

Control and *Wh*-Infinitivals*

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1. Introduction

This paper discusses control into *wh*-infinitivals as illustrated in the following example:

- (1) a. John knows when to wash the dishes.
- b. Mary learned how to fly a 747.
- c. Alexis told Janice where to meet before the play.

I show that there are two types of control into *wh*-infinitivals, specifically obligatory control and non-obligatory control.¹ I further argue that non-obligatory control into *wh*-infinitivals is instantiated as generic control. I present data from multiple sluicing and extraction across weak islands that supports an analysis in which obligatory control into *wh*-infinitivals arises by movement of the controller from the embedded clause into the matrix clause (in the sense of Hornstein, 1999; 2001), while non-obligatory movement entails no such movement. I argue that the embedded subject is represented by a co-indexed *pro* in the embedded clause, which is clause-bound by a generic operator.

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¹ This contrasts with the standard view of control in which control into *wh*-infinitivals is viewed as strictly non-obligatory or arbitrary control (Bresnan, 1982; Chomsky, 1981) and with Landau's (1999; 2000) view in which control into *wh*-infinitivals is viewed as strictly obligatory control.

This paper is organized as follows. Section 2 presents the patterns of control into *wh*-infinitivals, establishes a contrast between obligatory control and non-obligatory control, and presents the data on multiple sluicing and extraction from weak islands. Section 3 develops an analysis of this type of control. First we establish the structure of the left periphery of *wh*-infinitivals and then present an analysis in which the controller raises from the embedded clause to the matrix clause in obligatory control, but not in non-obligatory control. Section 4 presents a brief conclusion.

2. Patterns of Control into *Wh*-infinitivals

This section introduces the basic empirical facts on control into *wh*-infinitivals in English. It begins by discussing the types of predicates in which *wh*-infinitivals are found and the types of *wh*-phrases that are found in these constructions. Next, A distinction is made between obligatory control and generic control and it is shown that control into *wh*-infinitivals can be of both types. The last two subsections present two asymmetries (extraction across weak islands and multiple sluicing) that highlight the difference between these two types of control.

2.1 Predicate Types

Landau (1999) presents a typology of control predicates consisting of implicatives, aspectuals, factives, propositionals, desideratives and interrogatives. The data below show that *wh*-infinitives appear only with desiderative and interrogative predicates. Note that I define interrogative predicates as those that obligatorily appear with a *wh*-phrase in the left edge.

(2) *Typology of Control Predicates*

a. implicative

- i. John managed to eat a coconut.
- ii. *John managed how to eat a coconut.

- b. aspectual
 - i. Mary began to write a novel
 - ii. *Mary began when to write a novel
- c. factive
 - i. Alice hates/likes to eat in the basement
 - ii. *Alice hates/likes where to eat.
- d. propositional
 - i. Bill claimed to be fluent in 6 languages.
 - ii. *Bill claimed how many languages to be fluent in.
- e. desiderative
 - i. Peter knows to arrive by 7pm.
 - ii. Peter knows when to arrive by.
 - iii. Susan told John where to eat.
 - iv. Alice said when to pick up the dry-cleaning
- f. interrogative (:= must have *wh*-XP)
 - i. Susan wondered where to eat.
 - ii. *Susan wondered to eat in the kitchen.
 - iii. Peter figured out where to buy chocolate.
 - iv. %Peter figured out to buy chocolate.

Note that *forget* and *remember* can also take *wh*-infinitives, as the following example shows.

- (3) John remembered/forgot when to wash the dishes.

In this case, I argue that *forget* and *remember* are desideratives, not factives, since they no longer imply the truth or falsity of the embedded clause.² Thus, (4) is contradictory while (5) is perfectly acceptable.

(4) #John remembered to wash the dishes, but he didn't wash them.

(5) John remembered when to wash the dishes, but he didn't wash them.

2.2 Types of Wh-Phrases

Control infinitives can appear with any *wh*-element, except *why*.³

² In language play, *forget* and *remember* can be used as desideratives in non-*wh*-contexts. The question, "Did you remember to wash the dishes," can elicit a positive response even when the dishes aren't washed. The second interlocutor only remembered to wash them but chose not to. This type of language play is not available for *manage*, which also cannot host a *wh*-infinitive.

