Varieties of Coordinated Questions in Twi

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1. Basic Goals

In this paper I investigate properties of coordinated wh-questions in Asanti Twi (Niger-Congo). The two relevant types of coordinated question are given in English in (1) and (2). The first involves to wh-words that are apparently coordinated with one another. I deem these coordinated-wh questions (CoWh). The second involves a wh-word tagged on to the end of a wh-question. Call these tag-wh questions (TagWh).

(1) What and when did Dana eat?
(2) What did Dana eat and when?

What concerns me here is the degree to which these two constructions are more derived in similar ways. The particular features of Twi that arise in these sorts of constructions may prove suggestive. But before getting into the details: Is there any reason to suspect that they are derived either in similar ways or not?

Giannakidou and Merchant 1998 propose a theory that would contend that these sentences are indeed derived in similar ways. Both (1) and (2) are derived via deletion of a syntactically existing clause to the exclusion of a wh-word. This sluicing sort of analysis would represent (1) and (2) like (3) and (4) respectively. In both instances there is a clause that goes unpronounced due to some sort of identity with the pronounced clause across the coordination.

(3) What did Dana eat and when did Dana eat?
(4) What did Dana eat and when did Dana eat?

On the other hand, Larson 2012, 2013 posits that these two constructions are in fact derived in wholly differing ways. Only TagWh constructions like that in (2) involve deletion of a clause. This is shown in (6) below. This differs from CoWh constructions which are derived via high base-generation of the leftward wh-word without any syntactically existing clause. This option will be discussed for fully herein.

(5) [What] and [when did Dana eat]?
(6) What did Dana eat and when did Dana eat?

In this paper certain characteristics of Twi are explored with respect to CoWh and TagWh constructions. While not entirely dispositive, the results seem to favor an account of these two constructions wherein they are derived in separate fashions. The characteristics concern the verbal morphology of transitive verbs in Twi, its differing coordinators, and its ability to delete clauses to the exclusion of wh-words.

2. Bigger picture

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The surface facts of CoWh constructions are perplexing in languages, like English and Twi, that only allow single wh-fronting. As can be seen in the English example in (7a) and the Twi example in (7b), it is not the case that more than one wh-word can be overtly displaced in a single clause.

(7)  
  a.  *What when did Dana eat?  
  b.  *dɛn  brebɛn na Kofi dii?  
     what when  C Kofi ate  
     ‘what did Kofi eat when?’

This forces us to say that in such languages, it is not the case that the wh-words could have moved independently in CoWh constructions. This dual-movement is not possible and cannot be resorted to as a means to explain the CoWh surface facts. The asterisks in (8) below indicate the ungrammaticality of the represented derivation, not the unacceptability of the surface string.

(8)  
  a.  *What and when did Dana eat t_i t_j?  
  b.  *dɛn_t_i ne brebɛn_na Kofi dii t_i t_j?  
     what and when  C Kofi ate?  
     ‘What and when did Kofi eat?’

Further, it is not the case that these two wh-words could have moved to the left en masse as a constituent as the representation in (9) would have it. The two wh-words in these examples are of different sorts. One is an argument wh-word and the other is an adjunct wh-word. These cannot possibly form a constituent and as such cannot possibly move as one.

(9)  
  a.  *[What and when], did Dana eat t_i?  
  b.  *[dɛn ne brebɛn], na Kofi dii t_i?

This leaves a paradox. The two wh-words cannot have moved up separately and they cannot have moved up together. This is of course rather problematic, but we have a few options for resolving it.

One means is of avoiding the paradox is by employing ellipsis in some fashion. This has been explored by Browne 1972, Bánréti 1992, Giannakidou and Merchant 1998, and Whitman 2002 among others. Under such an account examples like those we have been looking at actually involve two syntactically complete clauses that are coordinated. In each clause there is a single wh-movement, thus obeying the independent strictures of these single-wh movement languages. After this wh-movement there is deletion of all but the wh-word in the first clause. This is shown in (10). The surface form of the sentences appears without the need to violate any movement constraints.

(10)  
  a.  [What, did Dana eat t_i] and [when, did Dana eat t_j]?  
  b.  [dɛn_t_i na Kofi dii t_i] ne [brebɛn_na Kofi dii t_j]?

