

# DISAGREEMENT BETWEEN ADULTS AND CHILDREN\*

Colin Phillips  
(University of Delaware)

## 1. Agreement Alternations and Learning: Two Problems

This paper is a study of the relationship between *wh*-movement and inflectional morphology in adults and children, focusing on what I will call *wh*-disagreement effects, and their relation to so-called *root infinitives* in early child language. These phenomena raise some interesting questions about language learning and language learnability which I think have been overlooked in previous literature on the topic.

What I mean by *wh*-disagreement is the kind of agreement alternation shown in (1), taken from Breton and Berber. Subject agreement is marked in declarative clauses (1a), but when the subject is extracted (1b–c), subject agreement disappears from the verb, sometimes taking other inflectional features (e.g. tense) with it (cf. 1c). In this paper I use the term ‘agreement’ to refer to concord of person, number, gender or any combination thereof. This alternation between extraction and non-extraction environments is also known as *anti-agreement* in the literature (cf. Ouhalla 1993), and has been reported for a sizeable number of genetically unrelated languages.<sup>1</sup>

- (1) a. Levrioù a lennent  
books PCL read:3pl  
‘They read books.’

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(1) For a very useful discussion of disagreement effects in a number of languages see Ouhalla 1993. The discussion here draws on Ouhalla’s insights in a number of respects, although my conclusions are somewhat different. *Wh*-disagreement effects are found in Berber (Ouhalla 1993), Breton (Stump 1984; Hendrick 1988; Borsley & Stephens 1989; Schafer 1995), Turkish (Underhill 1972; Kornfilt 1985), Fiorentino/Trentino (Brandi & Cordin 1989), Palauan (Georgopoulos 1985, 1991), Yimas (Foley 1991; Phillips 1996a), Kinande (Schneider-Zioga 1995) among others. See below for discussion of inflectional alternations in other languages which may also be considered as *wh*-disagreement.

- b. Petore paotred a lenne (\*lennent) al levrioù  
 which boys comp read (\*read:3pl) the books  
 'Which boys read the books?'

(Breton: Borsley & Stephens 1989)

- c. man tamghart ay yzrin (\*t-zra) Mohand  
 which woman comp see (\*3fs-saw) Mohand  
 'Which woman saw Mohand?'

(Berber: Ouhalla 1993)

The first question involves how adult languages showing disagreement effects are learned. The problem that the learner has to solve is where *wh*-disagreement does and does not occur. This would be a very easy task for the learner if *wh*-disagreement effects always involved the loss of agreement in *all wh*-questions. In that case the learner would just need to decide whether she is being exposed to a +disagreement or a -disagreement language. Relevant data should be plentiful in the input. Unfortunately, though, matters are less simple. Among the range of languages which exhibit something that we might call a *wh*-disagreement effect, there is a good deal of variability regarding which kinds of questions show loss of agreement morphology when a *wh*-phrase is extracted.

For example, in some languages that show *wh*-disagreement effects in positive questions, the effect is not found in negative questions. In some languages in which *wh*-disagreement is found with local extraction it is also found with non-local extraction, but in others it is not. In some languages it occurs with object extraction, although this is generally not the case. Similar variation is found in whether *wh*-disagreement is found with all choices of mood, person or number. Furthermore, the specific morphological reflex of *wh*-disagreement also varies a good deal from language to language.

Given these many points of variation (negation, mood, locality etc.), there is a rather large number of different potential *wh*-disagreement grammars that the learner must choose among. Observation of loss of agreement in questions is obviously still informative to the learner, but in order to arrive at the correct grammar the learner must determine which of the various factors affecting the presence or absence of *wh*-disagreement effects are operative in her language. If the only way for the learner to figure this out is by direct exposure to the relevant kinds of *wh*-questions, then the prospects are not good for successful acquisition, because this will depend on the presence in the input of very obscure evidence. For example, in a language in which *wh*-disagreement effects are only observed in questions with plural subjects (e.g. Trentino/Fiorentino are examples), the learner requires exposure to *which N* subject questions in which the answer sought is a group (the only way to get a plural *wh*-subject NP), and in which the subject has been extracted out of an embedded clause and there is negation in either the matrix or the embedded clause. Although I do not have corpus evidence to back up this claim, I expect that such *wh*-questions are extremely rare in the input to children.

What we want to know, then, is whether there is a way that a learner could figure out where their target language shows *wh*-disagreement, other than by just waiting for the various kinds of obscure question types that will show this directly. I will try to

show that there are, in fact, some rather simple morphological triggers for the different kinds of variation in *wh*-disagreement effects. This issue is the focus of Section 4.

The second issue comes from actual facts about language development. Two-year old children learning certain languages which lack disagreement effects in the adult language show an alternation which is just like *wh*-disagreement, except that it is the near *mirror-image* of what we see in many other adult languages. Whereas adult *wh*-disagreement languages show loss of agreement in *wh*-extractions, the child alternation involves loss of agreement in simple declaratives, but mandatory agreement in *wh*-questions. Such effects are found in very early Dutch, German and possibly Swedish and French (Haegeman 1995; Clahsen, Kursawe & Penke 1995; Crisma 1992; Rizzi 1994; Weissenborn 1994). The question, then, is why are adults and children showing what seem to be the reverse distribution of agreement in declaratives and interrogatives? In the light of the common goal of showing that learners navigate their way through a space of *possible* grammars in search of their target grammar, this contrast is particularly troubling. I aim to show here that what the adults and children are doing is in fact the same, but that this fact is obscured by superficial details of specific constructions in the languages where we observe the agreement alternations.

There is a growing literature on both adult *wh*-disagreement effects and agreement alternations in young children, but no connection between the two phenomena has been drawn before. *Wh*-disagreement has typically been analyzed in terms of conditions on how operator-variable binding relations are satisfied (Haik 1990; Ouhalla 1993; Schneider-Zioga 1995), whereas children's root infinitives have been attributed to the absence/deficiency of certain heads (e.g. Tense, cf. Wexler 1994) or phrases (e.g. CP, IP, cf. Guilfoyle & Noonan 1988, Radford 1990, Clahsen & Penke 1992, Rizzi 1995) in children's clause structures. It is unfortunate that these two literatures have proceeded independently, because the two phenomena show some rather striking similarities, as I hope to show below.

I begin by outlining my account of disagreement effects (Section 2), and then go on in Sections 3 and 4 to show how this accounts for the distribution of disagreement effects in child and adult languages respectively. Section 5 points to possible extensions of my account to topics including so-called 'successive cyclic *wh*-agreement' and complementizer agreement in *wh*-questions.

## 2. Disagreement as Failure of Verb Movement

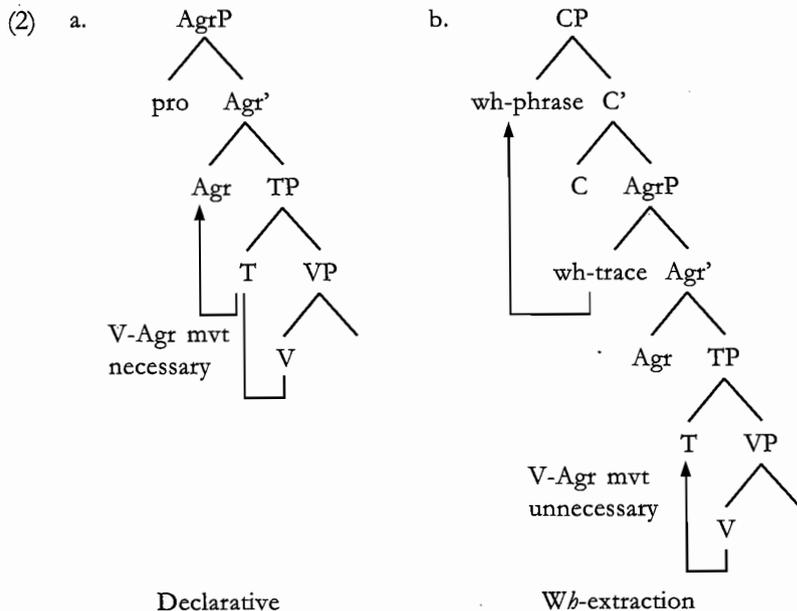
I suggest that disagreement is a consequence of shorter-than-normal verb movement. It occurs when a verb which would otherwise raise to attach to an agreement head fails to do so. I assume that in a sentence with an agreeing verb, the verb has syntactically joined to the inflectional head that contains the relevant agreement features, and then —at the point at which lexical items are inserted to spell-out syntactic features— an agreeing form is chosen.<sup>2</sup> If, however, the verb is

(2) I am assuming something like the view of the morphology-syntax connection put forward in *Distributed Morphology* (Bonet 1991; Noyer 1992; Halle & Marantz 1993, cf. also Pranka 1983), although other implementations

not syntactically attached to an agreement head, the verb is spelled out by a default form, and the agreement head is just left unrealized. So the form of disagreement effects is just due to a failure of verb movement.

Regarding *why* there is failure of verb movement, I follow Ouhalla 1993 in assuming that the restriction of *wh*-disagreement effects to null-subject languages provides an important clue to the explanation of *wh*-disagreement, and that the *wh*-disagreement effect is due to the difference between the requirements for licensing a *pro* subject and licensing a *wh*-trace subject. However, I take a different view from Ouhalla with respect to why the difference between a *pro* subject and a *wh*-trace subject affects agreement inflection.

