English *wh*-slifting as an embedded root phenomenon

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Abstract
This paper analyzes English "*wh*-slifting" sentences (for example, *How old is she do you think*). We argue that these sentences are neither parentheticals, nor akin to German and Hindi scope-marking constructions nor are they derived by simple clausal pied piping as an alternative to *wh*-extraction. Instead, they are derived by clausal pied-piping, but where the pied-piping is a consequence of the fact that the embedded clause is an embedded root phenomenon: an embedded direct question, a property formally encoded by a Q-force feature in the C-domain. We show, in addition, that several properties of *wh*-slifting that distinguish it from scope-marking constructions and Basque-type clausal pied-piping follow from an approach to the slifted clause as an embedded root phenomenon.

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1. Introduction

This paper presents an analysis of sentences like (1) and (2), discussed parenthetically in some recent literature, but not analysed extensively in any published work as far as we are aware (Kayne 2000, Lahiri 2002, Reis 2002, Horvath 2007).

(1) [How old is she] did she say?
(2) [Where did John go] do you think?

We will refer to this construction as *wh-slifting* (in the spirit of Ross 1973). We make two main claims about such sentences. First, based on island and reconstruction effects, we argue that (1) and (2) are not parenthetical constructions, but are rather *bona fide* cases of clausal movement, by which the bracketed material is raised to its surface position from a first-merged position below the matrix V. Second, we argue that sentences such as (1) and (2) are not covert partial *wh*-movement constructions (pace Horvath 1998, Kayne 2000 and Lahiri 2002), nor directly comparable to finite clause pied-piping in Basque. We instead show that a range of properties of such sentences, including presuppositions of the raised clause, scope taking of *how many* phrases and sensitivity to sentential negation all fall out of assumptions independently needed to express the root clause properties of the preposed clause in such sentences.

The discussion is organised as follows. In section 2 of this paper, we present some facts supporting a movement approach to the clause containing the *wh*-phrase. Section 3 weighs naïve clausal pied-piping and indirect *wh*-dependency analyses of sentences such as (1) and (2), and argues that neither approach is empirically adequate. Section 4 develops an account of properties of (1) and (2) as a kind of embedded root phenomenon.

2. Parenthetical vs. movement constructions

We first take up the question of whether sentences like (1) and (2) are parenthetical constructions or instead involve movement of the clause containing the *wh*-phrase. Three pieces of evidence suggest that sentences like (1) and (2) are true cases of clausal movement.

2.1. Islands

First, these structures give rise to island effects: (3) and (4) show that clausal movement is sensitive to *wh*-islands and complex DP-islands respectively.

(3) *Wh*-island effects:
  a. [How old is she] do you think he said <how old is she>?
  b. *[How old is she] do you wonder whether he said <how old is she>?
(4) Complex DP island effects:
  a. ?[How old is she] did John claim she said <how old is she>?
  b. *[How old is she] did John report the claim that she said <how old is she>?

Assuming that subjacency is a condition on movement, the ungrammaticality of the (b)-examples in (3) and (4) suggest that the initial phrase in square brackets has moved out of the island (Chomsky 1981).

2.2. Reconstruction

Second, backwards binding is (marginally for some speakers) available, as in (5) and (6). We take this as evidence of reconstruction of the lower clause to a position low in the matrix clause, since in order for there to be reconstruction, *John* or *they* must bind copies of the anaphors. Under the parenthetical account, one would not expect to find reconstruction.

(5) [[Which picture of himself$_i$] was downloaded] did John$_i$ say <which picture …>?
(6) [What did each other$_i$'s brothers buy <what>] do they$_i$ believe <what did…>?

Backwards quantifier binding is also marginally available. Sentences such as (7) are degraded roughly on a par with long *wh*-movement cases such as (8). However, anaphors permit the bound variable interpretation under reconstruction, at least marginally.

(7) ?[[Which picture of himself$_i$] was downloaded] did everyone$_i$ say <which picture …>?
(8) ?[[Which picture of himself$_i$] did everyone$_i$ say was downloaded <which picture …>?

In order for the anaphor to be bound by the universal quantifier in (7), the anaphor must have a reconstruction site, c-commanded by the quantifier. This is not possible under the parenthetical account.

2.3. Manner of speaking verbs

Third, there is a selectional relation between the higher verb and the moved clause. In particular, sentences such as (1) and (2) are lexically restricted in a way similar to long *wh*-movement in that speakers find these sentences best with bridge verbs such as *think*, *say*, and *believe* as the matrix V. Verbs of manner of saying like *shout* and *whisper,* which are poor in long *wh*-movement, are similarly poor in clausal pied-pipings.

(9) [How old is she] did you *whisper/*shout/say? (*wh*-slifting)
(10) [How old] did you *whisper/*shout/say she is? (long *wh*-movement)

We will return shortly to the question of how English *wh*-slifting is related to long *wh*-movement.[1]

[1] Consistent with the above evidence is the fact that sentences like (1) and (2) display crossover effects. Note that in (i), the *wh*-phrase cannot bind the pronoun.

(i) [*Who$_i$ is Mary dating <who>] does his$_i$ mother think < who$_i$ is Mary dating <<u>who</u>>>?

This is reminiscent of standard weak crossover (WCO) cases, as illustrated in (ii) and (iii).

(ii) *Who$_i$ does his$_i$ mother love <who>$_i$?
(iii) Who$_i$ <who>$_i$ loves his$_i$ mother?

In view of these data, we assume that sentences such as (1) and (2) are true cases of clausal movement. From this perspective, these sentences are reminiscent of "slifting" ("sentence lifting") sentences in which a declarative clause is selected by a verb in a parenthetical clause to its right, as in (11)-(13) (Jackendoff 1972, Ross 1973).

(11) Max is a Martian, I believe. (Ross 1973:131)
(12) There are 11 planets, Max thinks (Ross 1973:138)
(13) There was something funny about Venus, it seems to me. (Ross 1973:138)

Based on some of the diagnostics used above, Ross (1973) argues that in such sentences, the first (leftmost) sentence is not generated in its surface position, but rather as a complement of the matrix verb in the sentence to its right. If Ross' movement analysis of slifting is correct, such sentences might plausibly involve movement to a left-peripheral topic or evidentiality position (Rooryck 2001, Simons 2007). Nevertheless, the fact that subject auxiliary inversion (SAI) is triggered in the upper clause in (1) and (2) and the island and crossover facts discussed above suggest that sentences such as (1) and (2), are in fact more akin to *wh*-movement than topicalization.

