subject Condition

    a. *Guess which Marx brother a biography of is going to be published this

year.

b. A biography of one of the Marx brothers is going to be published this
year - guess which one!

(8) Coordinate Structure

a. *Which movie did Bob eat dinner and see?

b. Bob ate dinner and saw a movie, but he didn't say which one.

(9) Adjuncts

a. *Which of the teachers will Ben be mad if Abby talks to?

b. Ben will be mad if Abby talks to one of the teachers, but she couldn't
remember which one.

However, not all sluices with correlates inside islands are entirely grammatical.
Examples like (10) demonstrate that not all instances of sluicing with a correlate
inside of an island will be repaired by the sluice.

(10) *A car that someone spraypainted crashed into the wall last night, but I
don't know who.

The questions I will explore in this paper are:

- Which constructions allow sluicing, and which do not?

- How can a generalization about these constructions provide a new diagnostic
for movement?

3 The Facts

Some sluices whose correlates are inside islands are ungrammatical. In this section I identify the class of sluices that are ungrammatical. Overall, sluices with a correlate inside of an island that is itself contained within one of a certain subset of islands will be ungrammatical. This group of islands - subjects (including sentential subjects) and topicalization - are alike in that they are islands because the entire constituent has been moved to a specifier position. These are unlike islands such as the Complex Noun Phrase Constraint, which is a barrier to movement because of the configuration of base-generated XPs.

3.1 Islands that do not form a barrier to amelioration

Many islands do not seem to form a barrier to island amelioration: that is, if the correlate is contained within an island contained within one of these islands, sluicing will ameliorate both island violations. The islands for which this is true are as follows:

- Complex Noun Phrase

- Coordinate Structure

- Adjuncts

In the remainder of this section I will provide data[1] to back up the claim that islands inside of these islands are ameliorated by sluicing. In all of the examples to follow, (a) demonstrates that a full WH-question is ungrammatical, and (b)

---

[1]This data, and all other judgments in this paper, are the result of informal polling of linguistics graduate students and non-linguists.

shows that the corresponding sluice is grammatical, indicating that sluicing has ameliorated the island violations.

Complex Noun Phrase: Relative Clause As the following data indicate, relative clauses are not barriers to island amelioration. If another island (or structure that restricts movement, such as Left-Branch Extraction) is contained by the relative clause, sluicing with a correlate inside of both islands will ameliorate both island violations. For example, Left Branch Extraction out of a relative clause will be ameliorated by sluicing, as can be seen by the fact that the sluicing example is grammatical while the non-sluiced counterpart is not:

(11)   Relative Clause containing Left Branch Extraction

    a. *I rented a car that hit a big dog, but the report didn't say how big I rented a car that hit t dog.

    b. I rented a car that hit a big dog, but the report didn't say how big.

This pattern holds up for other islands that can be ameliorated by sluicing. Some islands, such as sentential subjects, cannot be placed within a relative clause and were therefore left out of this paradigm.

(12)   Relative Clause containing Subject Condition

    a. *I visited a park that a biography of someone mentioned, but my mom wouldn't tell me who I visited a park that a biography of t mentioned.

    b. I visited a park that a biography of someone mentioned, but my mom wouldn't tell me who.

(13)   Relative Clause containing Coordinate Structure Constraint

6

a. *Julie read an article that denounced a book about the financial crash and a biography of someone, but she couldn't remember who she read an article that denounced a book about the financial crash and a biography of *t*.

b. Julie read an article that denounced a book about the financial crash and a biography of someone, but she couldn't remember who.

(14)   Relative Clause containing Adjunct

a. *I rented a car that hit a dog because someone had been driving it drunk, but the report didn't say who I rented a car that hit a dog because *t* had been driving it drunk.

b. I rented a car that hit a dog because someone had been driving it drunk, but the report didn't say who.

(15)   Relative Clause containing Noun with CP Complement

a. *Alex read the book that was the inspiration for the rumor that the actress killed someone, but she wouldn't say who she read the book that was the inspiration for the rumor that the actress killed *t*.

b. Alex read the book that was the inspiration for the rumor that the actress killed someone, but she wouldn't say who.

(16)   Relative Clause containing Embedded Question

a. *Jenn talked to a man who was wondering who would be able to solve a certain problem, but she wouldn't say which problem she talked to a man who was wondering who would be able to solve *t*.

b. Jenn talked to a man who was wondering who would be able to solve

a certain problem, but she wouldn't say which problem.

Complex Noun Phrase: Noun with CP Complement   The other type of Complex Noun Phrase, noun with CP complement, is similarly not a barrier to island amelioration. This is demonstrated by the following example, in which the correlate is inside a relative clause which is itself inside a noun with a CP complement. The non-sluiced full question is ungrammatical, but the sluiced version is grammatical, indicating full island amelioration by the sluicing operation.

(17)   Noun with CP Complement containing Relative Clause

    a.   *John heard about the idea that the department should fire the people who humiliated someone, but he wouldn't say who he heard about the idea that the department should fire the people who humiliated.

    b.   John heard about the idea that the department should fire the people who humiliated someone, but he wouldn't say who.

Again, this is true for the full range of islands that can be contained a CP complement to a noun, as the following data show.

(18)   Noun with CP Complement containing Left-Branch Extraction

    a.   *John heard about the idea that the department should hire an ambitious person, but he wouldn't say how ambitious he heard about the idea that the department should hire a t person.

    b.   John heard about the idea that the department should hire an ambitious person, but he wouldn't say how ambitious.

(19)   Noun with CP Complement containing Subject Condition

a. *John read about the idea that a biography of someone should be banned, but he wouldn't say who he read about the idea that a biography of t should be banned.

b. John read about the idea that a biography of someone should be banned, but he wouldn't say who.

(20) Noun with CP Complement containing Topicalization

a. *John read about the idea that all biographies of someone, we should ban, but he wouldn't say who he read about the idea that all biographies of t, we should ban.

b. John read about the idea that all biographies of someone, we should ban, but he wouldn't say who.

(21) Noun with CP Complement containing Coordinate Structure Constraint

a. *John read about the idea that we should ban a book about the financial crash and a biography of someone, but he wouldn't say who he read about the idea that we should ban a book about the financial crash and a biography of t.

b. John read about the idea that we should ban a book about the financial crash and a biography of someone, but he wouldn't say who.

(22) Noun with CP Complement containing Adjunct

a. *John heard about the idea that we should fire a professor because they harrassed someone, but he wouldn't say who he heard about the idea that we should fire a professor because they harrassed t.

b. John heard about the idea that we should fire a professor because

they harrassed someone, but he wouldn't say who.