Following a widespread view of null-subject languages (cf. Rizzi 1982), I assume the subject of a declarative clause to be *pro*, which needs to be identified by overt agreement. For agreement to be overtly spelled-out, the verb must be syntactically joined with agreement, as a result of verb-raising as in (2a). In *wh*-questions, on the other hand, the *wh*-phrase vacates subject position and what is left is a *wh*-trace rather than a *pro*, as in (2b).<sup>3</sup> Unlike the *pro* in (2a), the *wh*-trace in (2b) does not need to be identified by overt agreement, so there is no longer any requirement forcing the verb to raise. Assuming in addition that the verb does not raise unless forced, the presence of the *wh*-trace has the effect that the verb does not raise and hence that agreement is not realized overtly. Thus, disagreement effects are just a matter of alternations between verb raising and verb non-raising.



are possible. The key assumptions for my purposes are (i) that complex morphological items are built syntactically, (ii) that there is a separation between the syntactic features of words and the forms which spell them out overtly.

(3) The analysis presented here is neutral with respect to whether subjects in null subject languages are extracted from preverbal or postverbal position.

If verb movement is required to license *pro*,<sup>4</sup> then we can account for why *wh*-disagreement effects are restricted to null-subject languages. The reason for this, according to my account, is the following. The verb movement requirements imposed by the overt subject of a declarative clause and the *wh*-trace subject of a question are identical. Either both overt subjects and *wh*-traces demand overt verb raising to AGR (for example, V-raising may be required for case-licensing of the subject), or neither requires verb raising. Crucially, *Wh*-disagreement only occurs when declaratives and questions make differing demands on verb movement.

Note that although the absence of a *pro* subject may remove one motivation for a verb to raise to an agreement head, other motivations for verb raising may remain, or they may be present in some constructions but not others. In other words, the requirements of specific heads may *override* the ability of the verb to fail to raise in disagreement environments. This propensity for disagreement environments to be destroyed by the presence of other heads which force verb raising I refer to as the *fragility* of disagreement contexts. This is a property which we will observe in a number of situations in adults and children in what follows.

The next thing to do is to show how this approach to disagreement makes sense of the variation in these effects in adults, and also of why children appear to be doing the opposite of adults. We begin in Section 3 with disagreement effects in child language.

### 3. Disagreement in Children

The agreement alternation found among two-year olds is the following. The agreement alternation involves declaratives and questions. Two-year old children learning Dutch or German typically produce many declarative clauses in which the verb is a non-agreeing infinitive rather than an agreeing finite verb.<sup>5</sup> These are what have become known as *root infinitives* (Weverink 1989, Wexler 1994, Rizzi 1994). Root infinitives have been observed in French (Pierce 1989, 1992), Dutch (Weverink 1989, Haegeman 1995), German (Clahsen & Penke 1992, Verrips & Weissenborn 1992, Poeppel & Wexler 1993), Swedish (Platzack 1990, Santelmann 1994), English (Wexler 1994), Faroese (Jonas 1995) and Russian (Bar-Shalom et al. 1996) among

(4) This claim is intended to apply only to null subject languages in which the null subject is licensed by agreement (e.g. Italian), and not to the variety of null argument language in which null arguments are licensed by discourse factors (e.g. Chinese, Japanese).

(5) Clearly, root infinitives are not just agreement-less forms, they are also tenseless. In fact, a good deal of work on root infinitives has assumed that they are due to a problem with the syntax of tense rather than agreement (e.g. Wexler 1994). Given the portmanteau tense-agreement morphology of all of the child languages discussed in this section, there is no reason to restrict attention to either tense or agreement. Furthermore, I am unaware of any evidence that points to either tense or agreement being mainly responsible for root infinitives.

However, this certainly does not mean that the question is unresolvable. In a study of one Hebrew speaking agrammatic aphasic, Friedmann & Grodzinsky (1994) provide a compelling argument that specifically tense and not agreement is impaired. It is possible to separate tense and agreement in Hebrew, because they are realized by independent morphological markers. Unfortunately it is not clear at this point how similar the morphological simplifications found in the speech of aphasic patients are to children's root infinitives.





- (7) Poeppel & Wexler (1993):  $\pm$ agreement correlates with  $\pm$ V2 in early German

Andreas 2;1	+finite	-finite
V2 (& not final)	197	6
V-final (& not V2)	11	37

Total = 251,  $\chi^2 = 150.26$ ,  $p < 0.0001$

Similarly, Pierce (1989, 1992) shows that young French children's positioning of their verbs either to the left or to the right of negation correlates extremely well with the finiteness of the verb. Finite verbs appear to the left of negative *pas* 96% of the time, and non-finite verbs appeared to the right of negative *pas* 99% of the time.

Topicalization in the speech of children acquiring Germanic verb second languages shows the same pattern as *wh*-movement: root infinitives are also not found in children's topicalization structures in these languages. This is not surprising, given the standard assumption that topicalization also requires V-I-C movement in these languages. Haegeman 1995 shows that in the Hein corpus 101 of 1324 sentences with an overt subject in initial position (8%) are non-finite, whereas just 5 of 1351 sentences with a non-subject in initial position (0.3%) are non-finite. Similarly, Poeppel & Wexler 1993 show that whereas 24 of 154 subject initial declaratives (16%) are non-finite in the Andreas corpus, none of Andreas' 50 non-subject initial declaratives are non-finite.

The contrast between the distribution of verb forms in questions/topicalizations and declaratives is not found in all child languages in which children use root infinitives. In child English, for example, the proportion of root infinitive main verbs is identical in declaratives and subject questions, as the table in (8) shows (cf. Phillips 1995, 1996c).<sup>10</sup> This is expected under the account given here, because main verbs behave alike in subject questions and declaratives in English, as can be seen in (9-10), so they should not differ in agreement, given the account proposed here, in which the presence or absence of agreement is linked to the absence or presence of overt V-I movement (or I-V movement in the case of English main verbs).

- (8) English: identical rates of main verb inflection in subject questions and declaratives

Adam 2;3-3;1	inflected V	uninflected V	% inflected
Declaratives	134	203	40%
subject questions	69	92	43%

Total = 498,  $\chi^2 = 0.43$ ,  $p = 0.51$

(10) Figures are only given for Adam because he is the only English-speaking child in the CHILDES database who asks sufficiently many subject questions between age 2 and 3 to make a meaningful comparison of inflection rates in subject questions and declaratives.

A note is in order on how these figures were arrived at. First, only *main verbs* are considered. This is important, because (i) only main verbs show  $\pm$ finite alternations in child English (children's auxiliaries are either finite or absent, but *never* non-finite, as many people have observed: cf. de Haan & Tuijnman 1988, Sano & Hyams 1994, Wexler 1994), (ii) only main verbs are positioned identically in declaratives and subject questions in adult English. In addition, utterances that could not be called 'spontaneous' were excluded from the counts (i.e. repetitions of something that the child's caretaker just said, self-repetitions, songs etc.). More precise details of the counting procedures are given in Phillips 1995.



#### 4. Disagreement in Adults

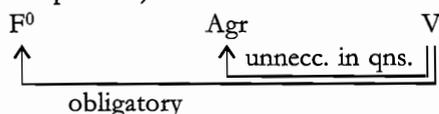
Recall from Section 1 the learnability problem involving *wh*-disagreement effects. Languages that show *wh*-disagreement effects typically do not show disagreement effects in all *wh*-questions. There are a number of parameters of variation in which kinds of questions show loss of agreement: the factors include negation, length of extraction, subject vs. object extraction, mood and number. Given these variations, the problem for the learner is that in order to stand a fair chance of acquiring the details of where *wh*-disagreement does and does not occur in her target language, she needs to be able to learn the distribution of disagreement effects from something other than exposure to the various obscure question types which would be needed for direct learning.

This section shows how the verb movement approach to disagreement effects may provide an account of the variation in where *wh*-disagreement does and does not occur in different languages, and also points to the 'triggers' that learners might use to acquire the properties of *wh*-disagreement in their target language.

The verb movement account of disagreement effects makes a very simple prediction about cross-linguistic variation. *Wh*-disagreement should occur where the verb does not need to raise to license a *pro*, and therefore does not need to raise to AGR. But this effect is predicted to be quite *fragile*, by which I mean that if there happens to be some other independent property of the clause that requires verb raising to AGR or beyond, then the verb will raise as far as or beyond AGR, even in *wh*-questions. For example, if there is some head  $F^0$  above AGR which the verb must attach to overtly, then *wh*-questions will not show disagreement effects, because the verb is forced to pick up the agreement head on its way to  $F^0$ , assuming that strictly local head movement is forced. This scenario is shown schematically in (11) as the *Highest Head Generalization*.

(11) HIGHEST HEAD GENERALIZATION

If AGR is the highest head to which the verb potentially moves, then *wh*-disagreement is possible. If the verb is independently required to raise to a functional head *above* AGR, then agreement is realized (i.e. disagreement is impossible).



The Highest Head Generalization (HHG) has immediately testable consequences for the distribution of variation in *wh*-disagreement effects.