Another means of avoiding this paradox is to maintain that we are dealing not with two wh-dependencies of the traditional sort, but rather they dependencies that each wh-word has with the verb differ from one another. This view has been promulgated by Larson 2012, 2013 (see also Larson, Kush, and Lewis 2012). This approach posits that coordinated-wh questions involve two types of dependency. For the rightward wh-word, it reaches its overt position via traditional syntactic movement. The leftward wh-word is base-generated high in its own inchoate clause that is coordinated with the second. This approach is sketched in (11) below.
This second approach, despite its initial strangeness, is permitted under current Minimalist (Chomsky 1995) theory. There is no longer any D-structure that would force the leftward wh-word to necessarily be base-generated in its thematic position as the complement of the verb. So long as it can somehow achieve a thematic interpretation at some level of representation, the sentence should be grammatical all else being equal.

This sort of derivation is interesting for another reason as well. It has long been axiomatic that all wh-displacement be derived in the same way (at least since Chomsky 1957). This sort of analysis requires that wh-displacement not be monolithically driven by syntactic movement (or lexical features in transformation-less theories), but that long-distance wh-dependencies can be derived in multiple ways.

Lastly, can be seen in the representation in (11), this sort of analysis relies on the possibility of a null variable down low to be bound by the leftward wh-word (see Bresnan 1978 and Johnson 2001 for motivation for this and Larson 2013 for arguments concerning its inapplicability in CoWh). That is, the wh-word in the first conjunct needs a thematic interpretation as it has never merged with a verb in the relevant position. It gets its interpretation by binding a null variable introduced by certain verbs (like eat in English). This dependency is not a syntactic one, but solely a semantic one.

This second account forces a different account for TagWh questions like in (12a). It requires that they be derived via coordination of two full clauses plus ellipsis as in (12b).

(12)   a. When did Dana eat and what?
       b. [When did Dana eat] and [what did Dana eat]?

The reason for this difference stems from the fact that the sentence in (12a) is not grammatical with a derivation like that in (11). Given the asymmetry of coordination (Munn 1993), the sluiced wh-word could not possibly bind a variable (it is not in a position to take scope over it) in the first conjunct and thus not receive thematic interpretation. This is sketched in (13) below.
So these are the two main options for CoWh and TagWh constructions. In this paper I argue that evidence from Twi seems to support this latter, hybrid view over the former, unified one. In the next section I explore the particular properties of Twi that help make the case.

3. Coordinated Questions in Twi

First it is important to note the extent of CoWh sentences in Twi. As seen below it is possible to coordinate argument wh-words, adjunct wh-words, and a mix of both:

(14) ɛhe ne brebɛn na Kofi didii?
where and when C Kofi ate
‘Where and when did Kofi eat?’

(15) hena ne dɛn na Kofi bɔɔ?
who and what C Kofi hit
‘Who and what did Kofi hit?’

(16) dɛnɛ na Kofi dii?
what and when C Kofi ate?
‘What and when did Kofi eat?’

That (14) and (15) are possible is not very interesting or surprising as these sentences could plausibly have been derived via movement of a single coordinated constituent. The sentence in (14) involves the coordination of two modifying adjunct wh-words and the sentence in (15) involves two argument wh-words that share the same thematic role. Sentence like the one in (16) are more interesting. As noted above, the constituent option is not possible here. The question is whether (16) was derived in part due to deletion or not.

3.1 Transitivity distinctions in Twi

In Twi, certain verbs have different instantiations depending on whether they are used transitively or intransitively (Ofori 2006). As you can see in (17b), it appears in a reduplicated version when there is only an implied internal argument. This differs from the simplex version of the verb in (17a) where the internal argument is overt.

(17) a o-dii nam
3sg-ate fish
‘he ate fish’
b. o-didii
   3sg-ate
   ‘He ate’

This morphological distinction holds for wh-constructions as well. In (18a), argument extraction requires the simplex version of the verb whereas in (18b) adjunct extraction requires the reduplicated version.

(18) a. dɛn na Kofi dii?
    what C Kofi ate?
    ‘what did Kofi eat?’

b. brebɛn na Kofi didii?
    when C Kofi ate?
    ‘When did Kofi eat?’

