Intervention out of islands*

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1. Introduction

In this paper I examine the behavior of English multiple *wh*-questions in which a (phonologically) in-situ *wh*-phrase occurs inside an island, with regard to focus intervention effects (Beck 2006). I show that intervention happens when an intervener occurs *above* the island but not when it is *inside* the island. I argue that this is predicted if the in-situ *wh*-phrase undergoes *partial covert movement* to the edge of the island, followed by interpretation through focus-alternatives—without further movement between the edge of the island and the interrogative complementizer. I conclude by noting that these findings are inconsistent with current theories of interrogative syntax-semantics, where in-situ *wh*-phrases must either move to the complementizer or else stay in-situ and be interpreted without any movement at LF (leaving for future research the full resolution of this problem).

It is important to note at the outset that I will not be taking as my starting point the often-cited claim by Dayal (2002) that questions such as (1), where the lower *wh* is inside an adjunct island, may only have a single-pair reading (1a) but not a pair-list reading (1b). Dayal (2002) develops a theory of the readings of multiple *wh*-questions that is based on this judgment, crucially requiring covert movement of the lower *wh*-phrase to the question Complementizer in order to yield a pair-list reading. The single-pair reading is derived using a choice-function mechanism (Reinhart 1997).

(1) **Multiple question with island reportedly only allows single-pair reading:**
Which linguist will be offended if we invite *which* philosopher?

a. ✓ Single pair: Professor Smith will be offended if we invite Professor Black.

b. #/* Pair-list (Dayal 2002 judgment):
Professor Smith will be offended if we invite Professor Black, and
Professor King will be offended if we invite Professor Jones.

*I thank David Pesetsky, Martin Hackl, Danny Fox, Irene Heim, Norvin Richards, Michael Yoshitaka Erlewine, and audiences at NELS 44, the LSA 87, and MIT for helpful comments and discussion. All errors are my own.

The judgment in (1) has recently been contested by Cheng and Demirdache (2010), citing Chris Tancredi (p.c.), who offers the context in (2) with the judgment that the pair-list answer (1b) is felicitous here and the single-pair answer (1a) is deviant.

(2) **Context for pair-list reading of multiple question with island:**
Context: Each of two philosophers will be offended if we invite one of two linguists. What I want to know is: *Which* phil. will be offended if we invite *which* linguist?

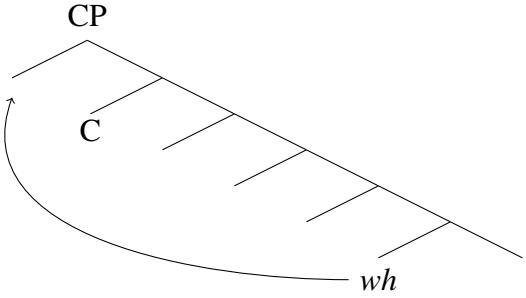
In what follows I posit Cheng and Demirdache's (2010) conclusion that pair-list readings are available across islands—in addition to the single-pair reading.[1] I examine the interaction of such questions with focus intervention effects (Beck 2006). Background on intervention effects is given in section 2. In section 3, I show a novel pattern of intervention effects in questions with islands which is unpredicted by current theories of the syntax and semantics of English questions. In section 4, I argue that this pattern motivates a revised theory of interrogative syntax-semantics and offer a sketch of what that theory might look like. I also discuss how existing theories could be modified to explain the novel facts.

2. Background: Focus intervention effects

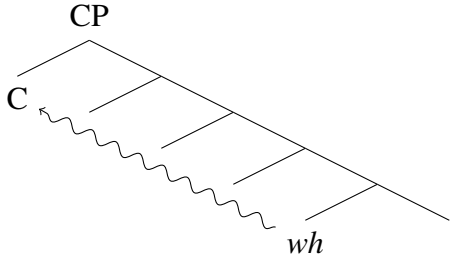
Recent theories of question syntax/semantics adopt two strategies for the interpretation of in-situ *wh*-phrases: Covert Movement (CM, Karttunen 1977, a.o), and Focus-Alternatives computation (FA, Hamblin 1973, Rooth 1985, 1992, a.o).[2] More recently, several theories have proposed the use of both CM and FA within the same language and even within the derivation of a single question (cf. Beck 2006 (building on ideas in Pesetsky 2000), Cable 2010, **?**). The availability of CM is traditionally assumed to be all-or-nothing: *wh* must move to C, or else stay in-situ and be interpreted without movement at LF. This is illustrated in the schemas in (3a-b). Here and throughout: straight arrows indicate movement, and curly arrows indicate areas of in-situ focus-alternative computation. These arrows are used here as a notational convenience only.