³ This observation is true for infinitival clauses in general. There is an exception in Romance, however, that remains unaccounted for (di Sciullo, pc) This is shown for French (i. – ii.) and Italian (iii. – iv.):

- i. * Marie ne sait pas pourquoi partir.
(‘Marie doesn’t know why to leave.’)
- ii. Marie se demande pourquoi partir
(‘Marie wonders why to leave.’)
- iii. * Maria non sa perché partire.
(‘Maria doesn’t know why to leave.’)
- iv. Maria si domanda perché partire.
(‘Maria wonders why to leave.’)

I suspect that the grammatical sentences are not full clausal complements. *Why* can appear with almost any XP to the right as in the following constructions:

- v. **Why walk** when you can ride?
- vi. John wanted to buy a book, but I wondered **why this book**.
- vii. We’re leaving in 20 minutes. **Why in 20 minutes? Why not now?**

- (6) John_i doesn't know who e_i to visit t_{wh}
- John_i doesn't know what e_i to eat t_{wh}
- John_i doesn't know where e_i to go t_{wh}
- John_i doesn't know when e_i to leave t_{wh}
- John_i doesn't know how e_i to sing t_{wh}
- * John_i doesn't know why e_i to wait t_{wh}

Full XP's are also available:

- (7) John wondered which book to buy.
- (8) John wondered what book to buy.

2.3 Two Types of Control

Here, we argue that control into *wh*-infinitivals can be either obligatory or generic. Consider, first, the following sentences.

- (9) The sign says where e_{arb} not to smoke.
- (10) John's new stock market analysis program can figure out when e_{arb} to buy Microsoft shares.
- (11) Mary knows how e_{arb} to defend oneself against killer bees.

Most traditional analyses (Bresnan, 1982; Chomsky, 1981; Manzini and Roussou, 2000) assume that *wh*-control is arbitrary control as shown by the element e_{arb} in (9)–(11). Landau (1999; 2000) argues that control into *wh*-infinitivals is not arbitrary control, but is rather obligatory

In this light, perhaps a better translation of the grammatical French and Italian sentences would be: *Mary wonders why leave*.

control.⁴ This conclusion is based convincingly on evidence such as the following (Landau, 1999: 52):

(12) John_i wondered who *e_i* to introduce himself_i to.

In (12), the controlled element (be it PRO or a trace) must be coreferential with the controller rather than take generic or arbitrary reference, or the anaphor would not be licensed. Although I agree with Landau that (12) is an instance of obligatory control, I argue that the sentences in (9) – (11) are examples of generic control. Before considering the arguments in favour of generic control (as opposed to arbitrary control or obligatory control), observe that the sentences in (9) – (11) can be paraphrased with a generic *one*.

(13) The sign says where one should not smoke.

(14) John's new stock market analysis program can figure out when one should buy Microsoft shares.

(15) Mary knows how one should defend oneself against killer bees.

Note further more, that the other examples of control into *wh*-infinitivals cannot be paraphrased with generic *one*, but with a coreferential pronoun.

(16) John wondered which book to buy. = John wondered which book he should buy.

(17) John knows where to pick up the opera tickets for tonight. = John knows where he must pick up the opera tickets for tonight.

The standard argument for arbitrary control into *wh*-infinitivals comes from the presence of *oneself* anaphors in these constructions.

(18) Mary wasn't sure how to introduce oneself to the Queen.

⁴ Note that for Landau, partial control, which is licit in *wh*-infinitivals, is a type of obligatory control.

Since *Mary* is not an appropriate binder for *oneself*, the claim is that there is a PRO_{arb} in the subject position of the embedded clause which binds the anaphor. Landau (1999) claims that the *oneself*-test has been misused to diagnose arbitrary control, however. He offers the following pair of sentences as evidence:

(19) Mary wasn't sure when to introduce oneself to John

(20) * $Mary_i$ wasn't sure when to introduce oneself to her_i .

Consider though, the following context: Mary has just been appointed to a high-ranking diplomatic position in a foreign country whose customs she is unfamiliar with. She knows that there will much formality involved in introductions. The following sentence becomes somewhat better, but still somewhat degraded:

(21) ? $Mary_i$ wasn't sure how to introduce oneself to her_i .