##### 4.1. Varying Consequences of Negation and Long Extraction

The HHG straightforwardly captures an observation due to Ouhalla (1993), that *wh*-disagreement effects are found in negative questions in those languages where

the negative morpheme is morphologically closer to the verb (and presumably syntactically lower) than subject agreement, but not in those languages where negation occurs outside, or higher than, subject agreement.<sup>12</sup> In a language like Turkish (12a), in which negation appears inside subject agreement, it should be possible in a negative subject question for the verb to raise as far as negation without moving as far as AGR and picking up agreement on the way. Therefore negation has no effect on *wh*-disagreement. In languages like Berber or Breton in (12b–c), though, in which I assume that negation is structurally higher than subject agreement and must be joined with the verb by the point of ‘spell-out’, negative questions require that the verb raise to NEG via AGR, picking up lower inflectional heads on the way, with the consequence that the *wh*-disagreement effect is not found in negative questions in these languages.<sup>13</sup>

- (12) a. TURKISH: [V-NEG]-AGR disagreement  
 Hoca-yi gör-me- yen(\*-ler) öğrenciler  
 lecturer-acc see-NEG-PART(\*-3pl) students  
 ‘The students who did not see the lecturer.’
- b. BERBER: NEG [AGR-V] agreement  
 man tamghart ay ur t- ssn Mohand?  
 which woman COMP NEG 3fs- know Mohand  
 ‘Which woman doesn’t know Mohand?’ (Ouhalla 1993)
- c. BRETON: NEG [V-AGR] agreement  
 Petore paotred ne lennent (\*|enne) ket al levrioù  
 which boys NEG read:3pl (\*read) not the books  
 ‘Which boys did not read the books?’ (Borsley & Stephens 1989)

Therefore, the learner should need to only pay attention to the relative morphological embedding of subject agreement and negation in declarative utterances in order to figure out whether negative questions show disagreement effects in his target language.

A similar account may be possible for the variation across languages in whether long-distance extraction leads to *wh*-disagreement effects, or whether only short distance extraction gives rise to *wh*-disagreement. I suggest that properties of the complementizer position just above the extraction site determine whether disagreement occurs in long-distance extractions. If the embedded verb has to raise to C, either because the C position must be filled, or because the complementizer is affixal, then the verb will have to move to C via AGR, and no *wh*-disagreement effects are predicted to be found in long-distance extraction. This, is what I assume is the case in Berber (13a) and Cornouaille Breton (13b). Berber shows *wh*-dis-

(12) For the purposes of this discussion I am assuming that the *Mirror Principle* (Baker 1985) is a roughly accurate generalization, so that the morphological structure of a word reflects the hierarchical structure of the syntactic heads that the word is built from. There are counterexamples to Baker’s generalization, but I have nothing to say about them here.

(13) Turkish differs from Berber and Breton in that disagreement effects are confined to relative clauses in Turkish, whereas they are found in both relative clauses and overt *wh*-extraction contexts in Berber and Breton. I will have nothing further to say here about this particular kind of variation.

agreement effects in local subject extractions but not in long-distance subject extractions. I suggest that this is because the complementizer *qa* shown in (13a) is affixal, and requires the verb to raise to attach to it, which entails picking up agreement on the way. The Cornouaille dialect of Breton shows a similar contrast between local and non-local extraction. In this case I assume that this is because the verb (an auxiliary in (13b)) is required to raise to fill the embedded C<sup>0</sup> position.

- (13) a. BERBER: agreement  
 man tamghart ay nna-n qa t-zra Mohand  
 which woman COMP said-3pl that 3fs-saw M.  
 'Which woman did they say saw Mohand.' (Ouhalla 1993)
- b. BRETON (Cornouaille dialect): agreement  
 Setu ar mere'hed hoc'heus lavaret emaint o labourat e Kemper  
 here the women have:2pl said be:3pl PART work in Kemper  
 'Here are the women who you said are working in Kemper.'  
 (Hendrick 1988)

If, on the other hand, the embedded complementizer position in a *wh*-disagreement language does not need to be overtly filled or contains a free-standing complementizer, then we predict no contrast between disagreement effects in local and long-distance extractions, because the verb is not forced to raise to C. This is the analysis I suggest for *wh*-disagreement effects in long-distance questions in the Tregor dialect of Breton (14a) and in Fiorentino (14b). The Tregor Breton example in (14a) and the Cornouaille Breton example in (13b) contrast in that there is an overt complementizer *a* in the Tregor example. If we assume that both Tregor and Cornouaille Breton observe a requirement that the embedded C position be overtly filled, then the presence of the overt complementizer in Tregor obviates the need for verb movement and therefore makes *wh*-disagreement possible. I assume that in the Fiorentino example (14b) the embedded verb does not need to raise to C because the complementizer *che* is free-standing.

- (14) a. BRETON (Tregor dialect): disagreement  
 Petore paotred a sonj deoc'h a lenne (\*lennent) al levrioù?  
 which boys COMP think to-1sg comp read (\*read-3pl) the books  
 'Which boys do you think read the books?'  
 (Borsley & Stephens 1989)
- b. FIORENTINO: disagreement  
 Quante ragazze tu credi che e' sia venuto?  
 'How many girls do you think that (it) has come?'  
 (Brandi & Cordin 1989)

What this account currently lacks is the specification of a procedure that the learner can use to determine whether an overt complementizer is affixal or not. However, assuming that such a procedure can be supplied, this account makes it much easier for the learner to determine whether his target language shows long-

distance *wh*-disagreement. If embedded V–C movement is the factor that determines whether a language shows *wh*-disagreement in long-distance questions, then this property should be learnable without direct exposure to long-distance *wh*-questions, and can be determined based on declarative utterances alone.

I do not mean to suggest that the learner needs no exposure to *wh*-questions at all in order to learn that his target language shows *wh*-disagreement. I assume that at least *some* form of agreement alternation between extraction and non-extraction contexts must be observed in the input. What I have attempted to show in this section is that once the learner has observed this basic fact, he can figure out the finer details of where *wh*-disagreement does and does not occur using evidence that is available from declarative utterances.

## 4.2. The Status of Operators

In §4.1 I focused on a reanalysis of facts about variation in *wh*-disagreement effects that have been discussed in previous literature, notably Ouhalla 1993. Ouhalla's account is one of a series of analyses of *wh*-disagreement which attribute the effect to properties of A-bar binding relations involving operators. This is rather different from the perspective on *wh*-disagreement offered here, which attributes the effect to properties of verb movement. In this section I examine the importance of syntactic relations involving operators for *wh*-disagreement, and suggest that operator status is irrelevant to *wh*-disagreement.

I begin by giving a sketch of why A-bar binding relations yield disagreement effects in a couple of existing accounts.

The most comprehensive account of *wh*-disagreement in the literature is due to Ouhalla (1993), who assumes that the loss of agreement in *wh*-questions is a consequence of how binding conditions on variables are satisfied. Ouhalla assumes that *wh*-disagreement occurs when the extraction site is locally A-bar bound by a coindexed operator. A coindexed operator locally A-bar binds an extraction site if it is (i) in the same binding domain (Complete Functional Complex in the sense of Chomsky 1986) as the extraction site, and (ii) the closest A-bar operator to the extraction site. For example, in *Everybody doesn't know who<sub>i</sub> t<sub>i</sub> John saw* there are three A-bar operators (*everybody*, *not*, *who*), but *who* is the closest A-bar operator to the position containing the *wh*-trace. Since it is also in the same clause as the *wh*-trace and coindexed with the trace, the extraction site is locally A-bar bound in this case. On the other hand, in *Everybody knows who<sub>i</sub> John didn't see t<sub>i</sub>*, the trace is not locally A-bar bound by a coindexed operator, because the negative operator occurs between *who* and the trace.

For Ouhalla the relevance of such configurations for disagreement phenomena is that he assumes that the null argument *pro* must be prevented from appearing in the extraction site when the *wh*-phrase is the closest A-bar binder. This is because *pro* must not be locally A-bar bound, as required by the *A-bar Disjointness Requirement* (ABDR: Aoun & Li 1990, 1993). The ABDR requires that a pronominal be locally A-bar free. If *pro* occupies the extraction site and the *wh*-phrase is the closest A-bar binder, then the ABDR is violated (15a). If, on the other hand, subject agreement is neutralized (15b), *pro* is no longer licensed, and therefore a *wh*-trace must occupy the

extraction site, thereby avoiding a violation of the ABRD, since a *wh*-trace is assumed not to be a pronominal, and therefore is not subject to the ABRD.

Schafer (1995) proposes a different but related account of disagreement effects in Breton. She assumes that disagreement occurs when the position that the subject was extracted from satisfies the antecedent government requirement of the Empty Category Principle (ECP). Antecedent government is satisfied when the extracted *wh*-phrase is the closest A-bar binder to the extraction site. When antecedent government fails, a null resumptive *pro* must fill the subject position, which in turn triggers the presence of subject agreement.

The most interesting prediction of the approach that Ouhalla and Schafer adopt is that when another A-bar binder intervenes between the moved *wh*-phrase and the extraction site, *wh*-disagreement should no longer occur, because the *wh*-phrase is no longer the closest A-bar binder (15c). As (15d) shows, the presence of an additional operator is only relevant if it intervenes between the *wh*-phrase and the extraction site. If the operator is not the most local A-bar binder of the extraction site, it is not expected to affect whether or not disagreement occurs.