(3) **Two options for the interpretation of in-situ *wh*:**

a. Covert movement



b. Focus-alternatives



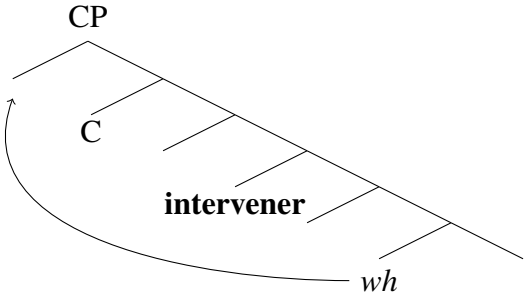
[1] I have also independently corroborated this judgments with English native speakers.

[2] Other approaches to the in-situ interpretation of *wh*-in-situ suffer from similar problems. For space reasons, I concentrate on FA in the text, but I will discuss these alternative approaches in section 4.3.

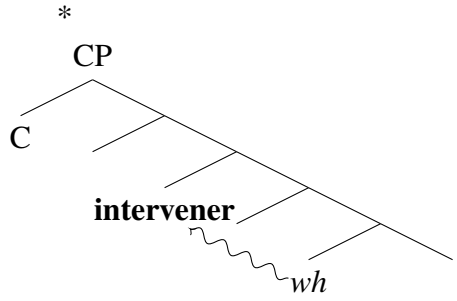
Beck (2006) argues that the FA strategy of interpreting *wh*-phrases is sensitive to focus intervention effects: if an intervener—an operator that uses focus-alternatives in its computation, such as **only** or negation—occurs between an in-situ *wh*-phrase projecting alternatives and the C that must interpret them, it will block the alternatives from reaching C, causing the derivation to crash, (4b). The CM strategy of interpreting *wh*-phrases is immune to focus intervention effects: intervention only affects *wh*-phrases that are interpreted through focus-alternatives but not traces of *wh*-movement, (4a).[3]

(4) **Only the Rooth-Hamblin alternatives method is sensitive to intervention:**

a. Covert movement:



b. Focus-alternatives:



Following this logic, below I use focus intervention effects as a diagnostic for whether or not covert *wh*-movement has occurred in the derivation of a question: the presence of an intervention effect, detectable as a loss of a pair-list reading of a question, will teach us that a (phonologically) in-situ *wh*-phrase must have been interpreted using FA, whereas the lack of an intervention effect will teach us that the *wh*-phrase must have covertly moved

[3]Pesetsky (2000) presents the pattern in (i): although it is generally possible to ask both superiority-obeying and superiority-violating multiple *wh*-questions with D-linked *wh*-phrases (ia-b), when an intervener (here: negation) occurs above the (phonologically) in-situ *wh*-phrase, we find that superiority-obeying questions are immune to intervention (ic), but superiority-violating questions become ungrammatical (id).

(i)	a.	*Which* student$_1$ read *which* book$_2$?	Superiority-obeying, no intervener
	b.	*Which* book$_2$ did *which* student$_1$ read?	Superiority-violating, no intervener
	c.	*Which* student$_1$ didn't read *which* book$_2$?	Superiority-obeying, intervener
	d.	* *Which* book$_2$ didn't *which* student$_1$ read?	Superiority-violating, intervener

It is argued that in general, Agree and Attract operations obey the 'Attract Closest' principle, which requires goals that are closer to a probe to be moved before lower goals can be attended to. Thus, in the derivation of a superiority-obeying questions, wh_2 is able to covertly move to C, after wh_1 has overtly moved. As a consequence, it is higher than any potential interveners at LF and we predict no intervention effects in such questions, (ic). In superiority-violating questions, on the other hand, it is necessary for the interrogative probe to leave wh_1 in-situ after Agree has occurred, so that wh_2 can be attracted over it. wh_1 is then interpreted using focus-alternatives, making it sensitive to possible intervention effects.

Note that an intervention effect only affects the pair-list reading of a question: Pesetsky (2000, p.60), citing Beck (p.c.) reports that at least for some speakers, questions in configurations as in (4b) do not become ungrammatical but rather lose their pair-list reading.

above the scope of the intervener. See also Kotek and Erlewine (to appear) and Erlewine and Kotek (2013) for other arguments using a similar logic.