(23) Noun with CP Complement containing Embedded Question

    a. *John heard about the idea that no one knows which solution will benefit someone, but he won't say who he heard about the idea that no one knows which solution will benefit *t*.

    b. John heard about the idea that no one knows which solution will benefit someone, but he won't say who.

Coordinate Structure   In addition to complex noun phrases, coordinate structures do not prevent island amelioration. A coordination between two relative clauses, one of which contains a correlate to a sluice, will be ungrammatical in a full WH-context and grammatical when sluicing has applied, demonstrating that sluicing was able to ameliorate both island violations.

(24) Coordinate Structure Constraint containing Relative Clause

    a. *John danced with the girl that hugged Sally and the boy that kissed someone, but he wouldn't say who he danced with the girl that hugged Sally and the boy that kissed *t*.

    b. John danced with the girl that hugged Sally and the boy that kissed someone, but he wouldn't say who.

Again, containing the full paradigm of islands within coordinate structures supports this claim.

(25) Coordinate Structure Constraint containing Left-Branch Extraction

    a. *John danced with a small girl and a big guy, but he wouldn't say

how big he danced with a small girl and a *t* guy.

b. John danced with a small girl and a big guy, but he wouldn't say how big.

(26) Coordinate Structure Constraint containing Adjunct

a. *I drove slowly because I wanted to and because I was trying to impress someone, but I won't say who I drove slowly because I wanted to and because I was trying to impress *t*

b. I drove slowly because I wanted to and because I was trying to impress someone, but I won't say who.

(27) Coordinate Structure Constraint containing Noun with CP Complement

a. *I read about the Russian Revolution and the idea that the proletariat is oppressed by someone, but I don't remember who I read about the Russian Revolution and the idea that the proletariat is oppressed by *t*

b. I read about the Russian Revolution and the idea that the proletariat is oppressed by someone, but I don't remember who.

(28) Coordinate Structure Constraint containing Sentential Subject

a. *That everyone had fun and that the teacher gave an award to someone surprised them all, but the writeup didn't say who that everyone had fun and that the teacher gave an award to *t* surprised them all.

b. That everyone had fun and that the teacher gave an award to someone surprised them all, but the writeup didn't say who.

(29)   Coordinate Structure Constraint containing Embedded Question

    a. *John was trying to work out which problem would be easy for the entire class and which problem would confuse someone, but he wouldn't say who he was trying to work out which problem would be easy for the entire class and which problem would confuse t.

    b. John was trying to work out which problem would be easy for the entire class and which problem would confuse someone, but he wouldn't say who.

Adjunct The final island that does not serve as a barrier to amelioration by sluicing is the adjunct island. Like complex noun phrases and coordinate structures, adjuncts allow for islands placed inside of them to be ameliorated by sluicing. This can be seen by the following example, in which an adjunct contains a relative clause. The non-sluiced WH-question is ungrammatical, in contrast to the grammatical sluicing construction, demonstrating that sluicing ameliorates both islands.

(30)   Adjunct containing Relative Clause

    a. *John drove safely because he had rented a car that hit someone, but the report didn't say who he drove safely because he had rented a car that hit t

    b. John drove safely because he had rented a car that hit someone, but the report didn't say who.

The same pattern applies to the full range of islands that can be contained within adjuncts, as the following data show.

(31)   Adjunct containing Left-Branch Extraction

    a. *John drove safely because he rented a big car, but he wouldn't say how big he drove safely because he rented a *t* car.

    b. John drove safely because he rented a big car, but he wouldn't say how big.

(32)   Adjunct containing Subject Condition

    a. *John drove safely because a cautionary tale about someone told him to, but he wouldn't say who he drove safely because a cautionary tale about *t* told him to.

    b. John drove safely because a cautionary tale about someone told him to, but he wouldn't say who.

(33)   Adjunct containing Noun with CP Complement

    a. *John drove safely because he heard about the report that someone died on this road, but he wouldn't say who he drove safely because he heard about the report that *t* died on this road.

    b. John drove safely because he heard about the report that someone died on this road, but he wouldn't say who.

(34)   Adjunct containing Embedded Question

    a. *John drove slowly because he was wondering which turns made someone crash, but he wouldn't say who he drove slowly because he was wondering which turns made *t* crash.

    b. John drove slowly because he was wondering which turns made someone crash, but he wouldn't say who.

3.2 Islands that do form a barrier to amelioration

There exists a natural class of islands formed by movement of the island itself to a specifier position: subjects (including sentential subjects) and topicalization. In contrast with the class of islands outlined above, these islands serve as barriers to amelioration by sluicing; that is, if a correlate is inside of an island contained within a Subject, Topic or Sentential Subject, the innermost island will not be ameliorated; only the Subject, Topic, or Sentential Subject island will be ameliorated by sluicing. To prove this, I will show that sentences containing the configuration outlined are not grammatical when part of a sluicing construction. In the remainder of this section, I will provide data to back up the claim that islands inside of an island from this class are not ameliorated by sluicing. In all of the examples to follow, (a) demonstrates that a full WH-question is ungrammatical, and (b) shows that the corresponding sluice is also ungrammatical, indicating that sluicing has not ameliorated the island violations.

Subjects Subjects are barriers to island amelioration. This is demonstrated in the following example, in which a DP containing a relative clause is in subject position. A full WH-question is ungrammatical, as is the corresponding sluice. This indicates that, in contrast to the islands discussed above, subjects prohibit sluicing from fully repairing island violations.

(35) Subject containing Relative Clause

   a. *A car that hit someone crashed into the wall last night, but the report didn't say who a car that hit t crashed into the wall last night.

   b. ??A car that hit someone crashed into the wall last night, but the report

14

didn't say who.

The same pattern is upheld for the full range of islands that can be contained within subjects, as the following examples show.

(36)   Subject containing Left-Branch Extraction

   a. *A biography of a big man sold the most books last year, but the report didn't say how big a biography of a t man sold the most books last year.

   b. ??A biography of a big man sold the most books last year, but the report didn't say how big.

(37)   Subject containing Coordinate Structure

   a. *A book about the financial crash and a biography of someone won the Pulitzer, but the report didn't say who a book about the financial crash and a biography of t won the Pulitzer.

   b. ??A book about the financial crash and a biography of someone won the Pulitzer, but the report didn't say who.

(38)   Subject containing Noun with CP Complement

   a. *A rumor that the actress killed someone came out yesterday, but the tabloid didn't say who a rumor that the actress killed t came out yesterday.

   b. ??A rumor that the actress killed someone came out yesterday, but the tabloid didn't say who.