- (15) Predictions of A-bar binding accounts of *wh*-disagreement
- |      |                        |                        |                               |                            |
|------|------------------------|------------------------|-------------------------------|----------------------------|
| a. * | <i>wh</i> <sub>i</sub> |                        | <i>pro</i> <sub>i</sub>       | AGR                        |
| b.   | <i>wh</i> <sub>i</sub> |                        | <i>wh</i> -trace <sub>i</sub> | AGR <sub>neutralized</sub> |
| c.   | <i>wh</i> <sub>i</sub> | operator               | <i>pro</i> <sub>i</sub>       | AGR                        |
| d. * | operator               | <i>wh</i> <sub>i</sub> | <i>pro</i> <sub>i</sub>       | AGR                        |

Given the standard assumption that negation is an operator, Ouhalla's and Schafer's proposals provide an account for why *wh*-disagreement effects are not found in negative questions in languages in which negation intervenes between the subject position and the *wh*-phrase in Spec,CP. The effect of this is that the *wh*-phrase is no longer the closest A-bar binder of the subject position, and hence rich agreement may be present to license *pro* in the extraction site. Negative questions in Breton and Berber, then, involve configurations like (15c).

Ouhalla also provides an analysis in these terms of why there is cross-linguistic variation in whether or not long extraction leads to *wh*-disagreement or not. He assumes that intermediate CP-specifiers are operators in some languages but not others. If the intermediate CP-specifier is an operator, then it is able to locally A-bar bind the extraction site, potentially leading to disagreement effects. If, on the other hand the intermediate CP-specifier is not an operator, then there is no possibility for the extraction site to be locally A-bar bound by a coindexed operator, and therefore *pro* may be freely licensed in the extraction site.<sup>14</sup> Although Schafer does not provide an explicit account of how such variation may be handled in her approach, it is likely that it could easily be adapted to account for such facts.<sup>15</sup>

(14) One thing that is not clear under this account is how the learner is supposed to determine whether the intermediate CP-specifier is an operator or not. The only possible method would seem to be by reasoning backwards from the presence or absence of *wh*-disagreement effects in long-distance questions. This means that the learner can only learn the properties of long-distance questions from exposure to long-distance questions.

(15) See Haik 1990, Georgopoulos 1991 and Schneider-Zioga 1995 for further accounts of *wh*-disagreement phenomena which attribute the effect to an interaction of the inflectional system with conditions on how operator-variable chains are licensed.

For A-bar binding accounts of *wh*-disagreement, the reason for variation in negative and long-distance questions involves the presence or absence of an *operator* between the *wh*-phrase and the position from which it was extracted. In the verb-movement account of disagreement effects, on the other hand, the fact that negation and CP-specifiers are operators is irrelevant to *wh*-disagreement. All that matters is whether or not a morphological requirement forces the verb to raise as far as (or beyond) AGR. In the remainder of this section I document a couple of cases of non-operators which block *wh*-disagreement, and I describe a test case involving an intervening operator which might not block *wh*-disagreement. These situations suggest that intervening operators may be neither a necessary nor a sufficient condition for the blocking of disagreement effects, and they receive an account under the verb-movement approach.

#### 4.2.1. *Non-operators*

The first divergent prediction that the verb movement account makes is that any head that can force verb movement could potentially block *wh*-disagreement, regardless of whether or not it is an operator. I am aware of at least two cases of languages where *wh*-disagreement effects are blocked by non-operators: one case involves agreement, the other involves mood.

The Papuan language Yimas (Foley 1991, Phillips 1996a-b) shows *wh*-disagreement in subject questions, except in situations where the object agreement marker is structurally higher than the subject agreement marker.

Yimas is a language with a very rich system of verbal inflection. In declarative sentences, both subject and object agreement appear as prefixes on the verb, and agreement marking follows a person-based split-ergative case/agreement system.<sup>16</sup> What is particularly interesting about Yimas for our purposes here is the fact that because of its split ergative agreement system, subject agreement sometimes appears closer to the verb than object agreement (i.e. following object agreement, cf. 16b) and sometimes appears further from the verb than object agreement (cf. 16a). I will assume here without discussion that the left-right ordering of prefixes in Yimas maps transparently onto their hierarchical syntactic structure: morphemes on the left spell-out structurally higher heads. See Phillips 1993, 1996a-b for justification of this assumption, in particular the assumption that 3rd person object agreement (absolutive) is the spell-out of a syntactically higher head than 3rd person subject (ergative) agreement (16b).

- |      |    |                 |         |     |    |                |         |     |
|------|----|-----------------|---------|-----|----|----------------|---------|-----|
| (16) | a. | pu-             | nan-    | tay | b. | pu-            | n-      | tay |
|      |    | 3pl.abs         | 2sg.acc | see |    | 3pl.abs        | 3sg.erg | see |
|      |    | 'They saw you.' |         |     |    | 'He saw them.' |         |     |

(Foley 1991)

(16) In Yimas first and second person agreement markers follow a nominative-accusative system, whereas third person agreement markers follow an ergative-absolutive system. This is, in fact, a simplified characterization of what is actually found in Yimas. See Phillips 1996a for an account of the person-based ergative split in this language.

Yimas shows a *wh*-disagreement effect when subjects are extracted, but only when the subject agreement is the leftmost (i.e. outermost) agreement marker (Phillips 1996b). (17a) shows an example of loss of subject agreement in subject extraction; (17b) shows that when the object is marked by a 3rd person absolutive agreement marker, subject extraction does not lead to the loss of the 3rd person ergative agreement marker.

- (17) Yimas subject extraction
- a. 1st/2nd person object: subject agreement absent  
 nawm m- kul- cpul -um?  
 who-pl Comp 2pl-Acc hit PLUR  
 'Who hit you all?'
- b. 3rd person object: subject agreement present  
 nawrm na- mpi -tpul?  
 who-dual 3sg-Abs 3dual-Erg hit  
 'Which two people hit him?' (Foley 1991)

This contrast in whether subject extraction leads to *wh*-disagreement, depending on whether subject agreement is the most peripheral agreement marker, is reminiscent of the cross-linguistic contrast in the effect of negation on disagreement effects. When object agreement is a lower head than subject agreement (17a) this is like negation in Turkish, which has no effect on *wh*-disagreement. When object agreement is a higher head than subject agreement (17b) this is like negation in Breton, which blocks *wh*-disagreement.

I assume a similar analysis for the distribution of agreement in Yimas questions as for the distribution of agreement in negative questions in Breton, Turkish etc. When a subject is extracted the subject position is occupied by a *wh*-trace rather than by *pro*. Since the *wh*-trace does not need to be identified by means of overt agreement, this factor no longer drives verb movement to adjoin to AGR(subject), and therefore subject agreement may not be overtly realized. This is the situation when subject agreement is the highest/most peripheral agreement head in a clause. If, on the other hand, the verb is independently forced to raise to a *higher* agreement head, then subject agreement is picked up by the verb along the way and hence it is overtly realized. This is the situation when subject agreement is lower than object agreement in Yimas.

These facts show us that more than just operators can destroy the environment for *wh*-disagreement. They also support the claim that variation in *wh*-disagreement effects is due to whether the heads that potentially block *wh*-disagreement are syntactically higher than or lower than the head that agrees with the extracted argument.

Further evidence that non-operator elements may block *wh*-disagreement effects can be found in the Austronesian language Palauan (Georgopoulos 1985, 1991). Palauan is best known in the syntactic literature for what has been called *wh*-agreement, a morphological change in the form of verbs in clauses that have been extracted from (Chung 1982). However, the term '*wh*-agreement' should not be understood to mean that an extra morpheme appears in *wh*-extraction contexts

which agrees with the extracted argument. What has been called *wh*-agreement in fact generally involves a morphological alternation which leads to the *loss* of agreement with the extracted argument (Dukes 1992, Nakamura 1995; cf. Chung 1994). In Palauan, for example, extraction leads to alternations in the *mood* morphology on the verb between realis (R) and irrealis (IR). Note that the cases of extraction that we will be looking at in Palauan are topicalizations rather than *wh*-extractions. In the case of subject extraction, it is perhaps no coincidence that the mood alternation involves a shift from the irrealis mood, a mood in which subject agreement is mandatory, to realis mood, a mood in which subject agreement is normally marked only optionally (cf. Georgopoulos 1991: 28). Moreover, when the subject is extracted, subject agreement is not even optional, it is impossible, contrasting with the optionality of subject agreement in declarative clauses with the same realis mood marking, in which subject agreement is optionally marked. This distribution of agreement is strongly reminiscent of *wh*-disagreement effects. (18a) shows an instance of long-distance topicalization of a subject, with the requisite realis mood marking on the embedded verb.<sup>17</sup> (18b) is identical to (18a), except that it is the object that has undergone topicalization in this case, and the verb is accordingly marked with irrealis mood.

- (18) a. Mary<sub>i</sub> [a kltukl [el kmo ng-oltoir er a John \_\_\_<sub>i</sub> ]]  
*R-clear Comp R-3s-Im-love P*  
 'Mary, (it's) clear that \_\_\_ loves John.'  
 b. a John<sub>i</sub> [ a kltukl [el l-oltoir er ngii a Mary ]]  
*R-clear Comp IR-3-Im-love P him*  
 'John, (it's) clear that Mary loves (him).'

(Georgopoulos 1991)

The mood alternation triggered by subject extraction may therefore be nothing more than the spell-out of a verbal complex which lacks subject agreement features, in parallel to the use of participles or neutralized agreeing forms in the other languages we have seen.