3. In-situ *wh*, islands and intervention effects

With the background on intervention in mind, let us return again to example (1), repeated below as the slightly modified (5).[4] As we saw above, this question has two felicitous readings: a single-pair and a pair-list reading. Since in this section we are only interested in the presence or absence of a pair-list reading of a given question, I will restrict my attention only to this reading. All the examples below have felicitous single-pair readings.

(5) **Lower *wh* inside adjunct island: pair-list reading is available**
Context: The linguists at the conference are very picky about attending the conference dinner. However, each of them adores one philosopher and will certainly attend the dinner if that philosopher is invited. What I want to know is:
Q: *Which* linguist will come [if we invite *which* philosopher]?
A: Chomsky will come if we invite Quine,
Kayne will come if we invite Lewis,
Labov will come if we invite Russell, ...

Similarly, when the in-situ *wh*-phrase is inside a Complex NP (CNP) island, the resulting question can have both a single-pair reading and a pair-list reading.

(6) **Lower *wh* inside CNP island: pair-list reading is available**
Context: The linguists at the conference are very suspicious of rumors. However, each of them believed one of the rumors going around that we invited a particular famous philosopher to the conference party. What I want to know is:
Q: *Which* linguist believed the rumor [that we invited *which* philosopher]?
A: Chomsky believed the rumor that we invited Quine,
Kayne believed the rumor that we invited Lewis,
Labov believed the rumor that we invited Russell, ...

We note that (5) and (6) both have felicitous pair-list readings, if a relevant context is available (see (2) for such a context for an example like (5)). Next, we introduce interveners into these questions, as in (7-8) below. We find that an intervention effect, diagnosed by the disappearance of the pair-list reading, occurs when an intervener (here: *only* or negation, in bold) is placed above the island, but not when it is inside the island.[5]

[4] In this example, I have replaced the predicate *be offended* with *come*, since native speakers report that it is easier to judge the question with the latter predicate than with the former. I use an *if*-adjunct in the text, but the facts remain the same if a *because*-adjunct is used instead.

[5] The judgments in this section were all confirmed by more than 20 native speakers of American English.

(7) **Adjunct island: intervention *above* but not *inside* island**

a. Context: The linguists at the conference don't really want to attend the conference dinner. However, each of them adores one philosopher and has said that they will come just in case that phil. is invited. What I want to know is:
Q: *Which* linguist will **only** come [if we invite *which* philosopher]?
* A: Chomsky will only come if we invite Quine,
Kayne will only come if we invite Lewis,
Labov will only come if we invite Russell, ...

b. Context: The linguists at the conference are looking forward to the conference dinner. However, each of them dislikes all but one philosopher and will attend the dinner just in case that phil. alone is invited. What I want to know is:
Q: *Which* linguist will come [if we **only** invite *which* philosopher]?
✓ A: Chomsky will come if we only invite Quine,
Kayne will come if we only invite Lewis,
Labov will come if we only invite Russell, ...

(8) **CNP island: intervention *above* but not *inside* island**

a. Context: The linguists at the conference are very gullible and believe lots of rumors. However, each of them is suspicious of one rumor about a phil. that we supposedly invited to the conference party. What I want to know is:
Q: *Which* linguist **didn't** believe the rumor [that we invited *which* phil.]?
* A: Chomsky didn't believe the rumor that we invited Quine,
Kayne didn't believe the rumor that we invited Lewis,
Labov didn't believe the rumor that we invited Russell, ...

b. Context: The linguists at the conference are very suspicious of rumors. However, each of them believed the rumor that we failed to invite one philosopher to the conference party. What I want to know is:
Q: *Which* linguist believed the rumor [that we **didn't** invite *which* phil.]?
✓ A: Chomsky believed the rumor that we didn't invite Quine,
Kayne believed the rumor that we didn't invite Lewis,
Labov believed the rumor that we didn't invite Russell, ...

The structural description of the configuration yielding intervention effects can be summarized as in (9):

(9) **Generalization about the interaction of intervention effects and islands**
Intervention occurs when an intervener is found *above* an island, but not when an intervener is found *inside* an island.