Similarly, declarative slifting has the property that a negative slifted clause can co-occur with negation in the higher clause, which doesn't negate the proposition in the slifted clause (Ross 1973).

(14) They're not coming tonight, I don't think. ('I think they're not coming tonight.')

Spreading of negation in this way is completely impossible with *wh*-slifting sentences:

(15) *Why aren't they coming tonight, don't you think?

In the remaining discussion, we will therefore assume that (1) and (2) constitute a partially independent phenomenon from the declarative slifting examples as in (11)-(13). We return shortly to the behaviour of negation in *wh*-slifting sentences.

Recently Grimshaw (2011) has argued for an account of slifting where it is not derived by clausal movement. An argument against the movement analysis (which is discussed by Ross (1973) and recognized as a problem) is that the supposed main clause can appear inside the slifted clause as a parenthetical, by the look of it.

(16) The children (she said) will (she said) come back (she said) in two days time.

That is, in (ii), the violation appears to be produced by the fact that *who* in the left periphery of the raised clause locally binds both its lower copy and *his* in the stranded matrix (surface right) clause. For WCO to arise, *who*, therefore, must have moved from the position right of the pronoun *his*.

A problem with using these facts as an argument for movement is that it requires excluding an alternative account of the deviance of (i) namely that *who* does not c-command *his*. We know of no way of demonstrating this independent of movement diagnostics. The deviance of (i), is nevertheless consistent with a movement analysis.

Wh-slifting is more restricted in this regard. The only well-formed alternative to final position of the main clause is immediately following the initial *wh*-phrase.

(17) When (did he say) will (??did she say) the children (??did she say) come back?

We will come back to the question of how the one well-formed 'parenthetical' word order can be derived.

3. Scope marking and clausal pied piping approaches

In this section we consider and ultimately reject two possible analyses of sentences such as (1) and (2) that have been proposed for similar phenomena cross-linguistically. One possibility that we consider is that sentences such as (1) and (2) are cases of "true" clausal pied piping of the Basque type as analysed by Ortiz de Urbina (1989, 1993) and Arregi (2003). (See also Etxepare 1997.) In Basque, the pied-piped clause appears in the same (apparently) left-peripheral position—left adjacent to the main verb—which non-pied-piping *wh*-phrases also occupy. Examples of clausal pied piping and long *wh*-movement in Basque are provided in (18) and (19), respectively.

(18) [Se idatzi rabela Jon-ek] pentzate su?
[what written has Jon-ERG] you-think
'What do you think Jon wrote?' (Clausal pied piping: Arregi 2003)

(19) Se pentzate su [t idatzi rabela Jon-ek]?
what you-think [written has Jon-ERG]
'What do you think Jon wrote?' (long *wh*-movement: Arregi 2003)

Ortiz de Urbina (1989, 1993) and Arregi (2003) argue that clausal pied-piping is derived from the same underlying structure that feeds long *wh*-movement and that the two constructions have the same LFs. Ortiz de Urbina (1993) proposes that the difference between the two structures is feature percolation, that is, that in clausal pied-piping contexts, the relevant *wh*-feature raises out of the *wh*-item to a dominating node—CP—with the consequence that the whole CP raises. Below we present evidence against a similar kind of approach to the relationship between *wh*-slifting sentences and long *wh*-movement sentences in English.

A second possibility proposed by Kayne (2000:277, n.107) and Lahiri (2002), is that sentences such as (1) and (2) are akin to scope marking constructions, which have been discussed in a now considerable body of literature on languages including German, Hindi, Hungarian, Passamaquody, Romani, and Warlpiri (Herburger 1994, Beck 1996, Lahiri 2002, Dayal 2000, McDaniel 1989, Horvath 1997, 2000, Bruening 2004, Legate 2011). In such constructions, the scope of a *wh*-word originating in an embedded clause seems to correspond to the surface position of a second *wh*-phrase in the higher clause — *kyaa* in the Hindi example in (20) and *was* in the German example in (21).

(20) Raam kyaa soctaa hai [ki Ramaa-ne kisko dekha].
Raam what thinks [that Ramaa.ERG who saw]
'Who does Raam think that Ramaa saw?'
(Hindi: Dayal 2000)

(21) Was glaubt [Hans [[mit wem] [Jakob jetzt spricht]]]
wh think Hans with whom Jakob now talking
'With whom does Hans think that Jakob is now talking?'
(German: McDaniel (1989))

Recent literature on such sentences has pursued one of two main types of approaches. One, the *direct dependency* approach takes the higher of the two *wh*-items to be a non-scope-bearing expletive element; at LF, the lower of the two *wh*-items raises to the matrix CP to take matrix scope. A consequence of this approach is that long distance *wh*-questions and scope marking constructions are predicted to have identical LFs and behave similarly in terms of constraints on movement (Beck and Berman 2000).

A second type of account, the *indirect dependency* approach, takes the higher *wh*-word not to be an expletive element but rather a *wh*-quantifier over propositions—the set of possible answers to the matrix question—restricted by the embedded *wh*-question. On this approach, a sentence like (21) will mean something like 'What propositions p, such that p is a possible answer to ''With whom is Jakob talking now?" are such that Hans thinks that p.'[2] The syntactic relationship between the higher *wh*-phrase and the embedded question is characterized in different ways by different proponents of this analysis. Herburger (1994) and Bruening (2004) propose that the higher *wh*-phrase is merged as a constituent with the lower CP, taking the lower CP as its sister. Horvath (2000) and Lahiri (2002), on the other hand, propose that the lower CP adjoins to the higher *wh*-phrase at LF where it provides the restriction for the higher *wh*-quantifier.

In a footnote discussion, Kayne (2000: 276-7, n.107) proposes that English sentences like (1) and (2) have a derivation similar to that for Hindi/German scope-marking sentences on some indirect dependency approaches.[3] Specifically, Kayne proposes that in such sentences, the sister of the matrix verb is a constituent consisting of a null operator and the lower CP, as in (22). The operator will be a silent version of German *was* and Hindi *kyaa* in the above examples.