What is particularly interesting about *wh*-disagreement in Palauan is that it shows another instance of the fragility of disagreement effects, such as we have seen a number of times already in children and adults. This fragility is reflected in an interaction between the *morphological* mood alternations resulting from extraction and *semantic* mood. When the choice of semantic mood and morphological mood are in conflict, semantic mood always wins. For example, 'if' clauses in Palauan can be expressed by a (nominalized) irrealis clause. This 'if' clause may have either a subject topic or an object topic. Based on the alternation shown in (18) we would expect the choice between subject and object topic to entail an alternation between realis (subject topic) and irrealis mood (object topic). However, as (19) shows, in the 'if' clause irrealis mood is used regardless of whether the topic is a subject (19a) or an object (19b). The effect of this is that the disagreement effect normally associated with subject topics is not found in conditionals, and therefore subject agreement is marked.

(17) Realis mood is also triggered on the matrix predicate *kltukl* here —this is the famous successive cyclic *wh*-agreement effect. See below §5.2 for more on successive cyclic effects.

- (19) a. David a ldese'ii a bilas, e ngmou'ais er kid  
 IR-3-build boat Ptc R-3s-tell P us  
 'If David builds a boat, he will tell us.'
- b. a bilas a ldese'ii a David, e ngmou'ais er kid  
 boat IR-3-build Ptc R-3s-tell P us  
 (Georgopoulos 1991)

Assuming that the difference between realis and irrealis mood does not involve a difference between the presence or absence of an operator, the blocking effect of mood on disagreement effects in Palauan seems to again reflect the fact that *any* head, and not just an operator, can force verb movement and hence force agreement in subject extractions, contrary to the predictions of binding-theoretic analyses of *wh*-disagreement.

Note that in order for the verb movement account of *wh*-disagreement to work for Palauan it must be the case that irrealis forms of the verb (which are obligatorily marked with subject agreement) reflect longer verb movement than realis forms (which do not require obligatory subject agreement). The hierarchy of functional heads in Palauan would have to be as in (20).

- (20) [ IRREALIS [ AGRS [ REALIS ... V

The only morphological difference between realis and irrealis verb forms, however, is the *verb marker* which is prefixed to realis forms but absent from irrealis forms (cf. Georgopoulos 1991: 25). Since I am currently unaware of any independent evidence that realis and irrealis forms differ in the verb movements that they trigger, I must leave this as an unconfirmed prediction.

#### 4.2.2. Non-clausemate Operators

The preceding section presented arguments that intervening operators are not necessary conditions for the blocking of *wh*-disagreement effects. In this section I show the kind of evidence which could show that operators intervening between the *wh*-phrase and the extraction site are also not sufficient conditions for the blocking of *wh*-disagreement effects.

The verb movement approach to disagreement predicts that the conditions that determine whether *wh*-disagreement occurs or not should be as local to the verb as factors that can cause the verb to move. For example, if verb-movement is clause-bound, then the factors affecting the presence or absence of *wh*-disagreement should likewise be clause-bound. Potential environments for *wh*-disagreement should only be destroyed by heads which are higher than agreement but nevertheless in the same clause as the agreement head (assuming that only clausemate heads can drive verb movement).

Therefore, elements like negation should only be able to block *wh*-disagreement if they are in the same clause that has been extracted from, and not if they are in a higher clause. In practice, this prediction is not as easy to test as we might expect, because there are a number of factors which obscure the question of whether clausemate and non-clausemate negation have identical consequences for dis-

agreement effects. First, and obviously, we need to look at a language in which *clausemate* negation blocks *wh*-disagreement. This already excludes Turkish, for example. More critically, we also need to restrict our attention to languages in which *wh*-disagreement is found in affirmative long-distance extractions. Without this control it is impossible to probe for the specific effect of non-clausemate negation on *wh*-disagreement. This excludes most of the languages that we have considered here, leaving only one clear candidate for the test.

The language where we can test whether non-clausemate negation can interfere with disagreement is the dialect of Breton spoken in Tregor (Borsley & Stephens 1989). In this language *wh*-disagreement is found in both short and long extractions, as (21a–b) show. We also know that when the clause that is extracted from is negated, *wh*-disagreement does not occur, and normal agreement marking appears (21c).

- (21) Test case: Tregor Breton
- a. Ar vugale a lenne (\*lennent) al levrioù a zo amañ  
 the children PCL read (\*read-3pl) the books PCL is here  
 'The children who read the books are here.'
- b. Ar baotred a soñj din a lenne (\*lennent) al levrioù  
 a zo amañ  
 the boys PCL think to:1SG PCL read (\*read-3pl) the books  
 PCL is here  
 'The boys that I think read the books are here.'
- c. long-extraction, embedded negation: no disagreement, i.e. verb  
 agrees  
 Ar baotred a soñj din ne lennent (\*lenne) ket  
 al levrioù a zo amañ  
 the boys PCL think to:1SG PCL read:3PL (\*read) not  
 the books PCL is here.  
 'The boys that I think did not read the books are here.'
- (Borsley & Stephens 1989)

The critical prediction, then, involves configurations like (22), in which a subject is extracted from an *embedded* clause, but negation is in the matrix clause. According to the head movement account of disagreement, since the negation is not in the same clause as the agreement head, it should have no effect on the *wh*-disagreement configuration, and the embedded verb should fail to agree. Under the binding theoretic approach, on the other hand, negation should block *wh*-disagreement, and the embedded verb should agree.

- (22) long-extraction, matrix clause negation: ???  
 wh<sub>i</sub> NEG V [CP t<sub>i</sub> AGR-V

At present this stands as an unverified prediction of the theory, as I am unaware of the status of configurations like (22) in Tregor Breton. However, I mention this case because it provides a relatively simple instance of data that could support, or present a serious problem for, the head movement analysis of *wh*-disagreement that

I have proposed here. Note that if it turns out that only clausemate negation interferes with *wb*-disagreement effects, then this does not argue against accounts of *wb*-disagreement stated in terms of A-bar binding, because most of these accounts either already incorporate or could easily be modified to incorporate, a restriction of the relevant binding domain to the local clause. However, if non clausemate negation *does* interfere with disagreement effects in Tregor Breton, this is more of a problem for my approach than the binding-theoretic approaches, which could be accommodated in order to account for such data.

### 4.3. The Forms of Disagreement

Another point of cross-linguistic variation in *wb*-disagreement involves the precise morphological form of the verbs affected by disagreement. In the Northern Italian dialects Fiorentino and Trentino 'neutral' 3rd person singular forms of the verb are used; in Yimas agreement morphemes are dropped from otherwise unaltered verb forms; in Palauan the verb takes on a morphological mood in which subject agreement is not necessary; in Berber and Turkish a participial form of the verb is used; in Kinande the normal subject agreement marker is replaced by a special prefix on the verb.

(23)	a. Fiorentino:	<i>hanno</i> , have.3pl	→	<i>has</i> , have.3sg
	b. Yimas	<i>mpu</i> , 3.PL.ERG	→	–
	c. Palauan	<i>l-lirell-ii</i> , IR.3-PF.made-3s	→	<i>rirell-ii</i> , R.PF.made-3s
	d. Berber	<i>t-zra</i> , 3fs-see	→	<i>yzrin</i> , see.part
	e. Kinande	<i>a-ka-langIra</i> , AGR-PRES-see	→	<i>U-ka-langIra</i> , QAGR-PRES-see

This variation in the morphological form of *wb*-disagreement across languages presents no particular difficulty for the learner, since any instance of *wb*-disagreement provides direct evidence for the verbal form used in disagreement contexts in the target language. Nevertheless, an understanding of this variability could provide an informative clue to the nature of *wb*-disagreement effects.

As already mentioned in a couple of places above, the account of *wb*-disagreement proposed here predicts that the form of the verb used in *wb*-disagreement contexts should be the spell-out of all features normally marked by an inflected verb *except* subject agreement. What this spell-out looks like will depend on factors such as (i) whether agreement is normally realized by an independent morpheme, or whether it shares a morpheme with other inflectional features (e.g. tense), (ii) what conditions apply in the language to determine what constitutes a morphologically well-formed word.

Therefore, the simplest spell-out of disagreement will be found in a language in which agreement is an independent morpheme, and in which there are few or no morphological well-formedness conditions on words. Yimas is an example of such a language: it just drops the morpheme that agrees with the extracted argument. Palauan represents a slight variant on the Yimas situation: it allows dropping of subject agreement, but only in the realis mood. Therefore, the most striking feature

of *wh*-disagreement in Palauan is the alternation in morphological mood, although the mood alternation may just be a reflection of the omission of subject agreement.

In Fiorentino and Trentino agreement is not dropped from the verb in disagreement contexts, rather plural agreement is 'neutralized' to singular agreement forms. The choice of neutralizing rather than omitting agreement in these languages may be a response to the fact that tense and agreement share a morphological marker. If the verb still needs to spell-out tense, then some agreeing form must be used. Third person singular is just the default agreeing form.

The situation in Berber and Kinande is slightly more complex. In Berber a participial verb form replaces agreeing verbs in disagreement contexts, and in Kinande the normal subject agreement marker is replaced by another morpheme. These situations may reflect a response to morphological well-formedness conditions that are operative in the respective languages. If it were not for the discontinuous morpheme *y...n* in Berber participles or the additional prefix in Kinande, the agreement-less verbs would not qualify as possible words in the language.

Therefore, I am suggesting that the forms of the verb used in *wh*-disagreement alternations represent the minimal change required in a given language to spell-out a verbal complex which lacks subject agreement features.<sup>18</sup> This account of the variability in the morphological realization of *wh*-disagreement is a natural consequence of the verb movement approach to disagreement.