Sentential Subjects In addition to DP subjects, sentential (CP) subjects also block amelioration of island effects by sluicing. This is demonstrated by the following example, which places a relative clause inside of a sentential subject. Both the full WH-question and the sluicing construction are ungrammatical, indicating that sluicing has not fully ameliorated the island violations, which I am taking as evidence that sentential subjects block island amelioration.

(39)   Sentential Subject containing Relative Clause

      a. *That John rented a car that hit someone surprised everyone, but the report didn't say who that he rented a car that hit t surprised everyone.

      b. ??That John rented a car that hit someone surprised everyone, but the report didn't say who.

Again, this pattern holds for all islands that can be contained within a sentential subject.

(40)   Sentential Subject containing Left-Branch Extraction

      a. *That John rented a big car surprised everyone, but the report didn't say how big that he rented a t car surprised everyone.

      b. ??That John rented a big car surprised everyone, but the report didn't say how big.

(41)   Sentential Subject containing Subject

      a. *That a biography of someone did well surprised everyone on the Nobel prize committee, but the report didn't say who that a biography of t

16

did well surprised everyone on the Nobel prize committee.

b.   ??That a biography of someone did well surprised everyone on the Nobel prize committee, but the report didn't say who.

(42)   Sentential Subject containing Coordinate Structure

a.   *That Alice read a book about the financial crash and a biography of someone surprised everyone, but the report didn't say who that she read a book about the financial crash and a biography of t surprised everyone.

b. ??That Alice read a book about the financial crash and a biography of someone surprised everyone, but the report didn't say who.

(43)   Sentential Subject containing Adjunct

a.   *That John rented a car because he was trying to impress someone surprised everyone, but the report didn't say who that he rented a car because he was trying to impress t surprised everyone.

b. ??That John rented a car because he was trying to impress someone surprised everyone, but the report didn't say who.

(44)   Sentential Subject containing Noun with CP Complement

a.   *That John heard the rumor that we should fire someone surprised the faculty, but the report didn't say who that he heard the rumor that we should fire t surprised everyone.

b. ??That John heard the rumor that we should fire someone surprised the faculty, but the report didn't say who.

(45)   Sentential Subject containing Embedded Question

   a. *That John doesn't know which problem will be difficult for someone
       surprised everyone, but the report didn't say who that he doesn't
       know which problem will be difficult for t surprised everyone.

   b. ??That John doesn't know which problem will be difficult for someone
       surprised everyone, but the report didn't say who.

Topicalization   The final island I will provide examples of is topicalization,
which also blocks island amelioration. Like subjects and sentential subjects, top-
icalization will prevent any islands contained within the topic from being ame-
liorated by sluicing. This can be seen in the following example, which features
a relative clause inside of a topic. Both the sluice and the full WH-question are
ungrammatical, indicating that full amelioration is not taking place. I take this
to mean that topicalization is a barrier to island amelioration.

(46)   Topic containing Relative Clause

   a. *A car that hit someone, John rented, but he wouldn't say who a car
       that hit t, he rented.

   b. ??A car that hit someone, John rented, but he wouldn't say who.

No islands inside of topics will be ameliorated by sluicing, completing the pattern.

(47)   Topic containing Left Branch Extraction

   a. *A biography of a big man, John read last night, but he wouldn't say
       how big a biography of a t man, he read last night.

   b. ??A biography of a big man, John read last night, but he wouldn't say

how big.

(48)   Topic containing Coordinate Structure

    a. *John and someone, Alice danced with, but she wouldn't say who
John and *t*, she danced with.

    b. ??John and someone, Alice danced with, but she wouldn't say who.

(49)   Topic containing Noun with CP Complement

    a. *The rumor that the actress killed someone, John heard last night,
but he wouldn't say who the rumor that the actress killed *t*, he heard
last night.

    b. ??The rumor that the actress killed someone, John heard last night,
but he wouldn't say who.

4   Background on Sluicing

As previously noted, sluicing has been said to ameliorate island violations (Merchant 2001). Ross (1969) introduced this pattern to the larger linguistics community, and subsequent researchers have taken up this puzzle for investigation. Chung, Ladusaw and McCloskey (1995) predict that island violations will be ameliorated by sluicing *to the extent that an indefinite in the position of the correlate can take wide scope*, predicting that the full slate of islands laid out in Ross (1967) will be ameliorated by sluicing. The data above demonstrate that this is not always the case, leading to a rejection of their theory.

Merchant (2001, 2008, 2010), building on the Movement and Deletion theory proposed in Ross (1969), predicts that islands will be ameliorated in one of two

ways. Violations of PF islands, such as topicalizations and *that*-trace effects, will be ameliorated simply by elision of the deviant phrase, since PF islands only occur when the island-containing phrase is pronounced. Propositional islands, such as the Complex Noun Phrase Constraint, the Coordinate Structure Constraint, and Adjuncts, are saved by the idea that island violations are marked on intermediate traces: elision of the IP will delete all intermediate traces, saving the structure. This similarly predicts that all violations of propositional islands will be fully ameliorated by sluicing, in opposition to what the data show.

In the remainder of this section, I will explore their proposals in detail.

4.1   Movement and Deletion

Many accounts, including Merchant (2001) and Ross (1969), analyze sentences such as (5) as instances of deletion of a constituent with full syntactic structure; that is, the wh-phrase has been moved to the specifier of a complete CP, and the missing structure has been deleted or simply left unpronounced at PF. For these researchers, (5) would be best depicted as follows:

(50)   I caught a cold from someone, but I'm not sure who$_i$ [~~I caught a cold from~~ ~~t_i~~]

Merchant (2001) posits that most islands are PF phenomena; the XP delineating the island (in the case of the relative clause, the DP) is *-marked once movement has taken place outside of it, and the lack of pronunciation deletes both the clause itself and the *-marking, leaving no violation.

However, Merchant does not regard all islands as being in this class of islands. The second class, Propositional Islands, are saved by stating that the elided constituent - the complement to C - is not the full (ungrammatical) matrix IP, as in the example above. Instead, the antecedent will be the innermost clause, referred to as the *partial antecedent.* For example, if a correlate is inside a relative clause, the partial antecedent would be the IP within the relative clause, not the matrix IP. In the following example, the underlying source of (a) would be (b):

(51)   a.   They hired someone who speaks a Balkan language, but I don't re-
               member which one.

         b.   They hired someone who speaks a Balkan language, but I don't re-
               member which one$_i$ [he speaks t_i].

Therefore, since no island boundary is actually crossed, there will be no island violation.

If this theory is correct, then the grammaticality of a sluice can be easily predicted. If the correlate is contained within PF islands only, they should be fully grammatical, since the *-marked constituent will never be pronounced. For example, this theory predicts that (36-b), repeated here as (52), in which the correlate is contained within a Left-Branch (PF Island) inside a subject (PF Island), will be fully grammatical, since no *-marked phrase will be pronounced.