Since I argue, however, that these sentences are generic, not arbitrary, I attribute the degraded status of (20) and (21) to the presence of the pronoun which has a definite referent. Generic statements do not felicitously contain definite referents. If we replace the definite referent with a generic DP, the sentence improves considerably, as shown in (22).

(22) A $princess_j$ shouldn't have to explain how to introduce oneself to her_j .

Landau maintains that in examples (9) – (11), there is an implicit controller as in the following example:

(23) The flight attendant said (to the passengers_{*i*}) where e_i to sit.

Such an analysis is difficult to maintain in examples (9) and (10) because in these two examples, habitual aspect is used, which does not facilitate a pragmatically felicitous implicit recipient.

(24) ?#The sign says (to everyone who happens to read it) where not to smoke.

I argue here that the proper characterization of non-obligatory control into *wh*-infinitivals is that of generic control using various diagnostics found in Krifka *et al.* (1995). Krifka *et al.* give three such diagnostics for generic (or what they call characterizing) sentences. The first test is straight forward.

(25) Generic sentences are incompatible with progressive aspect.

- a. John told me where to be standing at 6PM. (obligatory control)
- b. *John knows where to be getting good cheese. (generic control)

They also observe that generic sentences can be modified by the adverb *usually*.

(26) John knows where to [?]usually get good opera tickets cheap. (generic control)

(27) * John knows where to usually meet before the opera tonight. (obligatory control)

Their third diagnostic for generic sentences is that in generics, the property described by the predicate is an essential property of some entity mentioned in the sentence. Thus, in (26), it is an essential property of John that he knows where to get good opera tickets cheap. In the sentence *John knows where to meet before the opera tonight*, however, it is not an essential property of John the information contained in the infinitival predicate.

Finally, one of the prototypical properties of genericity is that generics allow for exceptions. So for example, it is still true that John knows where to get good opera tickets cheap, even if on one particular occasion, there were no good, cheap opera tickets at one of the places he suggested. However, it is only true that that John knows where to meet before the opera tonight if, in fact, he absolutely knows this information.

I conclude on the basis of the above diagnostics, then, that there are two types of control into *wh*-infinitivals: obligatory control and non-obligatory control or, more specifically, generic

control. Next, I discuss two asymmetries with respect to this distinction. The first is extraction across weak islands, followed by multiple sluicing.

2.4 Extraction Possibilities

In this section, I demonstrate that generic *wh*-infinitivals and obligatorily controlled *wh*-infinitivals differ in their extraction abilities. As illustrated in the data below, *wh*-movement is permitted across a *wh*-island with a generic, but not with obligatory control. Thus, (28) to (30), which contain embedded generic infinitivals, are licit; whereas (31) to (33), which exhibit obligatory control are ruled out.

- (28) Which shares can John's new program figure out when to buy?
- (29) What kind of plane does John know how to fly?
- (30) What kind of bee does Mary know how to defend oneself against?⁵
- (31) * Which restaurant does John know when to meet at?
- (32) * Whose car does John know where to park?
- (33) * Where did John wonder who to introduce himself to?

Consider, now, the following sentence.

- (34) Mary told John where to buy champagne.

This is ambiguous between a generic reading and an obligatory control reading. (The obligatory control reading is facilitated by a making the event more specific: Mary told John where to buy the champagne for tonight.) This sentence could be followed up as follows:

⁵ Many of these examples look like weak island violations (Rizzi, 1990). The following example, however, does not bode well for this generalization:

- i. In which city does John know which restaurants to avoid?

Recent discussions have suggested that the MLC needs serious revision in the domain of A-bar movement (Fanselow, 2004; Müller, 2004). I leave this problem for future research.

- (35) a. at any good wine shop. (generic reading)
- b. at the store around the corner; it's already been ordered. (obligatory control reading)

If we extract from the embedded clause, only the generic reading is available:

- (36) What did Mary tell John where to buy?

The lack of ambiguity is highlighted by the following ungrammatical example:

- (37) *What did Mary tell John where to buy for the party tonight?⁶

The paradigms in (6) and (28) - (37) will help us construct a movement-based analysis of *obligatory* control into *wh*-infinitivals.

To conclude this section, we have seen that *wh*-infinitives appear only with desideratives and interrogatives and that *why* not permitted in infinitival clauses. We have also seen that there are two types of control into *wh*-infinitivals – namely obligatory and generic. We have also seen that *wh*-movement across *wh*-islands available only with generic control.