In sum, this section has surveyed some of the considerable variability that is found across languages in the kinds of questions that are affected by *wh*-disagreement effects, and suggested the morphological factors that may be responsible for this variability. The generalization proposed is that when the position and morphological requirements of a given head force a verb to move to it, picking up subject agreement along the way, *wh*-disagreement effects are not found in subject extractions. This account parallels the account given for disagreement effects in early child language (i.e. so-called 'root infinitives') in § 3 above, and thereby explains why adult *wh*-disagreement effects are similarly *fragile* to child disagreement effects. In addition to explaining the parallels between adult and child disagreement effects, this account also has potential advantages for the learnability of variability in adult *wh*-disagreement effects, because some of the parameters of variation in *wh*-disagreement may be learned based on evidence available in declarative utterances that are likely to be frequent in the input to the learner, and the learner is no longer dependent on relatively obscure types of *wh*-questions in order to determine the values of these parameters.

## 5. Extensions

Sections 2–4 have proposed answers to the questions raised in Section 1 concerning the nature of variability in disagreement effects, both among adult languages

(18) In fact, a similar account may be given for the form of children's root infinitives. See Varlokosta, Vainikka & Rohrbacher 1996 for evidence for this, based on the use of a non-infinitival default verbal form by children learning Modern Greek.

and between adult and child languages. In this section I discuss some possible extensions of the analysis of *wh*-disagreement to related phenomena. The issues discussed in this section are given in (24):

- (24) a. What happens to the ‘stray’ subject agreement heads?  
 b. Why does long extraction sometimes cause ‘successive cyclic’ *wh*-disagreement effects?  
 c. When should we expect to see disagreement processes involving *object* agreement?  
 d. Do we find adult languages with exactly the same kind of agreement alternation that we have seen in two year old children?

I should note at the outset that the discussion in this section is at a more speculative level than the discussion in the previous sections.

### 5.1. Complementizer Agreement

The first question is one that arises immediately from the claim that disagreement is due to failure of verb movement, as a result of which the verbal complex lacks subject agreement features. I am effectively claiming that although the subject agreement features are not realized on the verb, they are nevertheless syntactically present, and would in fact be overtly visible, were it not for the accidental morphological fact that there is no spell-out for them as a free-standing word. What this should lead us to expect is that this ‘accidental morphological fact’ does not hold in all languages, and that sometimes we *do* see an overt spell-out of the agreement features that the verb has failed to pick up.

The best candidate that I am aware of for such a state of affairs is found in the Bantu language Kinande (Schneider-Zioga 1986, 1995). In Kinande the subject agreement markers that are prefixed to the verb in declaratives are generally impossible when the subject has been extracted. The boldface agreement prefix on the verb in the declarative in (25a) is impossible in (25b).

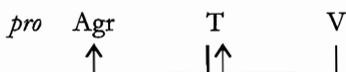
- (25) a. Yosefu a- ka- yenda  
 J. AGR- PRES-leave  
 ‘Joseph is leaving.’  
 b. yOndI y’ (\*a)- U- ka- langIra Marya  
 who CAGR (\*AGR)- QAGR- PRES-see Mary  
 ‘Who sees Mary?’ (Schneider-Zioga 1995)

However, subject agreement does not fail to be marked when the subject is extracted. In subject extractions the complementizer agrees with the extracted subject—the morpheme glossed as *CAGR* in (25b) is a marker on the complementizer which varies with the class of the extracted noun, just like normal subject agreement in Kinande.<sup>19</sup>

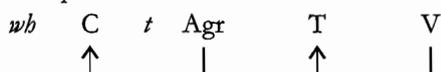
(19) In the Kinande examples the glosses *CAGR* and *QAGR* refer to the agreement morphemes realized on the complementizer and the verb respectively in questions and other extraction contexts.

This alternation between agreeing verbs in declaratives and agreeing complementizers when the subject is extracted may be a consequence of the same verb movement alternations which I have claimed to underlie *wh*-disagreement effects in other languages. I suggest that in Kinande the verb fails to move as far as usual when the subject is extracted: this is because there is no need to license *pro*, and it leads to the different spell-out of the verb. However, I suggest that Kinande differs from the languages discussed in §4 in the respect that subject agreement is still overtly realized in subject questions. I suggest that in Kinande the subject agreement head raises to adjoin to the complementizer position, and is then spelled-out as part of an agreeing complementizer (26b). This movement of the inflectional head to C in questions parallels the I–C movement that is familiar from non-subject questions in English such as *Who did John see?*

(26) a. Declarative



b. *Wh*-question



If complementizer agreement and regular agreement on the verb are the spell-out of the *same* syntactic features, then their complementarity (23b) is straightforwardly explained.

A property of Kinande subject extractions that does not follow from this account is the fact that when the subject is extracted and complementizer agreement appears, the verb still bears a prefix which marks agreement with the subject, only it is drawn from a quite different series of agreement markers from the ones used in non-extraction contexts. The morpheme glossed as QAGR in (23b) is an example of this kind of prefix. I am forced to assume that these markers are the spell-out of a different and lower head than the normal subject agreement head, but I must leave open for now the question of precisely what this head is.

## 5.2. Successive Cyclicity

In the discussion of Palauan above I focused on the morphological changes that extraction triggers on verbs whose *own subject* is extracted. As is well known, however, extraction in Palauan (and the related Austronesian language Chamorro) can have rather more exotic consequences —extraction of an argument across a number of clause boundaries typically triggers a morphological reflex on the verb of *every clause that is extracted across*. If the extracted argument is extracted from inside a clausal subject, then the verb selecting that clausal subject has the form it would have if the entire subject had been extracted. If, on the other hand, a *wh*-phrase is extracted from inside a clausal complement, then the verb selecting that complement has the form it would have if the entire complement were extracted.

(27) shows some typical examples of long-distance extraction in Palauan (cf. Georgopoulos 1991: 90–94). In (27a) a subject has been extracted from a subject clause, and hence both the matrix and embedded predicates show the realis form required by subject extraction. In (27b) an object has been extracted from a subject clause. In this case, then, the embedded predicate is irrealis, as required by object extraction, but the matrix clause is realis, since it is its clausal *subject* that has been extracted from. In (27c) an object has been extracted (relativized) from an object clause, and therefore both the lower verb *grow* and the higher verb *think* are both irrealis, as required by object extraction.

- (27) a. a Mary<sub>i</sub> [a kltukl [el kmo ng-oltoir er a John \_\_\_<sub>i</sub>]]  
           R-clear COMP R-3s-Im-love P  
           ‘Mary, (it’s) clear that \_\_\_ loves John.’  
 b. a John<sub>i</sub> [a kltukl [el l-oltoir er ngi<sub>i</sub> a Mary]]  
           R-clear COMP IR-3-Im-love P him  
           ‘John, (it’s) clear that Mary loves him.’  
 c. a bung<sub>i</sub> [el l-ulemdasu a del-ak [el l-omekeroul  
       \_\_\_<sub>i</sub> a Mary er a sersell]] a mla mad  
       flower COMP IR-3-think mother-1s COMP IR-3-Im-grow  
       P garden-3s R-PST R-die  
       ‘The flowers my mother thought Mary was growing in her garden  
       died.’ (Georgopoulos 1991)

Phenomena such as this have generally been referred to in the literature as *successive cyclic wh-agreement*, and they have been taken to provide striking evidence in favor of a successive cyclic movement analysis of long-distance extraction, according to which long-distance extraction consists of a number of steps of local extraction through intermediate Spec,CP positions (Chung 1982, 1994; Georgopoulos 1985, 1991). The logic of the argument is quite simple: the effect of long extraction on the form of a series of verbs can be straightforwardly accounted for if the path of extraction contains a series of positions which are local to each of those verbs. However, as we shall see below, there are other ways of accounting for the successive cyclic character of *wh*-disagreement in these languages.

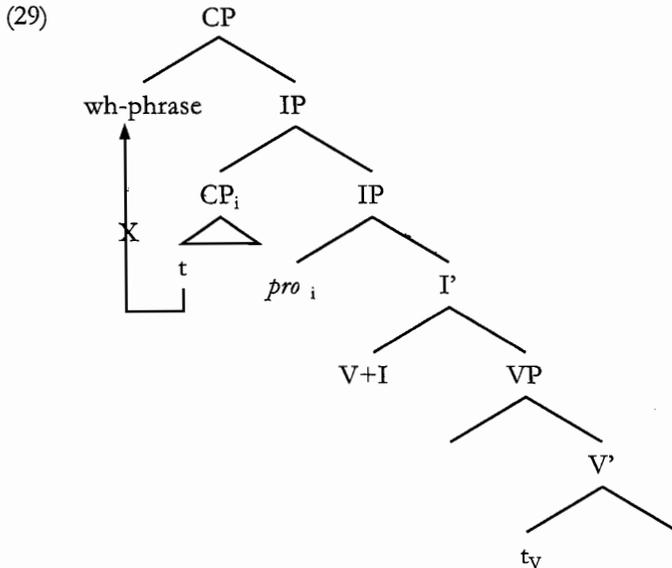
Given the account I have suggested for *wh*-disagreement in cases of subject extraction in Palauan, an obvious question that arises is whether this account can be extended to account for the successive cyclic effects of extraction in Palauan or Chamorro. Here I give a brief sketch of how the successive cyclic effects might fit into the verb movement approach to *wh*-(dis)agreement.