(52)   ??A biography of a big man sold the most books last year, but the report
         didn't say how big.

However, this is patently not the case.

Merchant's theory also makes incorrect predictions with regard to Propositional Islands. If the elided constituent in a sluice of a propositional island is the embedded CP, then the propositional island violation should not affect grammaticality, since no island amelioration is involved. For example, in (51), (a) and (b) are equally grammatical, since there is no island in (b) for sluicing to ameliorate. However, this theory does not account for data such as (41-b) (repeated here as (53)).

(53)   a. ??That a biography of someone did well surprised everyone on the Nobel prize committee, but the report didn't say who [a biography of t did well].

        b. ??That a biography of someone did well surprised everyone on the Nobel prize committee, but the report didn't say who.

This example features a sentential subject (Propositional Island) containing a subject (PF Island). Under this theory, the sluice (b) is derived from a full WH-question containing only a partial antecedent (a). The full WH-question is not fully grammatical, but the subject island violation should be fully ameliorated by sluicing, since the *-marked constituent is not pronounced. Therefore, according to Merchant's proposal, the sluice should be fully grammatical. However, it is not, indicating that this theory does not account for the full range of data.

4.2 LF-Copying and Merger

Another account of sluicing, as in Chung, Ladusaw and McCloskey (1995), does not involve deletion of an articulated structure, but LF copying of the IP contain-

ing the correlate. A copy in the position of the correlate is then co-indexed and merged with the wh-phrase, allowing full interpretation of the intended question. In this account, the LF structure of (5) would best be represented as follows:

(54)   I caught a cold from someone, but I'm not sure who$_i$ [I CAUGHT A COLD FROM SOMEONE$_i$].

This coindexation/merger requires the following conditions to be met: the correlate must be an indefinite, and it must be free within the recycled IP. For example, in the following example, sluicing is only possible to the extent that the indefinite can take wide scope over the negation.

(55)   Alex didn't talk to one student, but I don't know who.

When that interpretation is not available, sluicing will fail:

(56)   *Alex didn't talk to any students, but I don't know who.

All of the ungrammatical sluices detailed above meet this condition; that is, all of them have an indefinite correlate that is free. This indicates that this theory predicts that sluicing will be grammatical. Therefore, this analysis does not fully describe the data, and must be rejected.

5 Proposal

5.1 Certain islands are barriers to island amelioration

As the data above show, one class of islands allows for islands inside of them to be ameliorated by sluicing, while another class functions as a barrier to island

23

amelioration. The class that serves as a barrier is comprised of:

- Subjects

- Sentential Subjects

- Topicalization

The class that does not form a barrier to amelioration contains:

- Complex Noun Phrase

- Coordinate Structure

- Adjuncts

These groups form two natural classes. The group that blocks island amelioration is made up entirely of islands that are created by movement of an XP to a specifier position, while the group that does not block island amelioration is made up of islands that are defined by the base-generated structure.

Therefore, I propose that there is something about the first class of islands that does not allow the island ameliorating function of sluicing to penetrate them. Why should this be the case? To determine this, first one must try to separate the two pieces of the class: movement and specifiers.

5.2   Movement or Specifiers?

The class of islands that serve as barriers to island amelioration is defined by two features: 1) the islands are formed by movement of the entire XP and 2) they

move to a specifier position. Is it this combination of features that leads to the amelioration barrier effect, or is only one of the facts that creates the barrierhood?

To test this, I looked at islands that fit one of the two categories, but not both. That is, I looked at islands that are formed by movement to a non-specifier position, and I looked at islands that are base-generated in specifier position.

Movement to a Non-Specifier Position: Leftward Adjuncts To test movement to a non-specifier position, I am looking at leftward adjuncts, which under one analysis move from a base-generated rightward adjoined position to a left-branching adjunct position. To ensure that they are actually formed by movement, the examples will feature an adjunct that is generated in an embedded clause and has a pronoun that is bound by a DP within that clause, creating backwards anaphora. Because the R-expression in the embedded clause binds the pronoun in the adjunct, the adjunct must have been generated in a position within the embedded clause, indicating that movement must have taken place.

Assuming this analysis of leftward adjuncts, the only attribute they share with the previously defined class (subjects, sentential subjects, and topicalization) is movement. Therefore, if sluicing with a correlate inside an island inside a leftward adjunct is ungrammatical, it can be assumed that movement of the entire island is what is responsible for the amelioration barrier effect. This appears to be true, as the following data demonstrate. Again, the fact that the (b) example in each pair is ungrammatical indicates that sluicing has not ameliorated all of the island violations, which I am taking to mean that leftward adjuncts function as a barrier to amelioration.

(57) Leftward adjunction containing Relative Clause

   a. *After he denounced a book that slandered someone, the report says
       the president quit, but it didn't mention who after he denounced a
       book that slandered *t*, the report says the president quit.

   b. *After he denounced a book that slandered someone, the report says
       the president quit, but it didn't mention who.

(58) Leftward adjunction containing Left-Branch Extraction

   a. *After he denounced a slanderous book, the report says the president
       quit, but it didn't mention how slanderous after he denounced a *t*
       book, the report says the president quit.

   b. *After he denounced a slanderous book, the report says the president
       quit, but it didn't mention how slanderous.

(59) Leftward adjunction containing Subject

   a. *After a biography of someone contained a chapter that slandered
       him, the report says that the president quit, but it didn't mention
       who after a biography of *t* contained a chapter that slandered him,
       the report says the president quit.

   b. *After a biography of someone contained a chapter that slandered him,
       the report says that the president quit, but it didn't mention who.

(60) Leftward adjunction containing Coordinate Structure

   a. *After he denounced a book about the financial crash and an article
       about someone, the report says the president quit, but it didn't men-
       tion who after he denounced a book about the financial crash and an

article about *t*, the report says the president quit.

    b. *After he denounced a book about the financial crash and an article about someone, the report says the president quit, but it didn't mention who.

(61)   Leftward adjunction containing Noun with CP Complement

    a. *After he denounced the rumor that he killed someone, the report says the president quit, but it didn't mention who after he denounced the rumor that he killed *t*, the report says the president quit.

    b. ??After he denounced the rumor that he killed someone, the report says the president quit, but it didn't mention who.

The fact that leftward adjunction serves as a barrier to island amelioration indicates that the source of the blocking must lie in a shared quality between leftward adjunction and the previously defined group of amelioration blocking islands. Both involve leftward movement, indicating that either movement or a position in a left branch is responsible for the effect.