(22) V [Op [CP]]

Kayne proposes that the null *wh*-operator in (22) moves to the left periphery of the matrix clause. At this point in the derivation the structure will resemble the surface orders in Hindi and German partial *wh*-movement sentences as in (20) and (21), on approaches that take the two *wh*-phrases to be generated as a constituent (Herburger 1994, Bruening 2004). The English construction in (1) and (2) will however differ from

[2] This is also the meaning of the English counterpart (i).
(i) What does Hans think? Who is Jakob talking with now?
In German and Hindi the construction is clearly a single complex sentence, though.
[3] Lahiri (2002) also suggests that these sentences might be analysed as scope-marking sentences but does not spell out a proposal.

"overt" scope marking languages like German and Hindi in two key ways: first, the higher *wh*-operator will be silent in English but not German/Hindi; and second the English sentences will involve an additional overt movement step that will raise the lower clause to the left periphery of the matrix clause. This derivation is illustrated in (23).

(23) [CP [Op[…V [<Op> [<CP>]]]]]

Superficially, English sentences such as (1) and (2) appear more closely akin to Basque sentences such as (18) in that they involve overt clausal movement to the left periphery of the main clause and have no overt additional *wh*-word. In the following discussion, we review five sets of facts about *wh*-slifting sentences in English, which suggest that neither a naive clausal pied-piping approach nor a scope marking approach is empirically adequate.

3.1 Presuppositions of the raised clause

A first problem for a pure clausal pied-piping account concerns presuppositions of the raised clause. Herburger (1994) notes that
(20) presupposes that *Raamaa* actually saw someone, unlike in counterpart long *wh*-movement questions. English behaves similarly. Consider, for example a context in which (24) has just been uttered.

(24) John didn't go anywhere, but Mary thinks that he went somewhere.

In this context, (25) (with stress on *think*) but not (26) (with any stress pattern) will be a felicitous response.

(25) Where does she think John went?
(26) #[Where did John go] does she think?

In contrast, Arregi reports that the Basque example in (27) does not presuppose that Jon actually killed someone.

(27) [$_{CP}$ Sein il banela Jonek]$_i$ pentzaten dau Miren-ek t_i?
[$_{CP}$ who.ABS killed had Jon-ERG]$_i$ thinks aux Miren-ERG t_i
'Who does Miren think Jon killed?' (Arregi 2003)

In terms of presuppositions of the raised clause, then, English *wh*-slifts behave like scope marking constructions and unlike Basque clausal pied piping.

3.2 Scope of *how many*

A second way in which English *wh*-slifts behave like scope marking constructions and unlike Basque clausal pied-piping concerns scope taking of *how many* phrases. In long distance movement of a *how many* phrase across an intensional verb ambiguity arises as reflected in the paraphrases in (28).

(28) [How many articles] do you think [Bill read $_t$]?
a. ? many> think
What is the number of articles such that you think that Bill read those articles?
b. think> many
What is the number n such that you think that Bill read n-many articles?

We provide the context in (29) to help tease out this ambiguity.

(29) For a required literature review for his term paper, John was to read 30 articles of his choosing. We don't know which articles he chose, but you think you have an inkling for what 10 of these might be.

In this context, a possible felicitous answer to the question in (28) is "30," corresponding to a *think* > *many* reading. A response of "10" – corresponding to a *many* > *think* reading—is also available, albeit more marginally for many speakers. The difference in availability of these two readings is much sharper, however, in the *wh*-slift counterpart sentence in (30): while a *think>many* answer of "30" is felicitous, a *many>think* response of "10" is impossible.

(30) [How many articles did John read] do you think?
* many > think
√ think > many

This fact, again, is problematic for a clausal pied-piping approach, since again it seems to indicate a different set of possible LFs for long *wh*-movement and pied piping, contrary to the predictions of a this approach. Indeed, Basque pied-pipings behave differently as described by Arregi. Arregi reports that a *many>think* reading is available in both long *wh*-movement and clausal pied-piping cases such as in (31) .

(31) a. [Semat argaski erakusti lagun-ai] desiriu rau Jon-ek t_{CP}?
[how.many picture to-show friends-DAT] decided has Jon-ERG t_{CP}
b. [Semat argaski$_i$] desiriu rau Jon-ek [erakusti lagunai t_i]?
[how.many picture] decided has Jon-ERG [to-show friends-DAT t_i]
(Arregi 2003)

Hindi scope marking constructions as analyzed by Lahiri (2002) again behave differently. Lahiri (2002:520) gives the example in (32) to illustrate the fact that only the narrow scope *think>many* interpretation is available in Hindi, as in the counterpart English *wh*-slifting sentence.

(32) rameS kyaa soctaa hai ki raam-ne kitnii kitabeN paRhiiN?
Rames what thinks that Ram-ERG how many books read-PST
'How many books does Rames think that Ram read?'
* many > think
√ think > many

3.3 Selecting bridge verbs/predicates

Lahiri (2002) notes that in Hindi, the set of bridge verbs/predicates available in scope marking constructions is smaller than those that typically allow for *wh*-extraction, and are restricted to a handful of verbs of saying and cognition (Lahiri 2002: 517). Similarly, English *wh*-slifting are fully natural only with a limited set of verbs of saying (*say, ask*) and cognition (*think, believe, suppose, suspect*),[4] and marginal with predicates like *claim* and *be possible* that happily tolerate long *wh*-movement as illustrated in (33)-(36).

(33) *[Which book did she steal] is it possible?
(34) Which book is it possible that she stole.

(35) ??[What did the robbers take] do you claim?
(36) What do you claim that the robber took?

This contrast is again problematic for the clausal pied piping approach, which predicts no selectional differences between the two constructions if they are derived from the same underlying structure and share a common LF.

3.4 Negation

A fourth relevant property of English *wh*-slifting is the fact that *wh*-slifting questions differ from long *wh*-movement questions in their sensitivity to sentential negation in the higher clause. While long *wh*-movement is fine across negation, *wh*-slifting is blocked, as illustrated in (37).

(37) a. Who don't you think/do you not think [<who> will come]?
b. *[Who will come] don't you think/do you not think?

In this respect, *wh*-scope marking constructions again behave similarly. As noted by Rizzi (1992) and in much subsequent literature, *wh*-scope marking constructions are generally poor when the higher clause contains sentential negation, unlike counterpart long *wh*-movement constructions (Horvath 1997, Beck and Berman 2000, Dayal 2000, Arregi 2003, Bruening 2004). We illustrate this with the German example in (38) from Dayal (1994).