I suggest that argument positions in Palauan and Chamorro are generally occupied by the null argument *pro*, and that the overt NPs and CPs that correspond to those argument slots are adjoined phrases, following the account of null subject languages in Barbosa 1995, which builds on Baker’s approach to polysynthetic languages (Baker 1991, 1995).<sup>20</sup> As a result of the fact that clausal arguments occupy

(20) Palauan and Chamorro allow null subjects and objects licensed by rich agreement. However, in suggesting that argument positions are normally filled by *pro* in these languages, I do not intend to imply that these languages show the syntactic properties of ‘pronominal argument languages’ documented by Baker (1995) and others, e.g. lack of binding asymmetries.

adjoined positions in these languages, then we predict that it should be difficult to extract phrases from inside them, given that extraction from adjuncts is generally impossible cross-linguistically, as exemplified for English in (28a–b). This restriction is commonly known as the Condition on Extraction Domains (CED), following Huang 1982. (29) illustrates the schematically problematic kind of extraction from an adjoined clausal subject.

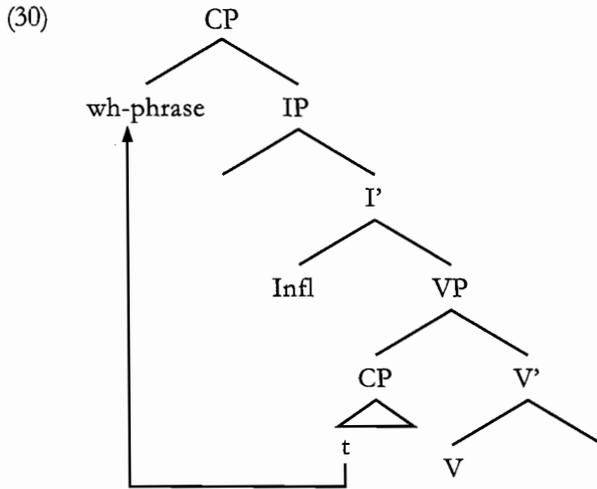
- (28) a. \*Who did John get annoyed when Bill mentioned?  
 b. \*What word did you pull out your dictionary after reading?



However, I suggest that this problem with extraction from an embedded clause may be circumvented if the clausal argument occupies an argument position rather than an adjoined position, and that the successive cyclic property of 'wh-agreement' in Palauan and Chamorro is a consequence of the need for clauses that are extracted from to occupy argument positions.

If an argument position is occupied by an overt phrase rather than by *pro*, then there should be no need for the verb to raise to adjoin to AGR in order to license *pro* (assuming that no other factor forces verb raising in these languages). Each clause that is extracted out of will be subject to the requirement that it occupy an argument position, in order to avoid a CED violation. This in turn predicts that each clause in the path of extraction will show the effects of not needing to license *pro* in an argument position. I suggest that it is this that accounts for the successive cyclic aspect of wh-disagreement in subject extraction in Palauan and Chamorro. Successive cyclic wh-(dis)agreement is therefore simply a consequence of the fact that wh-phrases cannot be extracted from adjuncts. (30) shows the structure I suggest for a well formed extraction out of a clausal subject with corresponding wh-disagreement. The clausal subject occupies SpecVP in (30), rather than being

adjoined to IP as in (29). As a result, there is no need for the verb to raise to adjoin to Infl in order to license a *pro* subject.<sup>21</sup> Therefore, agreement is not spelled-out on the verb.



These remarks on successive cyclic *wh*-(dis)agreement are intended to be no more than preliminary. Clearly further work will be needed to test whether this is a generally viable approach to the phenomenon.<sup>22</sup>

(21) I assume here that the clausal subject that is extracted from occupies a VP-internal subject position, rather than Spec,IP. However, nothing crucial hinges on this assumption. All that matters is the claim that extraction out of a clausal subject prevents that subject from being in an adjoined position, and forces it to be in an A-position, in which it is possible to extract from inside the clausal subject.

(22) One example of the kinds of additional facts surrounding successive cyclic *wh*-agreement which need to be handled can be found in Chung 1994, where it is shown that *wh*-agreement in Chamorro is sensitive to whether the extracted phrase is referential/specific/D(iscourse)-linked in the sense of Cinque 1991 and Pesetsky 1987. In short, when the *wh*-phrase is specific (e.g., *which boys*) *wh*-agreement is only required inside the immediate clause that is extracted from, and is only optionally found in higher clauses along the path of extraction. Consider for example the minimal pair in (i–ii): in both cases the *wh*-phrase *which part in the car* is specific/referential and is extracted out of an embedded clause, but whereas *wh*-(dis)agreement is found in both the lower and the higher clause in (i), it is only present in the lower clause in (ii).

- (i) Hafa na patti gi atumobit malago'-mu [t u-mafa'maolik t ]?  
 what? L part LOC car WH[OBL].want-AGR WH[NOM].AGR-be.fixed  
 'Which part in the car do you want to be fixed?'  
 (ii) Hafa na patti gi atumobit malägn' hao [ u-mafa'maolik t ]?  
 what? L part LOC car AGR.want you WH[NOM].AGR-be.fixed  
 'Which part in the car do you want to be fixed?'  
 (Chung 1994)

This fits straightforwardly with Chung's analysis of *wh*-agreement as a reflection of successive cyclic movement, given Cinque's arguments that non-specific *wh*-phrases must move successive cyclically whereas specific *wh*-phrases do not need to move successive cyclically (Cinque 1991).

However, given my claim that successive cyclic '*wh*-agreement' does not reflect successive cyclic *wh*-movement, but instead reflects the positioning of clausal arguments that is required in order to avoid CED violations, there must be some other reason for the effect of specificity on *wh*-agreement. One possibility is that in the same way as specific *wh*-phrases in English are immune to *wh*-island and superiority violations, specific *wh*-phrases in Chamorro are immune to CED violations.

Notice, however, one interesting consequence of this analysis. This approach suggests that what has been called successive cyclic *wh*-agreement in the past is merely a reflex of clausal arguments remaining in argument positions when they are extracted from, as opposed to a genuine process of *agreement* with an argument from a more deeply embedded clause that is 'passing through' the higher clause on its way to its ultimate landing site. If this is correct, then these phenomena in Palauan and Chamorro no longer provide such a compelling argument for successive cyclic *wh*-movement as they have been thought to provide.<sup>23</sup>

### 5.3. Object Disagreement

Thus far I have confined my attention almost entirely to *wh*-disagreement effects involving subject agreement and subject extraction. However, nothing in the account of *wh*-disagreement that I have outlined here implies that subject agreement is special in any way, and therefore we should expect to find similar disagreement processes affecting object agreement when objects are extracted.

It is not particularly surprising that disagreement processes involving object agreement are less common than subject disagreement effects, given that object agreement is cross-linguistically much rarer than subject agreement. Nevertheless, there are a number of promising candidates for object *wh*-disagreement. These include some languages that we have already discussed here —Yimas, Palauan, Chamorro and Kinande, and one that we have not yet discussed— Abkhaz (Anderson 1974). Some of these fit naturally into the verb movement account of disagreement effects; others do not, as we shall see.

The verb movement approach to disagreement effects makes one fairly clear prediction about where object *wh*-disagreement should and should not be possible, and this prediction essentially reduces to the Highest Head Generalization from (11) above. Given the Highest Head Generalization, if there are two agreement heads which must normally be overtly realized in order to facilitate licensing of two *pro* arguments, then only the *higher* of the two agreement heads should be able to be affected by *wh*-disagreement, for the following reason. *Wh*-disagreement occurs when a step of verb movement becomes unnecessary, because a position normally occupied by *pro* is occupied by a *wh*-trace. However, if there is a *pro* in a *higher* position in the clause which still needs to be identified by the overt realization of a higher agreement head, then the verb is still forced to move through the lower AGR head on its way to the higher AGR head.

Therefore, we only expect to find object extraction leading to loss of object agreement in situations where the object agreement head is the highest agreement

(23) See Dukes 1992 and Nakamura 1995 for related attempts to reanalyze the Chamorro *wh*-agreement facts in terms of how clausal arguments must reposition themselves in order to be extracted from. Dukes assumes that successive cyclic *wh*-agreement is a reflection of the fact that only non-finite clauses can be extracted from in Chamorro. Nakamura argues that successive cyclic *wh*-agreement reflects the fact that only topics can be extracted from in Chamorro. Clauses that are extracted from must be topicalized, and topicalization triggers topic-marking on the verb, in a manner familiar from other Austronesian languages like Tagalog and Malagasy. Both of these analyses share with my proposal the consequence that successive cyclic *wh*-agreement does not entail successive cyclic *wh*-movement.



Chamorro to those tenses in which Chamorro follows an ergative case/agreement system. This much is consistent with my hypothesis about object disagreement. However, Chamorro is problematic in a couple of respects.

First, the morphological effect of object extraction is not obligatory, and it does not obviously involve loss of overt object agreement (although it is of course always possible to postulate phonologically null agreement markers). Compare the agreeing verb in the declarative in (33) with the verb nominalized by the infix *-in-* in (34a). (34b) shows that failure to nominalize in object extractions does not lead to ungrammaticality.

- (33) Ha-fahan si Maria i sanhilo'-ña gi tenda  
 E3s-buy M. the blouse-her loc store  
 'Maria bought her blouse at the store.'
- (34) a. Hafa f-in-ahan-ña si Maria gi tenda?  
 what in-buy-her M. loc store  
 'What did Maria buy at the store?'
- b. Hafa ha-fahan si Maria gi tenda  
 what E3s-buy M. loc store  
 'What did Maria buy at the store?'