Movement to a Non-Specifier Position: Heavy NP Shift As another example of movement to a non-specifier position, I examine instances of sluicing involving Heavy NP Shift. One analysis of Heavy NP Shift involves movement of the phonologically heavy DP to a rightward adjoined position (Ross 1967). Therefore, if the Heavy NP Shift examples pattern with those involving subjects, sentential subjects, and topicalization, it would indicate that movement, the only common factor, is responsible for the amelioration blocking effect. If the two groups do not pattern together, however, it could mean any one of a number of

things. Heavy NP Shift might not involve movement of the NP; movement might not be responsible for the amelioration blocking; or there could be a particular feature of Heavy NP Shift that allows island amelioration by sluicing.

The data indicate that one of the latter options must be the case: instances of sluicing where the correlate is in an island inside of a sentence-final shifted NP are all grammatical.

(62)   Heavy NP Shift containing Relative Clause

    a.   *Alex put on the shelf a book that he recently bought from someone, but he wouldn't say who he put on the shelf a book that he recently bought from *t*.

    b.   Alex put on the shelf a book that he recently bought from someone, but he wouldn't say who.

(63)   Heavy NP Shift containing Left-Branch Extraction

    a.   *Alex put on the shelf a big book of letters and postcards, but he wouldn't say how big he put on the shelf a *t* book of letters and postcards.

    b.   Alex put on the shelf a big book of letters and postcards, but he wouldn't say how big.

(64)   Heavy NP Shift containing Coordinate Structure

    a.   *Alex put on the shelf a book about the financial crash and a biography of someone, but he wouldn't say who he put on the shelf a book about the financial crash and a biography of *t*.

    b.   Alex put on the shelf a book about the financial crash and a biography

of someone, but he wouldn't say who.

(65)   Heavy NP Shift containing Noun with CP Complement

 a. *Alex put on the shelf a book about the rumor that the actress killed someone, but he wouldn't say who he put on the shelf a book about the rumor that the actress killed t.

 b. Alex put on the shelf a book about the rumor that the actress killed someone, but he wouldn't say who.

The fact that the sluiced examples (b) are grammatical and their non-sluiced counterparts (a) are not indicates that the island amelioration effect of sluicing has taken place. Therefore, these data cannot be taken as evidence that movement of an entire island XP is responsible for the amelioration blocking seen above.

Many stories could be told about these data. One such story is that Heavy NP Shift does not involve movement of the NP itself, thereby preserving the hypothesis that movement *is* responsible for amelioration blocking. However, there is evidence supporting the claim that Heavy NP Shift is derived via movement of the NP itself, including the fact that it licenses parasitic gaps:

(66)   I put t_i on the shelf without reading t_{PG} [a book about linguistics]$_i$.

Therefore, I reject the hypothesis that Heavy NP Shift does not involve movement.

Another hypothesis is that it is *leftward* movement that is responsible for the amelioration blocking effect. Under this theory, the rightward movement employed by Heavy NP Shift would not block island amelioration. This is the theory which I wish to adopt.

An antisymmetry analysis of Heavy NP Shift would preclude such a theory. In

work such as Kayne (1994, 2005) it has been suggested that Heavy NP Shift does not involve any rightward movement, but instead features leftward movement of the phonologically heavy constituent followed by remnant movement of the remaining vP. However, this analysis fails to predict the grammaticality facts seen here, since, like subjects and topicalization, it involves movement to a specifier position. In short, the fact that Heavy NP Shift exhibits different grammaticality facts from subjects indicates that their derivation must be distinct, providing an argument against the leftward movement analysis of Heavy NP Shift.

Base-Generated Specifiers: Small Clause Subjects   To test whether specifiers are an additional trigger for amelioration blocking, I looked at subjects of small clauses in *there*-insertion contexts. The subjects of small clauses are base-generated in [Spec, vP], where they remain. Therefore, these sentences will provide a good test of the effect of an XP in specifier position without the confound of movement.

If these sentences pattern with subjects, sentential subjects, and topicalization, it could indicate that the fact that the correlate containing XP is in a specifier position, which is the only common thread among these contexts, is also responsible for the amelioration effect. This seems to be the case, as the following data demonstrate.

(67)   Small Clause Subject containing Relative Clause

    a. *There has been a book that slandered someone climbing the charts lately, but no one will reveal who there has been a book that slandered *t* climbing the charts.

b. *There has been a book that slandered someone climbing the charts lately, but no one will reveal who.

(68)   Small Clause Subject containing Left-Branch Extraction

a. *There has been a biography of a big man climbing the charts lately, but no one will reveal how big there has been a biography of a *t* man climbing the charts lately.

b. ??There has been a biography of a big man climbing the charts lately, but no one will reveal how big.

(69)   Small Clause Subject containing Coordinate Structure

a. *There has been a book about the financial crash and a biography of someone climbing the charts lately, but no one will reveal who there has been a book about the financial crash and a biography of *t* climbing the charts lately.

b. *There has been a book about the financial crash and a biography of someone climbing the charts lately, but no one will reveal who.

(70)   Small Clause Subject containing Noun with CP Complement

a. *There has been a rumor that a famous actress killed someone making the rounds lately, but no one will reveal who there has been a rumor that a famous actress killed *t* making the rounds lately.

b. ??There has been a rumor that a famous actress killed someone making the rounds lately, but no one will reveal who.

These data pattern with the group of islands that defnitively block island ame-

lioration. This indicates that it is not just leftward movement that is responsible for amelioration blocking; the data above involve islands situated within a left branch, but they are base-generated in that position.

Therefore, the best conclusion is that left branches themselves are the source of the amelioration blocking. The generalization can be stated as follows:

Generalization about Amelioration Blocking   Any island contained within a left branch will not be ameliorated by sluicing.

5.3   Not a Recency Effect

An alternative analysis of the facts is that this entire paradigm of grammaticality is simply due to a recency effect; that is, it is the fact that the correlate comes at the beginning of relatively long sentences that prevents island amelioration. Could it be the case that whenever the correlate comes early in the sentence, sluicing will be ungrammatical?

The data suggest that this is not the case. When the correlate is the sentence-initial subject of a long sentence, the corresponding sluice is grammatical.

(71)   Someone donated a laundry hamper, a book about the financial crash, and a bed to the homeless shelter on 4th Street just before they went bankrupt, but I'm not sure who.

Therefore, this effect cannot be due to a simple linear order recency effect.