Some speakers report similar contrasts in questions with a lower *wh* that is in the complement clause of a non-bridge verb, such as *dream* or *shout*. Such verbs have been argued to be islands for extraction (**??**, a.o.), and therefore we correctly predict that interveners that occur above the island (10a) but not ones that occur inside it (10b) should cause an intervention effect, diagnosed by the lack a pair-list reading in (10a).

(10) **Non-bridge verbs are also an island for extraction:**[6]

a. ^{*PL} *Which* linguist **didn't** shout [that we invited *which* philosopher]?

b. *Which* linguist shouted [that we **didn't** invite *which* philosopher]?

Furthermore, configurations with three *wh*-phrases similar to those studies by Cheng and Demirdache (2010), where two *wh*-phrases are inside an island and one is outside, again exhibit intervention effects, diagnosed by the loss of the pair-list reading, when an intervener occurs above the island (11a) but not when it is inside it (11b). This is again predicted by the generalization in (9) and is consistent with the behavior of multiple questions that we have seen in (7), (8) and (10).

(11) **Questions with three *wh* exhibit intervention *above* but not *inside* the island:**

a. ^{*PL} *Which* ling. **didn't** believe the rumor [that *which* student invited *which* phil.]?

b. *Which* ling. believed the rumor [that *which* student **didn't** invite *which* phil.]?

Note that if two *wh*-phrases occur outside the island with the intervener and one is inside the island, we predict a pair-list reading with a third triplet held constant. This prediction appears to be borne out:[7]

(12) **Questions with three *wh*: pair-list reading for *wh*s above the island**
Which linguist **didn't** tell *which* philosopher about the rumor [that *which* student had won a dissertation prize]?

4. Intervention Effects and the syntax-semantics of in-situ *wh*-phrases

The finding that an intervention effect occurs in questions in which the lower *wh*-phrase is inside an island if and only if an intervener is placed *above* the island but not *inside* it (as long as the intervener c-commands the *wh*-phrase within the island) has several important implications for theories of interrogative syntax/semantics. Below I discuss several implications regarding the syntax/semantics of multiple questions.

4.1 Interrogative syntax-semantics and partial movement

Recall that current theories of interrogative syntax/semantics assume that a *wh*-phrase must either covertly move to the C which assigns it a semantics, or else stay in-situ and use focus-alternatives between its base position and C. The examples in section 3 teach us that this architecture of interrogative syntax/semantics cannot be maintained.

The intervention effect occurring above the island in the (a) examples in (7)-(8), (10)-(11) shows that focus-alternatives were computed above the island. The fact that the (b)

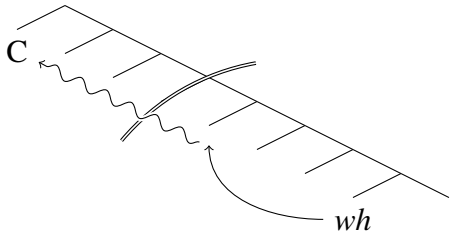
[6]The judgments I report here are different than judgments for very similar examples found in Dayal (2002): Dayal reports judgments provided by an LI anonymous reviewer, according to which both (10a) and (10b) are ungrammatical. I have been unable to find speakers who confirm Dayal's reported judgments. Instead, speakers consistently report the judgments that I illustrate here.

[7]I thank David Pesetsky for bringing this point to my attention.

examples in (7)-(8), (10)-(11) are grammatical shows that it cannot be the case that alternatives were computed all the way from the *wh*-phrase's base-generated position. If that were the case, we would expect to find an intervention effect in the (b) examples of (7)-(8), (10)-(11), contrary to fact.

To account for the pattern of intervention effects, it must be the case that the *wh* covertly moves at least above the intervener inside the island in the (b) examples of (7)-(8), (10)-(11). That movement could not have targeted the matrix C, since we observe an intervention effect in the (a) examples of (7)-(8), (10)-(11). In order to predict that intervention happens when an intervener occurs above the island but not when it is inside the island, we require a derivation in which *partial* movement of the *wh* takes place, followed by a second step in which Rooth-Hamblin alternatives are projected from *wh* to C. This type of derivation is schematized in (12):

(13)



Following Ross (1967), Chomsky (1977), and much subsequent work, we know that we cannot overtly extract a *wh*-phrase from inside an island in English (cf. Bošković and Franks (2000), Polinsky and Potsdam (2013) for arguments regarding the sensitivity of covert movement to the presence of islands). Consequently, I propose that the position targeted by the movement of *wh* is the non-interrogative Spec,CP *inside* the island.