Second, given the Highest Head Generalization, we expect there to be extremely tight restrictions on when a language can show both subject and object disagreement processes, because only the highest agreement head should be able to be affected by disagreement. Yimas shows both subject and object *wh*-disagreement, but as we saw this is due to the fact that either the subject or the object of a transitive verb is marked by the outermost agreement affix in different situations, given the person-based split-ergative system in Yimas. Chamorro and Palauan, on the other hand, do not show a person-based ergative split, and therefore it is not clear how both subject and object *wh*-(dis)agreement should be possible under the account I have been advocating here.

Kinande (Schneider-Zioga 1995) is anomalous in a different way. Kinande follows a nominative-accusative case system, and therefore the existence of *wh*-disagreement as a consequence of *subject* extraction is not surprising. The existence of a disagreement effect with *object* extraction is unexpected. However, Schneider-Zioga (1995) provides a candidate for *wh*-disagreement in Kinande object extraction. The object agreement marker is required in the declarative in (35a), and it is impossible in the object extraction in (35b).

- (35) a. Yosefu a- ka- ha EBikEnE ByO Marya  
 J. AGR-TENSE-give yams AGR M.  
 'Joseph is giving the yams to Mary.'
- b. EBihI ByO Yosefu akaha (\*ByO) Marya  
 what CAGR J. gives (\*AGR) M.  
 'What is Joseph giving to Mary?' (Schneider-Zioga 1995)

However, it may be misleading to characterize this process as object *wh*-disagreement, since it differs in a number of respects from the *wh*-disagreement phe-

nomena that we have observed elsewhere, and therefore it may not present a problem for the analysis of disagreement proposed here.

First, 'object agreement' in Kinande does not occur with all objects. It only occurs following the first object of a double complement construction, or following the subject of a small clause complement. Second, it is not an affix on the verb, but a morpheme which is either free-standing or a clitic on the NP *following* the NP that it marks, depending on the phonological shape of the following NP. The highlighted morpheme in (36) is an example of this object agreement marker.

- (36) Yosefu a- ka- ha EBIkEnE ByO Marya  
 J. AGR-TENSE-give yams AGR M.  
 'Joseph is giving the yams to Mary.'

Thus, it is not clear that this morpheme should be associated with verb movement at all. It may be more appropriate to consider it as a structural case marker which is restricted to exceptional case marking environments (i.e. environments in which the verb case-marks but does not theta mark an NP). The fact that the case marker no longer appears when the NP that it marks is extracted is unsurprising.

French and Italian provide a candidate for 'object disagreement', which serves to clarify the prediction that derives from the Highest Head Generalization.<sup>27</sup> French and Italian are uncontroversially languages which follow a nominative/accusative system of case and agreement. Both languages show restricted agreement with objects. Although participles do not show agreement with post-verbal objects (37a, 38a), participles do show gender agreement with object clitics (37b, 38b).

- (37) a. Jean a ouvert la porte.  
 'John has opened.neutral the door.fem.'  
 b. Jean l'a ouverte.  
 'John it-has opened.fem.' (French)
- (38) a. Gianni ha mangiato la mela.  
 'Gianni has eaten.m (=neutral) the apple.fem.'  
 b. Gianni l'ha mangiata.  
 'John it-has eaten.fem.' (Italian)

However, in neither of these languages do participles agree with objects that have undergone *wh*-extraction (39ab). This may be viewed as an instance of object *wh*-disagreement in an accusative language, although the facts are clearly open to alternative accounts.<sup>28</sup>

- (39) a. Que (est-ce que) / quelle porte a ouvert(\*e) Jean?  
 'What (is-it that) / which door has opened(\*fem) John?'

(27) I am grateful to an anonymous reviewer for pointing out the relevance of these facts to my proposal.

(28) The distribution of object agreement in relative clauses is more complicated. In both French and Italian object agreement is degraded in relative clauses, but only in French relative clauses with postverbal subjects is object agreement judged to be as bad as object agreement in *wh*-questions (cf. 35a).

- b. Cosa / quale mela ha mangiato (\*mangiata) Gianni?  
 'What / which apple has eaten.m (\*eaten.fem) Gianni?'

However, even if French and Italian do show object *wh*-disagreement, this is not a counterexample to my prediction, because object agreement in these languages is marked on participles, whereas subject agreement is marked on the finite auxiliary. Therefore it is entirely possible for the participial head to fail to pick up an AgrO head without this entailing the disappearance of overt subject agreement marking.

Summarizing this brief review of object *wh*-disagreement effects: the verb movement account of *wh*-disagreement makes clear predictions about where object *wh*-disagreement should and should not be possible cross-linguistically. As we have seen, some of the possible cases of object *wh*-disagreement fit straightforwardly with these predictions, others do not. I pointed out some problems that Chamorro and Kinande object *wh*-disagreement may raise, and reasons why these may not be problematic after all.

#### 5.4. Closer Parallels between Adults and Children

The final loose end that I address arises from the claim that the disagreement effects described above in children and adults are actually consequences of the same syntactic process, absence of verb movement when conditions normally forcing verb movement are suspended. The question is the following: if what the children and the adults are doing is so similar, then surely we should find more direct parallels of adult *wh*-disagreement in children. We should find adult languages in which there is agreement in extraction contexts but loss of agreement in declaratives. And we should find child languages with alternations that look more like adult *wh*-disagreement, with perfectly agreeing declaratives and loss of agreement in extraction contexts.

The closest adult parallel to the alternation that we have seen in children is the disagreement effect in Abkhaz (Dumézil 1967, Anderson 1974) briefly mentioned above. The agreement alternation found in Abkhaz is shown in (40), repeating (32). The absolutive agreement marker *y* is present on the verb when the argument that it agrees with (the direct object) precedes the subject (40a), but is absent when the object is immediately adjacent to the verb (40b).

- (40) a. a-c<sup>o</sup>g<sup>o</sup>ə a-la y.a-ba.yt' b. a-c<sup>o</sup>g<sup>o</sup>ə a-la a-ba.yt'  
 def-cat def-dog 3i-3i-see-past def-cat def-dog 3i-see-past  
 'The dog saw the cat.' 'The cat saw the dog.'

(Anderson 1974)

One possible analysis of this alternation would be to assume that in sentences like (40a) in which the object is not adjacent to the verb it has undergone topicalization, an instance of A-bar movement, whereas in (40b) the object is in an A-position. If this were the case, it would mean that the agreement marker *y* in Abkhaz is only present when the argument that it marks has undergone A-bar movement. This parallels what we have seen in child Dutch, German and Swedish in Section 3 above, insofar as the children show perfect agreement in questions and

topicalizations. The Abkhaz alternation differs from the children in that the loss of *y* in (40b) is *obligatory*, whereas the two-year olds seem to show *optional* agreement in declarative clauses.

Therefore Abkhaz provides a close adult analog of the disagreement effect that we have observed in children. I suggest a parallel analysis of this agreement alternation to the one given for agreement alternations in children. I assume that the order SOV reflects the basic word order of the language, and that the order OSV reflects topicalization of the object. I therefore suggest that verb movement as far as the object agreement head, which is higher than the subject agreement head, is required when the object is topicalized, but not when the object remains *in-situ*. However, I leave it as an open question why topicalizations should have such an effect on verb movement in Abkhaz.

The one remaining cell of the paradigm involves agreement alternations in children which parallel adult *wh*-disagreement effects, i.e. children who produce perfectly agreeing declaratives but show loss of agreement in *wh*-extraction contexts. I am unaware of cases of exactly this situation, but there is at least one report in the child language literature of a closely related alternation. Vainikka (1994) reports for two English children that they pass through a stage at which subject pronouns are reliably correct in declaratives (i.e. *I go*), but often incorrect in *wh*-questions (i.e. *where me go?*).<sup>29</sup> If subject case errors in child language are a reflection of deficient or unrealized agreement (as argued in Schütze & Wexler 1996 and Schütze 1997), then this alternation may reflect a *wh*-disagreement effect similar to what we have observed in adult languages.

However, this may be due to the relatively small number of child languages that have been examined in detail at this point.

## 6. Conclusion

So, to wrap up: I have tried to provide an idea of how we might go about solving two problems involving disagreement phenomena and language learning.

The first problem is one of learnability: how can children figure out the specific details of where *wh*-disagreement does and does not apply in their target language, without having to wait for the kind of input data that they may never encounter? Here I suggested that if the variations in where *wh*-disagreement applies are based on variations in verb movement which have clear morphological triggers, then children might even be able to figure out all the details of *wh*-disagreement in their target language with exposure to almost no questions at all.

The second problem was the question of why some two year olds seem to show an agreement alternation which is the mirror image of adult *wh*-disagreement effects. What I suggested here was that once we pay attention to the verb movement requirements of the particular languages where children show these effects, we see that the children are actually doing just the same thing as adults; they just happen to be doing it in languages whose verb movement properties pattern differently across the various construction types.

(29) Thanks to Carson Schütze for pointing out the relevance of this case.

One final comment: an aspect of this project which I find particularly encouraging is the fact that a new way of approaching a problem in the analysis of *adult* languages has emerged from the detailed study of *child* language development, the opposite of the manner in which studies of adult and child language typically interact.

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Department of Linguistics  
University of Delaware  
46 E. Delaware Avenue  
Newark, DE 19716  
USA

e-mail: colin@udel.edu