5.4 Not Propositional vs. PF Islands

Jason Merchant, in his 2001 book, posits a divide between Propositional and PF Islands. In his formulation, PF Islands consist of the following:

- Left-branches

- Subjects

- Topicalizations

- *that*-trace effects

- Extraction of Conjuncts

In contrast, the class of Propositional Islands consists of the following:

- Extraction out of Conjuncts

- Complex Noun Phrases

- Sentential Subjects

- Adjuncts

The class of islands I have identified that function as barriers to amelioration (subjects, sentential subjects, and topicalizations) draws from both categories, indicating that Merchant's taxonomy is not relevant to this particular phenomenon.

6 Theoretical Implications

The generalization described above, if true, has serious implications for syntactic theory. Specifically, it can be used to differentiate between theories that involve an XP being in a left branch vs. those that are in a right branch. To illustrate this, I will look into two contested structures, using sluicing as a diagnostic for whether a given XP is located in a left branch. This diagnostic will provide evidence to choose between the two theories.

6.1 Implications for Coordinate Structures

This generalization (that islands inside of left branches will not be ameliorated by sluicing) has serious implications for the analysis of coordinate structures. The first (or leftmost) conjunct in a coordinate structure exhibits the same behavior as subjects and topics: that is, violations of islands contained within them will not be ameliorated by sluicing. This fact was first noted by Frazier and Clifton (2005), and is demonstrated by the following data:

(72)   Left-Branch Extraction in First Conjunct

      a. *John danced with a small girl and a big guy, but he wouldn't say how small he danced with a t girl and a big guy.

      b. ??John danced with a small girl and a big guy, but he wouldn't say how small.

(73)   Adjunct as First Conjunct

      a. *I drove slowly because I was trying to impress someone and because I felt like it, but I won't say who I drove slowly because I was trying

to impress t and because I felt like it.

b. ??I drove slowly because I was trying to impress someone and because I felt like it, but I won't say who.

(74)   Noun with CP Complement as First Conjunct

a. *I read about the idea that the proletariat is oppressed by someone and the Russian Revolution, but I don't remember who I read about the idea that the proletariat is oppressed by t and the Russian Revolution.

b. ??I read about the idea that the proletariat is oppressed by someone and the Russian Revolution, but I don't remember who.

(75)   Sentential Subject as First Conjunct

a. *That the teacher gave an award to someone and that everyone had fun surprised them all, but the writeup didn't say who that the teacher gave an award to t and that everyone had fun surprised them all.

b. ??That the teacher gave an award to someone and that everyone had fun surprised them all, but the writeup didn't say who.

(76)   Embedded Question as First Conjunct

a. *John was trying to work out which problem would confuse someone and which problem would be easy for the entire class, but he wouldn't say who he was trying to work out which problem would confuse t and which problem would be easy for the entire class.

b. ??John was trying to work out which problem would confuse someone and which problem would be easy for the entire class, but he wouldn't

say who.

If amelioration is blocked by left branches, and it is also blocked by the first conjunct of a coordinate structure, then that indicates that the first conjunct of a coordinate structure is in a left branch position. This lends support to the analysis of coordinate structures that posits a ConjP (or an equivalent XP), with the first conjunct located in [Spec, ConjP]. This analysis is represented by the following tree:

```
                        ConjP
                       /     \
                      /       \
                    DP        Conj′
                   /  \        /  \
                  /    \      /    \
          First Conjunct   Conj    DP
                           and    /  \
                                 /    \
                          Second Conjunct
```
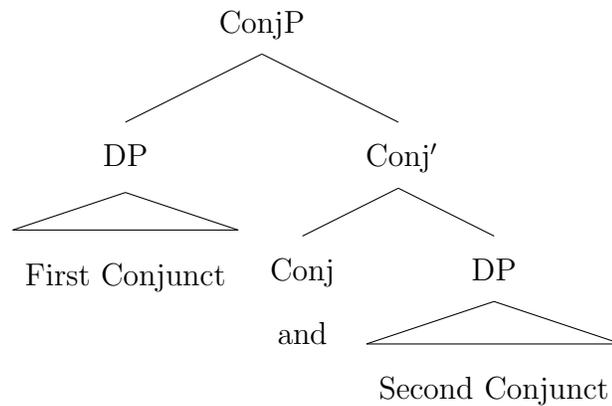
6.2   Extraposition

As noted in 5.1, one analysis of Heavy NP Shift involves movement of the extraposed NP (the 'heavy' NP in this construction) to a rightward adjoined position, as in the following tree:

CP
|
C′

C   TP

TP   DP$_i$

I put t$_i$on the shelf

the book about the first four

presidents of the United States
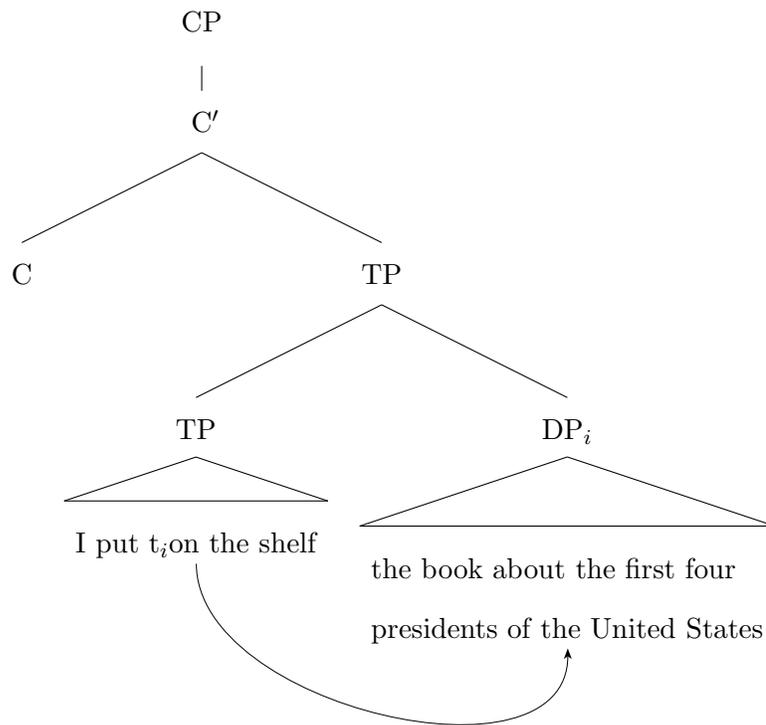
However, there is another analysis of Heavy NP Shift that involves 'roll-up,' or movement of the extraposed DP to a leftward specifier followed by remnant movement of the remaining TP to a higher specifier position. This analysis is illustrated by the following trees; the phrases XP and YP are so named so as to remain agnostic as to the exact identity of these phrases.