In CoWh constructions in which the argument wh-word is the leftward one, we find that only the transitive, simplex version of the verb is possible:

(19) dɛn ne brebɛn na Kofį (*di)dii?
    what and when C Kofi ate?
    ‘What and when did Kofi eat?’

The fact that only the transitive version of the verb is acceptable is unexpected under the ellipsis account. Under such an account the second conjunct ought to look like that in (18b), as there has only be adjunct extraction. This is sketched in (20). The argument extraction in the other conjunct is wholly independent of this clause and should have no bearing on the form of the verb, yet it nevertheless does.

(20) *dɛn na Kofi dii ne brebɛn na Kofi didii?
    what C Kofi ate and when C Kofi ate?
    ‘What and when did Kofi eat?’

Under the differing dependency-type approach (where the first dependency is of a separate type from the first), this result is less unexpected. Larson 2012 posits a semantic (though not syntactic) dependency between the argument wh-word and the verb and perhaps it is this solely semantic dependency that allows the verb to maintain its transitive form despite not involving syntactic movement. It is however unclear how this would specifically work under the Larson 2012 analysis.

Interestingly, when the argument wh-word comes second, it too effects the transitive version of the verb. This suggests that the argument dependency conditions the change. Whenever there is an argument wh-word in a dependency with the verb (whether or not the dependency is syntactic in nature) it causes the verb to appear in its transitive form.

This admittedly would be a strange state of affairs. It is not usually the case that a semantic dependency between the wh-word and the verb can have a morphological reflex that is not mediated in some way by the syntax. This is the position that Larson 2012, 2013 would have to take though to account for both (19) and (21).

(21) brebɛn ne dɛn na Kofi (*di)dii?
    when and what C Kofi ate?
    ‘What and when did Kofi eat?’

3.2 Versions of ‘and’

In Twi there are at least two versions of ‘and’: One for clausal coordination, and one for coordination of things smaller than clauses (Kobele and Torrence 2004). These can be seen in the examples (22) and
(23) below. The example in (22) involves the clausal version of the coordinator where as the example in (23) involves the coordinator for smaller entities.

(22) me-huu Kofi na wo-bɔɔ Yaa
1sg-saw Kofi and 2sg-hit Yaa
‘I saw Kofi and you hit Yaa.’

(23) me-huu Kofi ne Ama
1sg-saw Kofi and Ama
‘I saw Kofi and Ama.

The two accounts of CoWh investigated here seem to make differing predictions as to whether the clausal ‘and’ is to be used in Twi CoWh or whether the ‘and’ for smaller entities is used. The ellipsis approach involves the coordination two fully-fledged clauses and as such one might expect the clausal ‘and’ to be used. As seen in (24), when coordinating full wh-questions, the clausal coordinator na is obligatory:

(24) dɛn na Kofi dii na/*ne brebɛn na Ama didii?
what C Kofi ate and when C Ama ate?
‘What did Kofi eat and when did Ama eat?’

As seen in (25), A similar sentence in CoWh form requires the version of ‘and reserved for smaller entities. This is unexpected under an ellipsis account where all that differs between (24) and (25) is the phonological deletion of first conjunct to the exclusion of the wh-word.

(25) dɛn ne/*na brebɛn na Kofi (*dii)dii?
what and when C Kofi ate?
‘What and when did Kofi eat?’

This militates against an account in which two whole clauses are coordinated. Under the account proposed by Larson 2012, 2013, we are dealing with coordination of a clause with a ‘smaller’ constituent and this distinction is again less unexpected. Nevertheless, such data is again not dispositive as the use of either coordinator could be determined by non-syntactic factors.

3.3 Sluicing in Twi

It is conceivable that the above data is what it is due to conditions on the use of na in conjunction with ellipsis. Perhaps the use of na necessary is conditioned on coordinating full clauses so long as there has been no ellipsis. In this final subsection I argue against this possibility and suggest that Twi might not have wh-sluicing to begin with. If this were the case, the contest between two competing hypotheses for CoWh would be easily decided in favor of the hybrid account which does not involve wh-sluicing.