2.5 Multiple Sluicing

In this section, I show that obligatory control into *wh*-infinitivals can undergo multiple sluicing, while generic control cannot. Consider the following two pairs of examples.

- (38) a. A certain traveller decided where to eat in a certain city.
I forget which traveller in which city.
- b. A certain traveller knows where to eat in a certain city.
*I forget which traveller in which city.

⁶ Some speakers report that this sentence improves with a resumptive pronoun, but I am hesitant to draw any conclusions from it, due to the subtlety of the judgment and to the fact that resumptive pronouns regularly rescue island violations in English.

i. ?What did Mary tell John where to buy it for the party tonight?

- (39) a. A certain dignitary knows how to introduce himself to a certain monarch.
 I forget which dignitary to which monarch.
- b. A certain dignitary knows how to introduce oneself to a certain monarch.
 *I forget which dignitary to which monarch.

Examples (38) and (39)a. illustrate obligatory control and license multiple sluicing of the matrix subject and the embedded object. By way of contrast, examples (38) and (39)b. illustrate generic control as argued above and do not allow multiple sluicing. The data are introduced here to underscore the difference between obligatory and generic control into *wh*-infinitivals. We will account for this difference in the next section.

2.6 Conclusion

I have argued that control into *wh*-infinitivals in English can be instantiated as either obligatory control or generic control (but not arbitrary control). Furthermore, I presented two asymmetries with respect to this contrast involving extraction from weak islands and multiple sluicing. In particular, generic control allows extraction from a weak island where obligatory control does not. Obligatory control, however, permits multiple sluicing of the matrix subject and the embedded object where generic control does not. The next section provides an analysis for the structure of these two types of control structures into *wh*-infinitivals, explaining the source of the two asymmetries discussed above.

3. Analysis

3.1 *Wh*-infinitivals do not involve full CP

Following earlier work, I assume that *why* is merged higher than other *wh*-phrases in the CP layer (Collins, 1991; Ko, 2005; Lin, 1992; Rizzi, 1990, 1999). If infinitivals generally have a reduced CP layer (or lack it altogether), this explains why *why* is absent in infinitival clauses.

This begs the question as to where other *wh*-elements appear in infinitival clauses. Consider an expanded CP (Rizzi, 1997, 1999):

(40) ForceP > (TopP) > IntP > (TopP) > FocP > (TopP) > WhP > FinP

WhP is used as a label of convenience both here and in Rizzi (1999) to show that *wh*-elements can appear in more than one position, depending on various factors. Rizzi suggests that *wh*-phrases appear in SpecIntP in matrix clauses and SpecWhP in embedded clauses. Ko (2005), on the other hand, argues that the higher projection is reserved for *why* and its equivalents and that the other *wh*-phrases are merged lower in the CP layer. What's important for us is that *why* is merged higher in the CP layer than other *wh*-phrases. The *wh*-infinitival phrase must contain minimally a FinP (finite/non-finite distinction) and a WhP (to host *wh*-phrases), but nothing more. I suggest, in fact, that such phrases cannot contain any higher projections based on the following observation. Note that topics and focused elements are not available in embedded infinitival clauses, as shown in the following examples.

(41) John wants to give a book to this student.

(42) EVEN THIS STUDENT, John wants to give a book to.

(43) *John wants EVEN THIS STUDENT to give a book to.

(44) This student, John wants to give a book to.

(45) *John wants this student, to give a book to.

(42) and (44) show that topics and focused phrases are available in the matrix clause. But (43) and (45) show that there is no position in the left periphery of the embedded infinitival clause to host topic and focus.⁷ If *why* is merged in high (IntP) and infinitival clauses contain only the

⁷ Of course, embedded topics of focused phrases are available in embedded finite clauses:

i. John decided that EVEN THIS STUDENT he would give a book to.

lower (right) portion of the expanded CP, then this explains why *why* is not licit in infinitival clauses – there is no position for it. There is a position for other *wh*-elements, though, which is WhP. In sum, then, the left periphery of an embedded *wh*-infinitival contains only a WhP and a FinP.

This approach makes interesting predictions concerning where *why*-phrases can be interpreted. Consider the following contrast.