The partial movement step I propose here is similar to the proposal in Cheng and Demirdache (2010), who provide evidence for such a derivation from (a) readings of questions with three *wh*-phrases where some *wh*-phrases are "trapped" inside an island and (b) the fact that such movement is overt in multiple *wh*movement languages such as Romanian.[8]

The proposal in (12), then, is overtly exemplified in multiple *wh*-questions in Romanian: a *wh*-phrase cannot move outside an island, (13a), and it also cannot stay in its base-generated position, (13b).Instead the *wh*-phrase moves inside the island, to its edge (13c).

(14) **Overt multiple fronting in Romanian questions** (Ratiu 2005, 2007)

a. ***Wh* can't move out of the island:**

* [$_{CP1}$ cine$_i$ ce$_k$ [$_{IP1}$ t$_i$ o cunoaşte pe studenta
who what CL.3.FS know PREP student

[$_{CP2}$ căreia i s-a dedicat t$_k$ ieri?
which.DAT CL.DAT.3SG EXPL.AUX dedicated yesterday

[8]Cheng and Demirdache (2010) propose a choice-function semantics for the interpretation of the questions they consider, which I will not adopt here. See section 4.3 for a brief discussion.

b. ***Wh* can't stay in-situ:**

* [$_{CP1}$ cine$_i$ [$_{IP1}$ t$_i$ o cunoaşte pe studenta
who CL.3.FS know PREP student

[$_{CP2}$ căreia i s-a dedicat ce$_k$ ieri?
which.DAT CL.DAT.3SG EXPL.AUX dedicated what yesterday

c. ***Wh* moves to the edge of the island:**

✓[$_{CP1}$ cine$_i$ [$_{IP1}$ t$_i$ o cunoaşte pe studenta
who CL.3.FS know PREP student

[$_{CP2}$ căreia ce$_k$ i s-a dedicat t$_k$ ieri?
which.DAT what CL.DAT.3SG EXPL.AUX dedicated yesterday

'Who knows the student to whom was dedicated what yesterday?'[9]

The configuration in (12) is superficially similar to overt partial *wh*-movement in German, e.g. (14a) (the data here are from van Riemsdijk (1982), as cited by Dayal (2000)). (14b) shows a parallel question with *wh*-movement to the matrix. The sentence in (14c) is reported to be and appropriate answer to both questions. In the partial movement question, we appear to have a *wh*-phrase which moves to an embedded Spec,CP position, with a *wh*-expletive occurring in the matrix.

(15) **Overt partial movement in German:**

a. Mit wem glaubt Karl dass Maria gesprochen hat?
with whom thinks Karl that Maria spoken has

b. Was glaubt Karl mit wem Maria gesprochen hat?
what thinks Karl with whom Maria spoken has
'Who does Karl think that Maria has spoken to?'

c. Karl glaubt dass Maria mit Hans gesprochen hat.
Karl thinks that Maria with Hans spoken has
'Karl thinks that Maria has spoken to Hans.'

As in the English intervention data we have observed above, Rizzi (1992) has noted that when negation is placed above the landing site of the *wh*, the question becomes ungrammatical–that is, the *wh*-phrase cannot take matrix scope.

(16) **Ungrammaticality with negation in overt partial movement in German:**

* Was glaubst du **nicht** mit wem Maria gesprochen hat?
what think you not with whom Maria spoken has

'Who don't you think Maria has spoken to?'

[9]Ratiu notes that this question only has a single-pair reading and not a pair-list reading.

The analysis I propose is consistent with the *direct dependency* approach to partial movement in German (e.g. McDaniel 1989) and the more recent alternative "NP-shell" approach (e.g. Stepanov and Stateva 2006, Schippers 2008), where the embedded *wh*-phrase in such constructions takes scope in the matrix clause.[10]

The behavior of multiple *wh*-questions with regard to intervention effects thus provides support for a theory that contains both movement and focus-alternative computation within the derivation of a single multiple *wh*-question (cf. Pesetsky 2000, Beck 2006 for superiority; Cable 2010, Kotek and Erlewine to appear for pied piping). However, note that the two mechanisms are used here in a novel order of operations: first, movement occurs inside the island. Then, the *wh*-phrase projects Rooth-Hamblin alternatives out of the islands, which are interpreted by C.[11,12]

4.2 Intervention effects and the pair-list reading

As we have seen, the intervention effects observed in section 3 were all diagnosed by the unavailability of a pair-list reading in the question. The single-pair reading, on the other hand, remained available to all of the speakers that I have consulted. This finding has been reported in footnotes in previous work (Beck 2006, Pesetsky 2000, cf. also Beck 1996), but it has never received much attention beyond that. However, I believe that this phenomenon should inform our investigation of intervention effects.