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[4] The construction (i), with *know* as main verb, is also common:
(i) How old is she, do you know?
This is, however, most likely not wh-slifting. First, note that the intonation of (i) is different from (1), (2), and other unequivocal cases of wh-slifting. In those, the main clause has low, flat intonation, while in (i) it has rising intonation. That indicates that there are two questions in (i), in a coordination-like relation. Indeed, (i) can be answered as in (ii):
(ii) Yes. She is 46.
This is not a possible answer to (iii).
(iii) How old is she, do you think?
Know has the exceptional property of occurring without an object in certain other constructions, too: *Yes, I know*.

(38) a. *Was glaubst du nicht, mit wem Maria gesprochen hat?
what believe you not with whom Maria talked has
b. Mit wem glaubst du nicht, dass Maria gesprochen hat?
With whom believe you not that Maria talked has
'Who don't you think that Maria talked to?'
(Dayal 1994)

Beck (1996) proposes that the contrast in (38) is a consequence of a filter that blocks LF movement but not overt movement across a negative quantifier, the *Minimal Negative Structure Constraint* (MSNC). On direct and indirect scope marking approaches, this constraint is violated when the *wh*-phrase in the lower clause raises at LF to the position of *was* in the higher clause. The long *wh*-movement sentence in (38b) does not run afoul of this filter since raising of the relevant *wh*-phrase is overt. This cannot be the explanation of the English *wh*-slifting contrast in (37), though, where the clause containing the *wh*-phrase raises past the matrix negation overtly. Under Kayne's analysis in (22), on the other hand, a null operator moves 'covertly' across the negation, so under this analysis (37b) is arguably ruled out by Beck's constraint.

The contrast in (37) is more problematic for a 'simple' clausal pied-piping approach (i.e. without null operator movement), which predicts similar derivations and LFs for the two kinds of structures. In fact, Arregi (2003) shows that Basque clausal pied-piping constructions are similarly constrained: while long distance *wh*-movement is possible across sentential negation in a higher clause, clausal pied-piping is poor.

(39) a. *[$_{CP}$ Sein jun danik] es tau esan Miren-ek t_{CP}?
[$_{CP}$ who gone has] not has said Miren-ERG t_{CP}
'Who didn't Miren say left?'
b. Sein$_1$ es tau esan Mirenek [$_{CP}$ t_1 jun danik]?
Who$_1$ not has said Miren-ERG [$_{CP}$ t_1 gone has]
'Who didn't Miren say left?'
(Arregi 2003)

Arregi also explains the contrast in (39) in terms of Beck's (1996) MNSC. In particular, Arregi proposes that pied-piped clauses such as (39) involve LF extraction of the *wh*-word to the left periphery of the matrix clause where it scopes, followed by obligatory reconstruction of remnant CP. In sentences like (39b) these assumptions will mean that the negative morpheme *es* will intervene between the *wh*-word in the matrix CP and its reconstructed trace, in violation of Beck's proposed filter.

An obstacle to extending this approach to the English *wh*-slifting contrast in (37), comes from the absence of condition C violations in English, suggesting that the preposed clause does not obligatorily reconstruct. In the well-formed example in (40), the R-expression *John* is coindexed with a pronoun in the matrix clause, suggesting that John is not c-commanded by the pronoun at LF. This fact seems to indicate that the preposed clause in English does not obligatorily reconstruct unlike in Arregi's proposal for Basque.

(40) [What did John$_i$ buy] did he$_i$ say?

The effect of negation shown in (37) therefore remains problematic for a clausal pied piping or direct dependency approach to English *wh*-slifting, which takes *wh*-slifting and long *wh*-movement to have similar derivations and LFs.

3.5 Root clause properties

The four sets of properties of *wh*-slifting just discussed are all consistent with analyses of scope marking constructions found in the literature. These properties of scope-marking constructions in German and Hindi especially, have all in fact been cited in favour of an indirect dependency approach to scope marking, in much of the literature discussed above. Again, the fact that these properties suggest a different LF or syntactic differences between long *wh*-movement and scope marking constructions makes a direct dependency approach to these constructions problematic.

The final property of *wh*-slifting which we discuss in this section is predicted by neither clausal pied-piping nor scope-marking approaches, that is two kinds of root clause-like behaviour of the preposed clause. One such property, noted by Lahiri (2002), is that subject auxiliary inversion (SAI) is obligatory in both the lower and the upper clause in non-subject *wh*-questions.

(41) [How old is she] do you think?
(42) *[How old she is] do you think? (no SAI in lower clause)
(43) *[[How old] is she] you think? (no SAI in upper clause)

SAI does not apply in the embedded clause in long *wh*-movement contexts:[5]

(44) *How old do you think is she?

In contrast, German scope marking constructions are not root-clause-like in word order. (45) shows that the lower clause in scope-marking constructions cannot have main clause verb-second (V2) word order in the absence of a sentence boundary pause.

(45) a. Was glaubst du, mit wem Maria gesprochen hat?
what believe you with whom Maria talked has
b. *Was glaubst du, mit wem hat Maria gesprochen?
what believe you with whom has Maria talked
'Who don't you think that Maria talked to?'

A similar fact concerns sequence of tense differences between *wh*-slifting and long *wh*-movement sentences. In the long *wh*-movement context in (46), the past modal *would* in the lower clause is fine on an interpretation where the *coming by* event is located after the utterance time. In contrast, *would* in the lower clause in the counterpart *wh*-slifting example in (47) cannot have this same interpretation, plausibly because it cannot establish the requisite dependency with a matrix T providing the evaluation point (Giorgi 2009). We remain agnostic about the proper formal characterization of sequence

[5] (42) is acceptable under a 'parenthetical' reading of *do you think*, distinguished by intonation. We return to this construction below.

of tense phenomena. For our purposes, it will suffice to observe that the *wh*-slifted clause in (47) does not behave like a true embedded clause in terms of this tense dependency.

(46) When did you say you would come by?
(47) *[When would you come by], did you say?
'When did you say you would come by?'

German scope marking constructions again behave differently, freely allowing for an interpretation in counterpart sentences, where the embedded *coming* event is after the utterance time.

(48) Was hast du gesagt, wann du kommen würdest?
what have you said when you come would
'When did you say you would come?'

A third kind of root clause behaviour of *wh*-slifted clauses is the fact that they cannot be embedded questions. (49) shows that long *wh*-movement is fine in embedded questions, but *wh*-slifting is poor.

(49) a. I wonder how old you think she is.
b. *I wonder how old is she do you think.