(46) When did John decide to buy a car? (ambiguous)

(47) Why did John decide to buy a car? (unambiguous)

In (46), *when* can be interpreted in either the matrix or the embedded clause, while in (47), *why* can be interpreted only in the matrix clause. This follows from the fact that *why* could not have originated in the embedded clause, since there is no place for it to merge, while *when* can merge in SpecWhP in either the matrix or embedded clause. Recall also from above that for generic control, *wh*-extraction may take place across a weak island (example (48)) Again, however, if the element in the matrix SpecCP is *why*, it cannot be interpreted in the embedded clause.

(48) Which shares can John's new program figure out when to buy?

(49) Why did decide which car to buy?

Thus, (48) has an embedded reading on the DP *which shares*, while (49) must have a matrix reading on *why*.⁸

ii. John decided that, this student, he should give a book to.

⁸ Ko (2005) argues that for Korean, Japanese and Chinese, the equivalents of *why* are merged high in the CP layer, but when they undergo movement, they raise to the same place as other *wh*-phrases. If English behaves the same way, we would expect to obtain a reading on the following sentence in which *why* is construed with the most deeply embedded clause. This sentence, however, appears to be severely degraded. I leave this problem for future research, noting that Ko's conclusions for East Asian languages may not carry over to English in a straightforward way.

3.2 *Wh*-infinitivals constitute a phase

Here, we examine evidence for embedded *wh*-infinitivals as phases. If these structures are not phases, then we would not expect any problems in raising, since successive *Wh*-movement targets only phase edges. In fact, if these infinitival clauses turn out not to be phases, then island effects would require an explanation, not the lack of them. To test for phasehood, Legate (2003) creates diagnostics in which a putative phase edge must be targeted as a site for potential reconstruction. The logic of this test proceeds as follows:

(50) *schematic test for phasehood*

Op ... X ... α ... Y (α is test site for phasehood)

Show a configuration in which the following scope ordering is possible:

X > Op > Y

Consider the following sentence:

(51) Mary told Bill which gallery to see every portrait of himself in.

Here, an inverse scope reading is available between the *wh*-phrase and the QP, and the anaphor is still bound by *Bill*.

(52) Bill > every portrait of himself > which gallery

Thus, there must be a landing site at the left edge of the infinitival clause and, *a fortiori*, a phase edge.⁹ Since *wh*-infinitivals constitute a phase, we must seek an explanation for the lack of island

i. ?*John knows why to tell Mary that Bill was fired.

⁹ It looks as though non-*wh*-infinitivals may constitute a phase, too:

i. How many pictures of himself did Mary tell John not to burn?

Here, *how many* can take scope over negation, suggesting there is a phase edge here, too. Thus, phase edges are not properties of *wh*-infinitivals alone.

effects in generic control constructions and the availability of multiple sluicing in obligatory control constructions.

3.3 *Generic control involves pro_{gen}*

Hornstein (1999; 2001) suggests that instances of non-obligatory control involve *pro*.

This was met with immediate resistance, since *pro* is not generally available in English as English is not a *pro*-drop language. Hornstein's suggestion might be tenable, if we assume that in languages such as English, *pro* is restricted to generic and arbitrary (and non-referential) readings.¹⁰ Thus, example (9) has the representation shown in (53), which is to be modified subsequently in the discussion.

(53) The sign says [_{WhP} where [_{FinP} [_{IP} *pro_{gen}* not to park]]]

Example (1) has the following representation, which will also be modified.

(54) John_i knows [_{WhP} when [_{FinP} [_{IP} *t_i* to wash the dishes]]]

Crucially, the difference here is that the subject has raised from the embedded clause in (54) to the matrix clause, but in (53), the base position of the subject is in the matrix clause, while the subject of the embedded clause is a generic *pro*.

3.4 *Multiple Sluicing*

In the previous section, we presented evidence for movement in obligatory control into *wh*-infinitivals, but not in generic control using multiple sluicing under the framework of cyclic linearization (Fox and Pesetsky, 2005). Recall that multiply sluiced elements must be clause-mates:

¹⁰ See Holmberg (2005) for a discussion on the properties of *pro*. He suggests that the null subject in non-obligatory control contexts is a ϕ P (in the sense of Déchaine and Wiltschko, 2002) and takes reference if there is a sufficiently local binder. Otherwise, the null ϕ P receives a generic interpretation. I leave the precise details of this line of inquiry to future research. See also Haegeman (1990) for a suggestion that English is not completely a null subject language.