The first tree shows movement of the 'heavy' NP from its position within the TP.

```
                          CP
                          │
                          C′
                     ╱          ╲
                  C                XP
                                    │
                                    X′
                            ╱              ╲
                         X                    YP
                                          ╱        ╲
                                    DP_i              Y′
                                  ╱      ╲         ╱      ╲
                                 ╱_____╲       Y          TP
                        the book about the first four      ╱    ╲
                                                          ╱_____╲
                        presents of the US              I put t_i on the shelf
```

the book about the first four

presidents of the US

Y

TP

I put t$_i$on the shelf
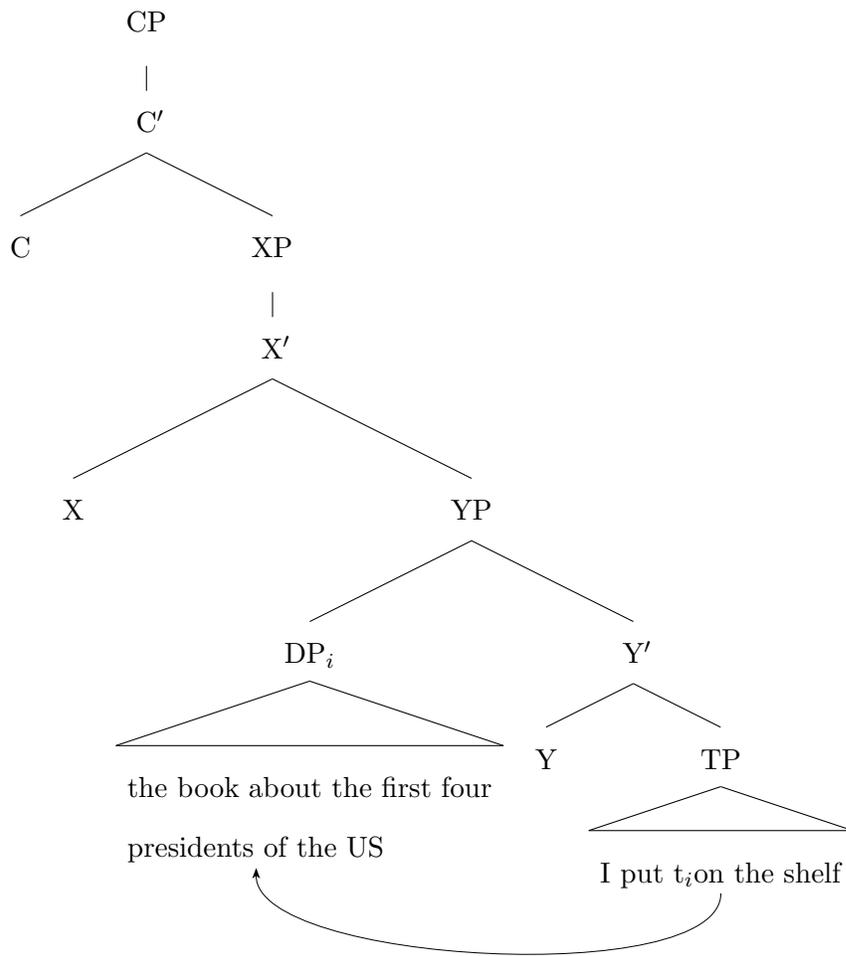
Then, the remaining TP moves to a higher specifier position.

CP
|
C′

C   XP

      TP_j   X′

I put t_i on the shelf   X   YP

                               DP_i   Y′

                          the book about the first four   Y   t_j
                          presidents of the US
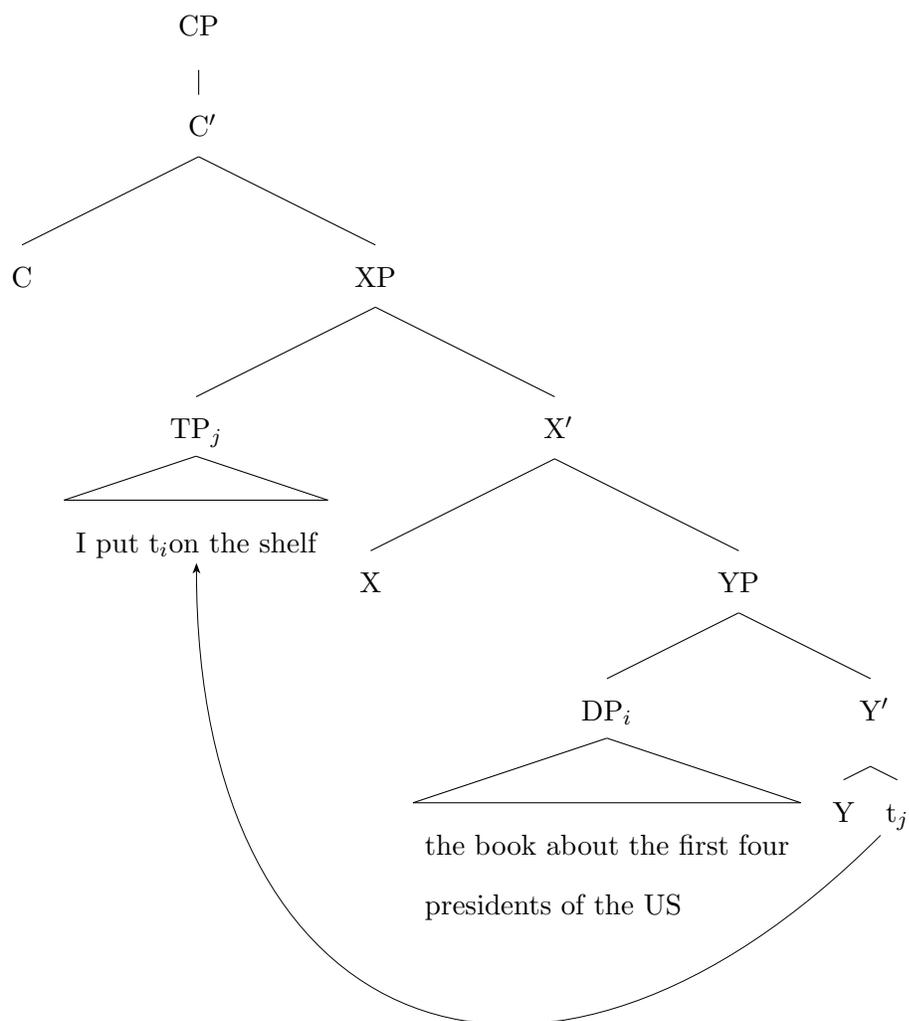
These two analyses differ in that the first positions the extraposed DP in right branches of the tree all the way down, while the second posits that the extraposed DP is in a left branch. To decide between these two analyses, we can use the previously stated generalization about amelioration by sluicing. If amelioration is blocked by left branches, as it seems to be, then the grammaticality of sluicing when the correlate is inside an island inside an extraposed DP will indicate whether

the extraposed DP is occupying a right branch or a left branch of the tree. That is, if sluicing out of an island inside of an extraposed DP is ungrammatical, it indicates that the extraposed DP is occupying a left branch. However, if sluicing is grammatical, it indicates that the extraposed DP is in a right branch position.