German scope-marking constructions, on the other hand are fine in embedded questions.

(50) Ich weiss nicht was er denkt welches Buch sie gelesen hat.
I know not what he thinks which book she read has.
'I don't know which book he thinks she read.'
(Beck and Berman 2000:25)

In the remaining discussion, we show that properties of *wh*-slifting introduced in the previous sections fall out of an analysis of such sentences as embedded root phenomena. In particular, we argue that the presuppositional and scope taking properties of the preposed clause as well as its sensitivity to sentential negation in the higher clause require no special assumptions beyond those motivated in other literature on embedded root phenomena (embedded V2) in Germanic.

4. *Wh*-slifting as an embedded root phenomenon (ERP)

Most recent syntactic approaches to ERP assume that root clauses have some structure or featural content lacking in non-root clauses, related to the pragmatics of illocutionary force (Hooper and Thompson 1973, Vikner, 1995, Haegeman 2004, 2006, Zanuttini and Portner 2003, Heycock 2006, Julien 2008, Hinzen and Sheehan, to appear). Characteristic of ERP declaratives is that they have assertive force. More precisely, they have assertive force on the part of the matrix subject but not necessarily on the part of the speaker (unless, of course, the matrix subject refers to the speaker; Sheehan & Hinzen (to appear)). (51a) contains an ordinary embedded clause; (51b) contains an ERP clause, the ERP status indicated by the topicalization, an operation only possible in clauses with

assertive force, in English.

(51) a. John said [that you can't keep secrets like that around here].
b. John said [that secrets like that, you can't keep around here].

We follow Rizzi (1997) and much subsequent work in assuming that there is a Force phrase in the left periphery of the clause. More specifically, we follow Haegeman (2004) and Sheehan & Hinzen (to appear) in assuming that force is encoded syntactically only in certain finite clause types, including root clauses and ERP clauses. These are clauses which have illocutionary force in something like the original sense (going back to Austin 1965), in that they assert (in the case of declaratives) the truth of the proposition they contain, thus entail a commitment to the truth of the sentence by the speaker or, in the case of ERP clauses, the matrix subject. We assume, then, that the embedded clause in (51b) has more featural content than in (51a) in that it has an assertive force feature in the C-domain.

One syntactic effect of this is that the ERP clause is a strong island ('strong' in the sense that extraction of arguments as well as adjuncts is ruled out).

(52) *Where did John say [that secrets like that you can't keep]?

In Hinzen and Sheehan's terms "strong islandhood applies where a phase is maximally expanded and referential", where a special case of this is clauses which are specified for assertive force, that is main clauses and ERP clauses. Thus, in their terms ERP clauses are islands for the same reason as definite DPs are: they are maximally expanded, completed phases (which are thereby referential).[6] This, they claim, correlates with a richer left periphery, including movement of constituents to the left periphery where corresponding but less expanded phases have none. In definite DPs, the richness is seen in the variety of obligatory determiners and the possibility of N-to-D movement (Longobardi 1994). In main clauses and ERP clauses, it is seen in the possibility of fronting operations such as topicalization, and in some languages V-to-C movement. Thus, in the V2 languages, ERPs are marked by verb fronting (see Vikner 1995: 108ff., Heycock 2006, Julien 2008).

(53) a. Han sa [att vi **inte behöver** köpa roliga hattar till den festen]. [Swedish]
he said that we not need buy funny hats for that party
b. Han sa [att vi **behöver inte** köpa roliga hattar till den festen].
c. Vilken fest sa han [att vi **inte behöver** köpa roliga hattar till]?
which party said he that we not need buy funny hats for
'Which part did he say that we don't need to buy funny hats for?'
d. *Vilken fest sa han [att vi **behöver inte** köpa roliga hattar till] ?

In (53) (Holmberg 1986, to appear), the position of the verb in relation to the negation indicates verb fronting. (53c,d) show that the embedded clause with verb fronting is an island, which correlates with its ERP status. In (52b), the richness of the left periphery is shown by the fact that it can accommodate a fronted object. We concur with Sheehan &

[6] On the notion phase, see Chomsky (2008).

Hinzen (to appear) that the islandhood of ERP clauses is a consequence of the fact that they are maximally expanded phases.

Another related property that ERP clauses have is that they are necessarily the main point of utterance (MPU) in the sense of Simons (2007). As discussed by Simons, certain predicates have the property that their complements can be the MPU. The test is whether the complement can be the answer to a question, as in (54):

(54) a. Where did John go?
b. Mary said /claims/thinks/ reckons that he went for a walk.
c. He went for a walk, Mary said/claims/thinks/reckons.

In these cases, the main clause has a 'parenthetical use', in Simons's terms, also shown by the fact that the complement can be slifted. As for regular, non-ERP complements of these predicates, they can be, but need not be the MPU. In the case of ERP clauses, they are necessarily the MPU. For this reason, they only appear as complements of predicates which allow complements which are the MPU. For example, factive predicates don't allow ERP complements (Heycock 2006), and their complement can't be the MPU. Thus (55) is not a felicitous answer to (54a).

(55) #Mary resents that he went for a walk.

The complement of a focused matrix verb also cannot be an ERP, as shown by (56a), nor can it be the MPU, shown by the fact that (56b) is not a felicitous answer to (54a), while (56c) is ill formed.

(56) a. *John SAID that secrets like that, you can't keep around here.
b. #Mary SAID/ THINKS that he went for a walk.
c. *He went for a walk, Mary SAID/THINKS.

Also, the complement of a negated predicate can't be an ERP, nor can it be the MPU, so (57b) is not a felicitous answer to (54a) and (57c) is ill formed.

(57) a. *John didn't say that secrets like that, you can't keep around here.
b. #Mary didn't say/claim/think/assume that he went for a walk.
c. *He went for a walk, Mary didn't say/think.

Finally, ERP's do not easily permit tense agreement with a higher clause. In the embedded clause in (58a) without topicalization of the object, a generic present tense interpretation is fine with past tense morphology, *didn't*, though most speakers also allow *don't*. In the ERP sentence in (58b), on the other hand, *didn't* is sharply degraded on this same interpretation.

(58) a. Mary said that you all don't/didn't usually keep secrets like that for very long around here.
b. Mary said that secrets like that, you all don't/*didn't usually keep for very long around here.