(55) *Multiple Sluicing*

- a. A certain boy seems to have a crush on a certain girl

I forget which boy on which girl.

- b. Fred told a certain boy to talk to a certain girl

I forget which boy to which girl.

- c. A certain boy told Fred to talk to a certain girl.

*I forget which boy to which girl.

Following Fox and Pesetsky, the two multiply sluiced elements, more specifically, must be phase-mates, where co-phasehood includes material up to and including the left phase edge for overtly moved elements and elements that have undergone initial Merge, but not covertly movement elements. So, in (55)a, the matrix subject starts in SpecvP of the embedded clause, where it becomes linearized with the DP *a certain girl*. Under Fox and Pesetsky's theory, the grammar records the ordering statement <a certain boy, on a certain girl>, which survives upon sluicing since both of these XPs are present after sluicing. These two XPs can then be ordered with respect to each other. Looking at (55)c, now, we see that at no time are *which boy* and *to which girl* in the same Linearization domain (again, roughly a phase). Thus, there is no ordering statement of the type <a certain boy, to a certain girl> that could order these two XPs upon sluicing, thus giving rise to an ungrammatical result (see Barrie, to appear for additional details).

Adopting this approach to linearization makes certain predictions regarding raising and control. Looking at (56), the matrix subject DP *a certain boy* can appear in a multiple sluicing construction with the embedded object. This is unsurprising since this is a raising construction, where the matrix subject is assumed to originate in the embedded clause and thus satisfies the co-phasehood constraint for multiply sluiced elements. Considering (57) now, we observe that

multiple sluicing is available with the control predicate *decide*. This indicates that the matrix subject must also originate in the embedded clause and raises to its surface position.

(56) A certain boy appears *e* to have talked to a certain girl.

I forget which boy to which girl.

(57) A certain boy decided *e* to talk to a certain girl.

I forget which boy to which girl.

One may object to this since an intervening coreferential pronoun (though not anaphor) can salvage a multiply sluiced construction:

(58) A certain boy¹ said he¹ would talk to a certain girl.

I forget which boy to which girl.

(59) A certain boy told himself to talk to a certain girl.

*I forget which boy to which girl.

Since a pronoun can salvage this construction, one might ask why PRO cannot do the same. This is a good point to summarize the various proposals for the following three sentences:

(60) Three (putative) types of control into wh-infinitives

a. John¹ decided where *e* to eat.

b. John¹ decided where *e* to meet.

c. John¹ knows how *e* to fly a 747.

The following chart summarizes the identity of *e* in each of these sentences following Landau's approach, a traditional approach, and the current proposal.

Table 1 Types of null subjects in control infinitives

type	Landau	Traditional	Current Proposal
(60)a.	PRO ^l	PRO _{arb}	<i>t</i> _{John}
(60)b.	PRO ^{l+}	PRO _{arb}	<i>t</i> _{John}
(60)c.	PRO ^{l+}	PRO _{arb}	<i>pro</i> _{gen}

Thus, I argue for a movement approach to obligatory control, where I follow Landau and assume that obligatory control includes both exhaustive control and partial control.¹¹ First, let's convince ourselves that multiple sluicing is permitted in uncontroversial partial control environments:

(61) A certain traveller wanted to eat in a certain restaurant.

I forget which traveller in which restaurant.

(62) A certain traveller wanted to meet in a certain restaurant.

I forget which traveller in which restaurant.

Multiple sluicing is acceptable in both exhaustive control and partial control environments. Let's examine the results with *wh*-infinitivals:

(63) A certain traveller decided where to eat in a certain city.

I forget which traveller in which city.

(64) A certain traveller decided where to meet in a certain city.

I forget which traveller in which city.

Again, both are fine. But, consider the following:

(65) A certain dignitary knows how to introduce himself to a certain monarch.

¹¹ Partial control is argued to be problematic for a movement approach to control (Landau, 2003). See (Barrie, 2004; Hornstein, 2003) for proposals on how to adopt a movement approach to partial control. See also (Boeckx and Hornstein, 2004) for a suggestion that PC effects are found in constructions other than control, obviating the need for an explanation.