[10] An influential analysis of partial movement in German and other languages is the *indirect dependency* theory. Under this theory, the *wh*-phrase pronounced at the embedded clause does not take scope in the matrix clause. Instead, such questions involve CP coordination where the *wh*-expletive *what* established an indirect link with the *wh*-phrase in the embedded clause. Details of the analysis have varied over time. In some versions of the theory (see Herburger 1994, Dayal 2000, Horvath 2000, Mahajan 2000, Fanselow and Mahajan 2000, Felser 2001, a.o., for details). Importantly, all these theories share the property that the *wh*-expletive begins its life as a low A-argument inside the matrix clause, and that it establishes a link not only with the *wh*-phrase in the embedded clause but with the whole clause.

(i) $[_{CP}\ [_{CP_1}\ what_i\ [_{IP}$ does Karl think $t_i]\ [_{CP_2}$ with $whom_j\ [_{IP}$ has Maria spoken $t_j]\ ]]]$

At the moment, I am unsure where this theory can be extended to cover the English data. One reason for this is that the *wh*-expletive in German partial movement questions is generated as the object of the matrix predicate. It is not immediately clear where such a (covert) expletive might be generated in the English questions I am considering here. Furthermore, Dayal (2000) shows that German partial movement questions do not license parasitic gaps, while full movement questions do. English questions seem to license such gaps, although the data are quite complicated because, as Nissenbaum (2000) shows, in order to license a parasitic gap on the in-situ *wh*, we must also have a higher parasitic gap for the moved *wh*:

(ii) *Which* linguist$_1$ will come [if we invite *which* philosopher$_2$] [without first talking to pg_1 about inviting pg_2]?

[11] Note that the island itself cannot be attracted to C (cf. Nishigauchi's (1990) proposal for Japanese), as this would incorrectly predict no intervention effects in the (a) examples of (7)-(8), (10)-(11) within the Beck (2006) theory of intervention.

[12] Following Cable's (2010) analysis of pied-piping, one possible reason for this prohibition on the movement of an island is that Q cannot merge with CP because of Cable's *QP Intervention condition* which does not allow *wh* and Q to be separated by functional material in the clause.

Judgments about intervention effects are notoriously difficult, even in controlled situations. They become even more complicated when the single-pair reading may interfere with the judgment. To avoid this complication, in this paper I have presented questions in contexts that support a pair-list reading of the question and illustrate possible pair-list answers to the questions. These steps are designed to ensure that speakers are not distracted by the single-pair reading of the question when providing a judgment as to the grammaticality and felicity of the question.

Here it is important to note that the single-pair reading that appears to remain av ailable is not what I will call an *accidental* single-pair—that is, a situation in which it is possible to have several pairs in the answer set but it just happens to be the case that the answer applies to just one pair. Instead, it appears to be a reading where the context or general knowledge guarantee that there is just one pair, and the question probes the identity of that pair. In that sense, it also does not appear to be a *functional* reading, where one can define a function to identify the relationship between the members of the pair.

(17) **A functional reading of a question:**

a. Q: *Who* does every boy love?
A: His mother.

b. Q: *Which* boy likes *which* girl?
A: Each boy likes the girl that sits next to him on the bus.

4.3 Alternative approaches to the semantics of the pair-list reading

Given that intervention effects affect the pair-list reading of the question (and perhaps also the *accidental* single-pair), it becomes necessary to propose an interrogative semantics that derives the pair-list reading from a mechanism that is able to interact with intervention effects and is furthermore able to derive a single-pair reading from a structure that is not sensitive to intervention. Under current theories of intervention, this would require an analysis of pair-list readings that utilizes focus-alternatives.[13] To account for the interaction of multiple questions with islands and interveners we have seen above, we require a theory that also allows partial covert movement to positions other than the interrogative C, when an in-situ *wh* is trapped inside an island, as I have sketched in (12).