We can thus summarize the syntactic properties of declarative ERP clauses as follows:

(59) a. They have an assertive force feature in the C-domain;
b. They allow/require a wider variety of movements to the C-domain;
c. They are strong islands;
d. They are the MPU.
e. The main clause predicate can't be focused or negated;
f. The ERP clause can be slifted.
g. The ERP clause is opaque for tense agreement.

We propose, furthermore, in line with Sheehan & Hinzen (to appear), that the properties (59b-g) are consequences of (59a), the presence of an assertive force feature, or, as will be discussed directly, more generally the presence of an illocutionary force feature in the C-domain.

Questions do not assert the truth of a proposition, but call for an answer which does. We assume, uncontroversially, that *wh*-questions are made up of a proposition with a variable bound by a *wh*-operator, where the operator-variable relation is derived by *wh*-movement. Assuming a Chomskyan (1995, 2001) feature theory, the movement is triggered by a [*u*WH] feature in the C-domain. This much is true of main and embedded clause *wh*-questions alike, but main clause questions (direct questions) in addition have a question force feature. The contribution of the question force feature is to make the expression a request on the part of the speaker to the addressee to provide a value for the variable such that the resulting proposition is true. Thus, the difference in meaning between (60a,b) is essentially that while (60a) exhorts the addressee to provide an answer, (60b) does not.

(60) a. Who did John see?
b. I wonder who John saw.

The structure of (60a) is (61), where Q is the illocutionary force feature, lacking in (60b).

(61) [Q [$C_{[uWH]}$ [$_{TP}$ John T [$_{VP}$ see who]]]]

In line with Hinzen and Sheehan's generalization, the richer content of the C-domain in direct questions correlates with more movement to the C-domain: Only direct questions have I-to-C ('subject-aux inversion'). We assume that Q triggers I-to-C movement, in English. More formally, we assume that Q selects a C with an unvalued V-feature, triggering movement of verbal T to C. The derivation is as in (62).

(62) [Q [$C_{[uWH,uV]}$ [$_{TP}$ John T [$_{VP}$ see who]]]] →
[Q [who[did+T+$C_{[uWH,uV]}$ [$_{TP}$ John ~~did+T~~ [$_{VP}$ see ~~who~~]]]]

As for the *wh*-slifted clause in sentences like (1) and (2), repeated here, we claim that it is an ERP clause, with the features and structure of a direct question, specifically including the force feature Q. Its properties, we claim, are explained by this.

(1) [How old is she] did she say?

(2) [Where did John go] do you think?

First, T-to-C applies, obligatorily.

(63) a. *[How old she is] did she say?
b. *[Where John went], do you think?

Second, the *wh*-slifted clause is an island. Indeed this is, we claim, the reason why it is moved: The context is a *wh*-question, where the questioned constituent is within an embedded clause, as in (64a) (many details omitted). If the embedded clause is a regular complement, the *wh*P can be extracted, resulting in long *wh*-movement, as in (64b) (assuming that the movement proceeds via the edge of the embedded clause). But if the embedded clause is an ERP clause, extraction of the whP is impossible. The alternative is pied-piping the entire clause.

(64) a. $C_{[uWH]}$ [she said [$_{CP}$ she is how old]]
b. [How old] did+ $C_{\sout{[uWH]}}$ [she say [<how old> [(that) she is <how old>]]]
c. [How old is she] did+ $C_{\sout{[uWH]}}$ [she say <how old is she>]

Wh-slifting is thus a case of standard pied-piping: Movement targets a *wh*-word (or even just a *wh*-feature, as in Chomsky (1995: 261ff.)), but movement of the word alone violates conditions on a convergent derivation, so the *wh*-word "carries along just enough material for convergence", in Chomsky's words (p. 262), which in the case of the *wh*-phrase embedded in an ERP clause is the entire clause.[7]

In a similar vein, the scope taking of *how many* relative to *think*-type verbs in the higher clause can now be explained as an island effect. If, as just proposed, the slifted CP is opaque to extraction, then *(how) many* cannot raise out of the slifted clause to scope over *think* in the higher clause. The lower CP in long distance *wh*-movement constructions are not islands, however, and the LF-extraction of *many* made possible by this gives rise to the scope ambiguity discussed above.

Third, the *wh*-slifted clause is the MPU. Obviously, Simons's (2007) answer test can't be applied in the case of a question. However, the predicates which allow *wh*-slifting are among the predicates which allow declarative ERP clauses, by hypothesis because they allow the complement to be the MPU (*say, think, suppose, suspect,* and a few more). Furthermore, they have the same properties which, above, we ascribed to the fact that the ERP clause must be the MPU. In particular, the main clause predicate cannot be focused or negated.

(65) a. *How old is she, did she SAY?
b. *Where did John go, do you THINK?
(66) a. *How old is she, didn't she/did she not say?
b. *Where did John go, don't you think?

[7] A prediction of this analysis is that wh-slifting should be recursive. Indeed, sentences like (i) are marginal though possible.
(i) Where did John go, did she say, do you think?

Furthermore, in the case of the declarative ERP clauses, the possibility of slifting was a criterion for MPU-hood. We thus expect something similar to apply to *wh*-slifted clauses. However, the concept of MPU applied to questions is somewhat problematic since no proposition is asserted and communicated (following Simmons' 2007 definition of MPU). We could rephrase the notion of MPU for questions as the Main Information Request (MIR). Although intuitively straightforward, this concept can be further elucidated when linked to the presuppositions associated with questions.

A widespread view of the semantics of matrix *wh*-questions, and under the account that *wh*-slifts are ERPs this is what we should be looking at, is that they carry an existential presupposition, meaning that there exists some positive answer to the question.[8] Thus, it is generally assumed that (67a) presupposes (67b):

(67) a. What did John go?
b. John went somewhere.

For long-distance wh-questions, this presupposition does not exist, so (67b), is not a presupposition of (68a) but (68b) is:

(68) a. Where did she say that John went?
b. She said that John went to x.

One way to explain the fact that the presuppositions of the embedded clause are do not survive at the matrix level is by appealing to Karttunen's (1973) theory of presupposition projection according to which verbs of saying are "plugs", that is, they block the lower clause's presuppositions.

Consider now the counterpart of (68a) with *wh*-slifting instead of extraction:

(69) Where did John go, did she say?

The presupposition (67b) holds. In other words, there is a place x such that John went to that place and we would like to know the identity of that place. Thus, the question in the slifted clause is the MIR. This approach gives us a way to understand more precisely three further facts introduced above. First, it explains the fact that (68a) is good and (70) is bad in a context where the speaker and the addressee know that John did not go anywhere. Second, it accounts for the fact that they cannot be embedded questions, as illustrated in (49), repeated here.