I forget which dignitary to which monarch.

(66) A certain dignitary knows how to introduce oneself to a certain monarch.

*I forget which dignitary to which monarch.

Here, we see clear evidence that the matrix subject is not the controller as the matrix subject is not a suitable referent for the anaphor *oneself*. It is also not the controller in a partial control construction (as Landau argued), since partial control is able to license multiply sluiced constructions and these constructions are not. We see the same effect in the following pairs of sentences, though the contrast is slightly less robust:

(67) A certain caterer knows where to pick up the cheese for a certain party.

I forget which caterer for which party.

(68) A certain connoisseur knows where to get good cheese in a certain city.

?*I forget which connoisseur in which city.

Thus, we see that exhaustive control and partial control constructions support multiple sluicing, but that constructions with generic control do not. This asymmetry is correctly predicted if we assume that exhaustive control and partial control involve movement (whether in standard control sentences or in *wh*-control) and the generic control does not involve movement, but rather a *pro_{gen}* as the subject of the embedded *wh*-infinitival. In sum, then, generic control involves *pro_{gen}*; there is no movement of matrix subject with generic control; and with obligatory control, the matrix subject moves up from embedded clause.

This proposal makes a strong prediction regarding constructions with multiple generic arguments.¹² If we assume that *pro_{gen}* is bound by a generic operator higher up in the same clause (Krifka *et al.*, 1995), then adjuncts that also contain a *pro_{gen}* are also bound by the same

¹² Thanks to Johan Roryck for asking the original question that incited this line of thought.

operator.¹³ Thus, we must understand the null subject of both clauses to be coreferential. This appears to be the case. Consider the following example.

(69) John figured out how pro_{gen}^1 to eat sushi without $pro_{gen}^{1/*2}$ using a fork.

Here, the eater of the sushi must also be the non-user of the fork. Furthermore, if the adjunct is adjoined to the matrix clause, then pro_{gen} cannot be bound by the generic operator in the embedded infinitival. In such a situation, we should not be able to understand pro_{gen} to be coreferential with the null subject of the *wh*-infinitival. Again, this prediction is borne out.

(70) John¹ figured out how pro_{gen}^2 to eat sushi without $e^{1/*2/*3}$ asking for help.

In (70), the empty subject in the adjunct must be coreferential with *John* and not with pro_{gen} in the *wh*-infinitival clause.

3.4 On The Right Edge of CP

The core proposal here is that the right edge of CP is structured as follows:

(71) FinP > WhP¹⁴

This simplifies the selectional restrictions of the matrix verb. Matrix verb always selects FinP with Fin⁰ [-Finite], regardless of whether there is an embedded *Wh*-element or not:

¹³ See Nunes (2004) for an analysis of control into adjuncts whereby the matrix subject has undergone sideward movement from the adjunct into the main clause. If we adopt this analysis of control into adjuncts, then the pro_{gen} in the infinitival complement in (69) has moved from the adjunct, thus accounting the obligatory coreference between the two null subjects in this example. Consequently, in (70), *John* undergoes sideward movement from the adjunct into the matrix clause, accounting for the coreference between the matrix subject and the subject of the adjunct. What is unclear under Nunes' approach is why sideward movement is not available to give rise to a reading in which the null subject in the adjunct clause is coreferential with the null subject in the *wh*-infinitival clause. Since the current analysis does not crucially depend on Nunes' framework, I leave this issue for future research.

¹⁴ I am agnostic here as to whether WhP is at the right edge of the CP domain or the left edge of the IP domain.

(72) Mary told John to wash the dishes.

(73) Mary told John when to wash the dishes.