If that is the case, any theory that can only derive pair-list readings when all *wh*-phrases have moved to C is unable to predict an interaction with intervention effects. This makes the seminal proposal by Karttunen (1977) as well as more recent variants of this proposal such as those in Fox (2012) and Nicolae (2013) untenable without some substantial modification.

[13]This would be consistent with Beck's (2006) theory, which I adopt here, and I believe that it is also consistent with Mayr's (to appear) theory of intervention effects. It is unclear how to account for the pair-list observation under Grohmann's (2006) theory, which locates the ungrammaticality of intervention effects in the position of the intervener in the question. It is also not clear how to predict this fact from Tomioka's (2007) theory, which attributes the ungrammaticality to conflicting prosodic demands in the question. However, I note that Tomioka does not extend his theory to *wh*-movement languages. I leave for further investigation the question whether only the pair-list reading is affected in *wh*-in-situ languages.

Two alternative theories have been proposed to derive pair-list readings of multiple questions without obligatory movement to C. One such approach is proposed in Cheng and Demirdache (2010), who use choice-functions to derive pair-list readings of multiple questions with partial *wh*-movement or no movement to C. However, their theory cannot predict the pattern of intervention that we have seen here, since focus-alternatives are not used in the derivation of a question in this theory. Current theories of intervention effects do not predict sensitivity of choice-function mechanisms to the presence of an intervener. I leave open the question of whether such an account can be developed.

A second approach to the derivation of pair-list readings has been proposed in Cable (2010) for German, building on a suggestion by Pesetsky (2000). Pesetsky argues that the derivation of German multiple questions involves a single instance of (overt) *wh*-movement, with additional *wh*-phrases remaining in-situ. Adopting this view (and following work by Dayal 1996), Cable (2010) suggests that natural languages possess a number of distinct complex interrogative heads that are able to assign a pair-list semantics to multiple questions with various syntactic structures. In particular, Cable proposes an interrogative head in German that is able to interpret structures with one moved *wh*-phrase and one in-situ *wh*-phrase.[14] This head is argued to be used in certain superiority-violating constructions in English as well.

One interpretation of the data presented in this paper is that the same interrogative head is also used in certain superiority-obeying questions in English, when one or more *wh*-phrases are trapped in an island. This would be a welcome outcome, as Cable (2010) integrates his approach to question semantics with Beck's (2006) theory of intervention effects, which might permit us to explain the intervention effect facts that we have seen above.

However, there is an obstacle that prevents us from adopting Cable's (2010) theory without alteration. Cable proposes a theory whose aim is to explain the possibility and extent of 'pied-piping' in *wh*-movement languages in a principled way. In his theory, there is no *wh*-movement at all but instead only QP-movement: in *wh*-movement languages, a Q-morpheme takes as complement an XP containing a *wh*-phrase and some additional material, yielding a QP. The interrogative probe targets not *wh* but Q, triggering QP-movement of the entire QP, including material inside QP beside the *wh*, explaining the phenomenon of pied-piping. Intervention effects only affect *wh*-words that have not been merged with a Q-morpheme: such *wh*-words are interpreted in-situ using one of the special interrogative heads mentioned above using focus-alternatives, and they are hence sensitive to the presence of c-commanding focus-sensitive interveners.

Unfortunately, this theory falsely predicts that *wh*-words must stay in their base positions or else move to C. An important component of Cable's theory is the claim that a QP that has not moved to C at LF is interpreted as a *wh*-indefinite, thereby explaining the distribution of *wh*-words and *wh*-indefinites in a principled fashion. However, if only QP-movement exists, and furthermore *wh*-words inside QPs are interpreted as *wh*-indefinites when they have not successfully moved to the interrogative head, we cannot predict partial

[14] Such a head could be generalized so that it could deal with additional in-situ *wh*-phrases, for example in questions with three *wh*-phrases.

movement of the *wh*-word (or phrase) inside an island. Thus, in order to use Cable's theory to explain the present facts, it must be amended in some way.

5. Conclusion

The behavior of superiority-obeying multiple *wh*-questions in which the lower *wh* is trapped inside an island with regard to focus intervention effects leads to the conclusion that a new theory of the syntax and semantics of multiple questions is required. In particular, we require a syntax that allows partial covert movement of a *wh*-phrase followed by focus-alternative computation between the landing site of *wh* and C, and a semantics for C that can combine focus-alternatives and moved *wh*-phrases to derive a pair-list reading, without requiring movement of all the *wh*-phrases to C. I provided a sketch of what that theory might look like.

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