(49) a. I wonder how old you think she is.
b. *I wonder how old is she do you think.

Again, the proposed syntax for *wh*-slifting sentences requires that they be the MIR. The predicates selecting embedded questions, *wonder*, *know* etc. typically must be the MPU, a notion that is associated with declaratives; that is, they do not allow shifting the MPU to

[8] This is, of course, not universally accepted. Neither Karttunen (1977) nor Groenendijk and Stokhof (1984) accept that matrix wh-questions have existential presuppositions.

a complement clause and such sentences are therefore poor. Third, as we have proposed that *wh*-slifting is a case of pied-piping, we can also offer an explanation for the amount of material that needs to be pied-piped for convergence. In this case, the whole clause whose presuppositions must escape the scope of the plug "*say*-type" verb. The *wh*-element alone will not suffice to make the slifted clause the MIR.

Finally, the fact that the *wh*-slifted clause is a root clause headed by a question-force feature can explain why they are opaque to tense agreement. Given that finite CPs are phases (see Chomsky 2008), tense agreement between T1 and T2 in a configuration T1…[$_{CP}$ C [T2]] minimally requires an unvalued tense-feature on C, the head of the phase, which is visible to T1 (perhaps by mediation of the head v of the matrix predicate), and thus can copy the value of T1. The additional illocutionary force head which we postulate for ERP clauses apparently has the effect of blocking that agreement relation. We can, in fact, understand the temporal opacity of ERP clauses as a consequence of the meaning of illocutionary force. By its nature it anchors the expression in the speech act, thus in the 'here and now'. In Ross's (1970) terms it can be paraphrased as a performative clause 'I hereby say to you…' in the case of declaratives, or 'I hereby request that you tell me…' in the case of questions. In ERP declaratives the 'I' of the embedded performative clause is not necessarily the speaker but can be the matrix subject, as in (70) (= (56b)).

(70) Mary said that secrets like that, you all don't/*didn't usually keep for very long around here.

In this sense, the perspective (or reference) of the embedded clause is, in part, dependent on properties of the matrix clause. We submit that the postulated embedded force feature nevertheless anchors the reported speech act in the moment of utterance of the embedded proposition, meaning that the tense of the embedded clause is computed in relation to that moment; (70) can be paraphrased as (71):

(71) Mary said that I (= Mary) hereby say to you that secrets like that you all don't usually keep for very long around here.

This excludes the possibility of an unvalued tense feature heading the ERP clause.

In this way, the root clause syntax of *wh*-slifting sentences, including the assumption that MPU is associated with a left-peripheral illocutionary force head, accounts for the key properties of *wh*-slifting sentences introduced in sections 2 and 3.

A remaining issue to be addressed is the status of sentences like (72) (see also (17) in section 1). We might refer to such constructions as "partial" *wh*-slifting, as distinct from the "full" *wh*-slifting sentences focused on above.

(72) Where, did she say, did John go?

Apart from the position of the main clause, this construction has all the same properties as *wh*-slifting, and lacks the relevant defining properties of long *wh*-movement: T-to-C has applied in the embedded clause; the main clause predicate cannot be focused or negated (see (73a,b), (65), (66)); it has the presupposition that John went somewhere; and (73c) (compare (30)) does not allow the *many* > *think* reading.

(73) a. *Where, did she SAY, did John go?
b. *Where, did she not say, did John go?
c. How many articles, do you think, did John read? (*think*>*many*, **many*>*think*)

Since the embedded clause thus has all the properties of an ERP, it cannot be the case that the whP has been extracted from the embedded clause. Instead we suggest that (72) is derived by *wh*-slifting but with 'scattered copy deletion' (Bošković 2001, Sheehan 2009, to appear). The structure after *wh*-slifting would be roughly as in (74), but instead of deletion of the entire lower copy of the moved embedded CP, scattered deletion applies as shown.

(74) [$_{CP}$ [$_{CP}$ where ~~did John go~~] [did+ C [$_{TP}$ she say [$_{CP}$ ~~where~~ did John go]]]

5. Conclusion

This paper provides an account of "*wh*-slifting" constructions, which have been discussed parenthetically in some literature but nowhere in detail. We argue that these sentences are not parentheticals, nor are they derived by simple clausal pied-piping as an optional alternative to long *wh*-movement. Instead, they are derived by clausal pied-piping, but where the pied-piping is a consequence of the fact that the embedded clause is an embedded root phenomenon: an embedded direct question, a property formally encoded by a Q-force feature in the C-domain.

Unaddressed in our discussion is how *wh*-slifting relates to embedded root phenomena involving *wh*-movement in other languages. Nothing in our analysis leads to the expectation that the phenomena described should be particular to English. Indeed, we are aware of no published reports of kindred phenomena in other languages, despite now-extensive comparative syntactic literature on *wh*-movement and embedded root phenomena. Future work might usefully inquire whether similar constructions are attested elsewhere, if so, why not, and what loci of variation govern whether or not a given language allows *wh*-slifting.

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References:

Arregi, K., 2003. Clausal Pied Piping. Natural Language Semantics 11, 115-143.
Beck, S. 1996. Wh-Constructions and Transparent Logical Form, PhD dissertation, Universität Tübingen.
Beck, S., Berman, S., 2000. Wh-scope Marking: Direct vs. Indirect Dependency. In: Lutz, U., Müller, G.,. von Stechow, A., (Eds.) Wh-scope Marking, John Benjamins, Amsterdam/Philadelphia, pp. 17–44.