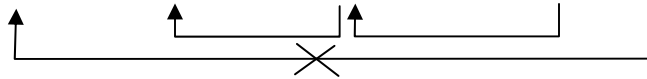
The embedded infinitival in the previous two sentences is headed by FinP in both cases. Now, for obligatory control into infinitival clauses, the subject raises from the embedded clause to the matrix clause, using [Spec., FinP] as an intermediate landing site. The proposed structure for (1), then, is as follows:

(74) John_i knows [_{FinP} *t_i* [_{WhP} when [_{IP} *t_i* to wash the dishes]]]



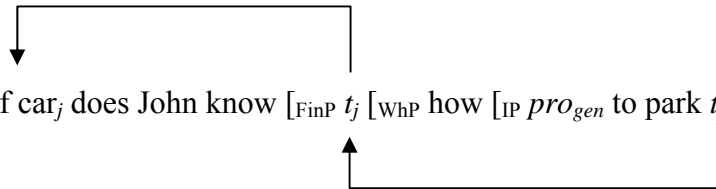
We now have an account of the asymmetry in *wh*-raising out of *wh*-infinitivals. *Wh*-raising out of *wh*-infinitivals with obligatory control is not a possibility, since the [Spec., FinP] escape hatch has already been used by the matrix subject.

(75) What_j does John_i know [_{FinP} *t_i* [_{WhP} when [_{IP} *t_i* wash *t_j*]]]



Wh-raising out of *wh*-infinitivals with generic control is possible, since the [Spec., FinP] escape hatch has not been used.

(76) What kind of car_j does John know [_{FinP} *t_j* [_{WhP} how [_{IP} *pro_{gen}* to park *t_j*]]]



The trace of *what kind of car* is now free to raise through the intermediate [Spec., FinP] on its way up to the matrix clause.¹⁵

¹⁵ Note that SpecFinP is used both for *wh*-phrases raising to the matrix clause, suggesting this position is an A-bar position, and for subject raising to matrix SpecTP, suggesting this position is an A-position. I suggest that in the

This analysis may seem problematic for sentences with overt prepositional complementizers and *wh*-infinitivals as shown in (77).

(77) Jason decided where for everyone to sit.

Given the analysis presented above, we would expect the prepositional complementizer *for* to precede the *wh*-phrase, contrary to fact. I suggest that *for* is actually the K^0 of a KP, which is part of the extended DP domain. Evidence for this claim comes from the fact that the sequence *for* DP behaves as a constituent in several regards. Consider the following data.

- (78) a. For John and for Mary to get along would be a miracle.
b. I would like very much for Susan and for Jack to wait outside.
c. For Fred – but not for Baxter – to lose the race would be surprising.

These data strongly suggest that the sequence *for* DP is a constituent. I suggest, then, that the embedded subject in an infinitival should be represented as in (79). The traditional analysis of *for* in Fin^0 does not capture the constituency facts.

(79) [_{KP} *for* [_{DP} subject]]

Thus, the word order facts (77) are easily accounted for if we assume that *for* is not a Fin^0 , but rather a K^0 that selects its subject directly.¹⁶

In sum, then, we conclude that FinP selects WhP , leaving WhP at the left edge of the CP domain. We also conclude that a *wh*-element can use [Spec. , FinP] as escape hatch, unless matrix subject has already used it.

reduced CP layer, Fin^0 is a syncretic head, capable of hosting both A and A-bar elements. I leave the precise implementation of this suggestion to future research. Thanks to Heidi Harley for originally pointing this problem out to me.

¹⁶ See also Kayne (1999; 2004) and Borsley (2001) for a discussion on the status of prepositional complementizers.

4. Conclusion

I have argued that a distinction must be maintained between obligatory control and generic control into *wh*-infinitivals based on various diagnostics for genericity and on two asymmetries for these two types of control in these constructions: extraction across weak islands and multiple sluicing. I argued for a movement-based analysis for obligatory control into *wh*-infinitivals in the tradition of Hornstein (1999; 2001), but not for generic control. Rather, for generic control I suggested that the embedded null subject is represented by *pro_{gen}* and that the matrix subject originates in the matrix clause. The generalizations that were accounted for were as follows. First, we offered an account of why *why* not allowed in embedded infinitivals (see (6)). Furthermore, we explained why *wh*-island ‘violations’ are permitted with generic control (see (28) - (30)), but not with obligatory control (see (31) - (33)). *Wh*-infinitivals are headed by a reduced CP consisting only of FinP > WhP. In obligatory control, the subject raises from embedded clause, using [Spec., FinP] as an escape hatch thereby eliminating the use of this position as an escape hatch for subsequent *wh*-movement out of embedded infinitival. In generic control, the subject does not raise from the embedded clause. Thus, [Spec., FinP] is free to be used as an escape hatch for *wh*-movement from the embedded clause to the matrix clause.

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