The data in 5.1 demonstrate that the latter is true: since sluicing out of an island in an extraposed DP is grammatical, we can conclude that the extraposed DP is not occupying a left branch. Therefore, the sluicing data lead us to prefer the rightward movement analysis of Heavy NP Shift.

7   Future Questions

7.1   Non-Sluicing Contexts

The patterns noted above are not restricted to sluicing; a full wh-question in which the wh-element is co-indexed with an indefinite has the same patterns, as the following examples demonstrate.

(77)   Contexts that do not block amelioration

    a.   I read an article that denounced a book about the financial crash and a biography of someone$_i$, but it didn't mention what their$_i$ name was.

    b.   John heard about the idea that the department should fire the people who humiliated someone$_i$, but he wouldn't say what their$_i$ name was.

    c.   John danced with the girl that hugged Sally and the boy that kissed someone$_i$, but he wouldn't say what their$_i$ name was.

    d.   John drove safely because he had rented a car that hit someone$_i$, but

the report didn't say what their$_i$ name was.

(78) Contexts that do block amelioration

a. ??That John rented a car that hit someone$_i$ surprised everyone, but the report didn't say what their$_i$ name was.

b. ??A car that hit someone$_i$, John rented, but he wouldn't say what their$_i$ name was.

c. ??A car that hit someone$_i$ crashed into the wall last night, but the report didn't say what their$_i$ name was.

This indicates that this pattern is not sluicing-specific, and potentially has its roots in larger processing concerns. However, this problem is outside the scope of this paper, and has been left for future researchers.

7.2 D-Linking

All of the ungrammatical examples are improved by D-Linking of both the correlate and the wh-element, as the following examples show:

(79) Amelioration saved by D-Linking

a. That John rented a car that hit some pedestrian surprised everyone, but the report didn't say which pedestrian.

b. A car that hit some pedestrian, John rented, but he wouldn't say which pedestrian.

c. A car that hit some pedestrian crashed into the wall last night, but the report didn't say which pedestrian.

This also suggests a processing-based explanation for the data; again, however, this is a problem best left for future researchers.

8   Conclusion

In this paper, I explored examples of ungrammatical sluicing. Exploring the patterns laid out in the data, I determined that islands are *not* ameliorated if they are within a subject, topic, or left adjunct. I used these data, as well as grammaticality judgments from Heavy NP Shift (which does allow islands to be ameliorated) and small clause subjects (which does not), to establish a generalization about island amelioration by sluicing. That generalization is the following: islands in left branches of a tree will not be ameliorated by sluicing. Because of the fact that the subject island itself is ameliorated by sluicing, I cannot say that amelioration cannot target left branches; rather, it cannot target anything *within* a left branch.

Armed with this generalization, I then explored its implications for larger syntactic theory by utilizing it as a diagnostic for rightward vs. leftward movement. I showed, using sluicing data, that coordinate structures must have a structure in which the first conjunct is in a specifier position; and that Heavy NP Shift must feature rightward movement of the extraposed DP, rather than remnant or 'roll-up' movement.

Finally, I identified two major questions that remain unaddressed by this thesis: the application of the generalization to cross-clausal binding in general and the fact that D-Linking seems to improve all ungrammatical instances of sluicing. I leave these questions to researchers in the future.

References

Calixto Aguero-Batista. Diagnosing cyclicity in sluicing. *Linguistic Inquiry*, 38 (3):413–443, 2007.

Chyan an Arthur Wang. Sluicing and resumption. In *Proceedings of NELS 37*, 2006.

Scott AnderBois. Sluicing as anaphora to issues. In *Proceedings of SALT 20*, pages 451–470, 2011.

Katy Carlson, Michael Walsh Dickey, Lyn Frazier, and Charles Clifton. Information structure expectations in sentence comprehension. *Quarterly Journal of Experimental Psychology*, 62(1):114–139, January 2009.

Sandra Chung. Sluicing and the lexicon: The point of no return. *Unknown*, 2005.

Sandra Chung, William Ladusaw, and James McCloskey. Sluicing and logical form. *Natural Language Semantics*, 3:239–282, 1995.

Sandra Chung, William Ladusaw, and James McCloskey. Sluicing: Between structure and inference. *Unknown*, 2011.

Jeroen Van Craenenbrock. Invisible last resort: A note on clefts as the underlying source for sluicing. *Lingua*, 120:1714–1726, 2010.

Jeroen Van Craenenbrock and Aniko Liptak. The crosslinguistic syntax of sluicing: Evidence from hungarian relatives. *Syntax*, 9(3):248–274, December 2006.

Danny Fox and Howard Lasnik. Successive-cyclic movement and island repair: The difference between sluicing and vp-ellipsis. *Linguistic Inquiry*, 34(1):143–154, 2003.

Lyn Frazier and Charles Clifton. The syntax-discourse divide: Processing ellipsis. *Syntax*, 8(2):121–174, August 2005.

Lydia Grebenyova. Sluicing and left-branch extraction out of islands. In John Alderete et al., editor, *Proceedings of the 24th West Coast Conference on Formal Linguistics*, pages 164–172. Cascadilla Proceedings Project, 2005.

Howard Lasnik and Myung-Kwan Park. The epp and the subject condition under sluicing. *Linguistic Inquiry*, 34(4):649–660, 2003.

Jason Merchant. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford University Press, 2001.

Jason Merchant. Variable island repair under ellipsis. In Kyle Johnson, editor, *Topics in Ellipsis*, chapter 6. Cambridge University Press, 2008.

Jason Merchant. A taxonomy of elliptical repair. Handout, 2010.

Jason Merchant. Ellipsis. In Artemis Alexiadou and Tibor Kiss, editors, *Syntax: An International Handbook*. Mouton de Gruyter, 2012.

Josee Poirier, Katie Wolfinger, Lisa Spellman, and Lewis P. Shapiro. The real-time processing of sluiced sentences. *Journal of Psycholinguistic Research*, 39: 411–427, 2010.

John Ross. Guess who? In Jason Merchant; Andrew Simpson, editor, *Sluicing: Cross-Linguistic Perspectives*, chapter 1. Oxford University Press, 2012.

Maziar Toosarvandani. Wh-movement and the syntax of sluicing, 2008.

Christos Vlachos. Sluicing and relatives. *Snippets*, 23, May 2011.