Bošković, Želko. 2001. On the nature of the syntax-phonology interface: Cliticization and related phenomena. Elsevier, Amsterdam.
Bruening, B., 2004. Two types of wh-scope marking in Passamaquoddy. Natural Language and Linguistic Theory. 22: 229-305.
Austin, J. L., 1965. How to do things with words. Oxford University Press, Oxford.
Chomsky, N., 1981. Lectures on Government and Binding, Foris, Dordrecht, Holland.
Chomsky, N., 1995. The minimalist program. MIT Press, Cambridge MA.
Chomsky, N., 2001. Derivation by Phase. In Kenstowicz, M., (Ed.) Ken Hale. A Life in Language. MIT Press, Cambridge, MA, pp. 1-52.
Chomsky, N., 2008. On Phases. In Freidin, R., Otero, C., Zubizarreta, M.L. (Eds.), Foundational Issues in Linguistic Theory, MIT Press, Cambridge, MA, pp. 133-166.
Dayal, V., 2000. Scope Marking: Cross-Linguistic Variation in Indirect Dependency. In: Lutz, U., Müller, G.,. von Stechow, A., (Eds.) Wh-scope Marking, John Benjamins, Amsterdam/Philadelphia, pp. 157–193.
Echepare, R., 1997. Two Types of Focus in Basque. In: Agbayani, B., Tang, S., (Eds.), Proceedings of the Fifteenth West Coast Conference on Formal Linguistics. CSLI Publications, Stanford, 113–127.
Giorgi, A., 2009. A Grammar of Italian Sequence of Tense, in University of Venice Working Papers in Linguistics, Cafoscarina 19, 111-156.
Grimshaw, J. 2010. Main clauses as arguments. Handout. Rutgers University.
Groenendijk, J., Stokhof, M. 1984. Studies on the semantics of questions and the pragmatics of answers. PhD Thesis, Amsterdam
Haegeman, L., 2004. Topicalization, CLLD and the left periphery. In Shaer, B., Frey, W., Maienborn, C. (Eds.) Proceedings of the Dislocated Elements Workshop. ZAS Berlin.
Haegeman, L., 2006. Conditionals, factives and the left periphery. Lingua 116, 1651-1669.
Herburger, E., 1994. A Semantic Difference between Full and Partial Wh-movement in German. paper presented at the 1994 Annual Meeting of the Linguistic Society of America, Boston.
Heycock, C., 2006. Embedded Root phenomena. In: Martin Everaert and Henk van Riemsdijk (Eds.), Blackwell companion to Syntax. Oxford University Press, Oxford, pp. 174-209.
Holmberg, A., 1986. Word order and syntactic features in the Scandinavian languages and English. PhD dissertation, Stockholm University.
Holmberg, A., To appear. Verb second. In: Kiss, T., Alexiadou, A. (Eds.) Syntax – an International Handbook of Contemporary Syntactic Research. 2nd Edition. Walter de Gruyter Verlag, Berlin.
Hooper, J., Thompson, S., 1973. On the applicability of root transformations. Linguistic Inquiry 4, 465-497.
Horvath, J., 1997. The status of wh-expletives and the partial wh-movement construction of Hungarian. Natural Language and Linguistic Theory 15, 509-72.
Horvath, J., 2000. On the syntax of "Wh-Scope Marker" Constructions: Some comparative Evidence', In: Lutz, U., Müller, G.,. von Stechow, A., (Eds.) Wh-scope Marking, John Benjamins,Amsterdam/Philadelphia, pp. 271–316.
Horvath, J., 1998. Multiple Wh-Phrases and the Wh-Scope-Marker Strategy in Hungarian Interrogatives. Acta Linguistica Hungarica 45: 31–60.
Horvath. J., 2006. Pied-Piping. In: Everaert, M. van Riemsdijk, H. (Eds.) The

Blackwell Companion to Syntax, Vol. 3. Blackwell, Malden, pp. 568-630.
Jackendoff, R., 1972. Semantic Interpretation in Generative Grammar. MIT Press, Cambridge.
Julien, M., 2008. Embedded V2 in Norwegian and Swedish. Working Papers in Scandinavian Syntax 80, 103-161.
Karttunen, L. 1973. Presuppositions of Compound Sentences. Linguistic Inquiry 4: 169-193.
Karttunen, L. 1977 Syntax and semantics of questions, Linguistics and Philosophy, 1: 3-44.
Kayne, R.S., 2000. Overt vs. Covert movement. In: Parameters and Universals. Oxford University Press, Oxford/New York, pp. 223-281.
Lahiri, U., 2002. On the proper treatment of "expletive wh" in Hindi. Lingua 112, 501-540.
Legate, J., 2011. Warlpiri Wh-scope marking. Syntax. 14, 2, 97-121.
Longobardi, G. 1994. Reference and Proper Names. *Linguistic Inquiry* 25, 609-666
McDaniel, D., 1989. Partial and Multiple Wh-movement. Natural Language and Linguistic Theory 7, 565-604.
Ortiz de Urbina, J., 1989. Parameters in the Grammar of Basque: A GB Approach to Basque Syntax. Dordrecht, Foris.
Ortiz de Urbina, J., 1993. 'Feature Percolation and Clausal Pied-Piping', in J. I. Hualde and J. Ortiz de Urbina (eds.), Generative Studies in Basque Linguistics, John Benjamins, Amstersdam/Philadelphia, pp. 189–219.
Reis, M., Wh-movement and integrated parenthetical constructions. In: Zwart, J. Abraham, W. (Eds.), Studies in Comparative Germanic Syntax. Proceedings from the 15th Workshop on Comparative Germanic Syntax. Amsterdam/Philadelphia: John Benjamins, 3-40.
Rizzi, L., 1997. The fine structure of the left periphery. In: Haegeman, L. (Ed.), Elements of Grammar. Kluwer, Dordrecht, pp. 281-337.
Rooryck, J., 2001. Evidentiality, Parts I and II. Glot International 5, 4.
Ross, J., 1970. On declarative sentences. In: Jacobs, R. A., Rosenbaum, P. S. (Eds.), Readings in English transformational grammar. Georgetown University Press, Washington, D.C., pp. 222–272.
Ross, J., 1973. Slifting. In: Gross, M., Halle, M. and Schuetzenburger, M. (Eds.), The Formal Analysis of Natural Languages, Mouton, Paris, pp. 131-169.
Sheehan, M., 2009 The Final-over-Final Constraint as a result of complement stranding. Newcastle Working Papers in Linguistics volume 15. http://www.ncl.ac.uk/linguistics/research/workingpapers/volume15.htm
Sheehan, M., to appear. Some implications of a copy theory of labeling. To appear in Syntax.
Sheehan, M., Hinzen, W (to appear) Moving towards the edge. To appear in *Linguistic Analysis*.
Simons, M., 2007. Observations on embedding verbs, evidentiality and presupposition. Lingua 117, 1034-1056.
Vikner, S.,1995. Verb movement and expletive subjects in the Germanic languages. Oxford University Press, New York/Oxford.
Zanuttini, R., Portner, P., 2003. Exclamative Clauses: At the Syntax–Semantics Interface. Language 79, 1, 39-81.