As seen in (26) it does not seem to be the case the Twi has sluicing in the traditional sense. Eliding a clause to the exclusion of the wh-word does not seem to be possible. Instead of the wh-word in (26), a non-interrogative pronoun must be used as seen in (27).

(26) *Kofi bɔɔ obi na me-nim hena
Kofi hit someone and 1sg-know who
‘Kofi hit someone and I know who’

(28) Kofi bɔɔ obi na me-nim no
Kofi hit someone and 1sg-know him/her
‘Kofi hit someone and I know him/her.’

This makes an ellipsis-based analysis of coordinated-wh questions less plausible. It would have to be the case that ellipsis to the exclusion of wh-words is generally not possible except for CoWh constructions. It should be clear that such a proposition is to be avoided if possible.
We are now able to make an interesting prediction. Recall that under the Larson 2012, 2013 account, TagWh sentences like the English (28) were posited to be derived via ellipsis in the second conjunct.

(28)  What did Dana eat and when?

If such is the case, then this type of sentence should not be possible in Twi which does not seem to allow this sort of ellipsis. In fact, it seems that the Twi TagWh analogue of (28) is not acceptable:

(29)  *dɛn na Kofi dii na brebɛn?
      what C Kofi ate and when
      ‘What did Kofi eat and when?’

So we have a distinction. CoWh is possible in Twi, but not TagWh. This is dichotomy predicted by the Larson account which predicts an asymmetry, but not by the ellipsis account which predicts both to be equally grammatical.

Further, note that Twi optionally leaves its wh-words in situ (from Kobele and Torrence 2004). The wh-word can be moved overtly like in (30) or not move overtly like in (31).

(30)  dɛn na wo-noae?
      what C 2sg-cooked
      ‘What did you cook?’

(31)  wo-noaa dɛn?
      2sg-cooked what
      ‘What did you cook?’

In these cases, it is sometimes possible to append a coordinated bare wh-word to the in situ wh-word. This is shown in (32) below. Here we have a regular in-situ wh-question (Kofi bɔɔhena) and essentially added to it is another wh-word (dɛn). The result is acceptable.

(32)  Kofi bɔɔhena ne dɛn?
      Kofi hit who and what
      ‘Who and what did Kofi hit?’

Note however that the non-clausal coordinator is used here (obligatorily so). This suggests that there is mere DP coordination going on and not full clausal coordination plus ellipsis. This possibility is corroborated by the fact that arguments and adjuncts cannot be coordinated in the same fashion. This is seen below in (33) with an argument wh-word appended to an adjunct and in (34) where an adjunct wh-word is appended to an argument.

(33)  *Kofi didii brebɛn na dɛn?
      Kofi ate when and what
      ‘When and what did Kofi eat?’

(34)  *Kofi dii dɛn na brebɛn?
      Kofi ate what and when
      ‘When and what did Kofi eat?’

In this section, we saw that Twi does not seem to employ sluicing and as such a sluicing approach to coordinated-wh questions is implausible. The analysis in which coordinated-wh questions differ from sluicing makes the correct split. Further, there are certain instances where the surface form of TagWh constructions can be derived. But it was shown that this is an instance of small, non-clausal coordination of DPs and not derived via sluicing.
In sum, we have seen in this section evidence from verbal morphology, coordination type, and the availability of sluicing that suggest that the ellipsis approach is no the correct one for Twi CoWh constructions. Further, the distinctions between CoWh constructions and TagWh ones points to a sort of hybrid analysis like that posited in Larson 2012. Under such an approach, CoWh constructions are represented like in (35) and TagWh constructions are represented like that in (36).

(35)  
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(35)  
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(36) What did Dana eat and when did Dana eat?

In the next section I explore yet one final way in which CoWh constructions might be derived.

4. Another possible analysis

The data presented above could also possibly be explained by a multidominance approach to CoWh questions following Gracanin-Yuksek 2007 and Citko & Gracanin-Yuksek 2013. The basic form of this approach for languages like English and Twi is sketched in (37) below. Though initially potentially intimidating, the representation presented below in (37) is in fact easily explicable.

(37)  
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(37)  
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In the above representation, there are two conjuncts. But many of the nodes are shared across both. The V, T, [spec,TP], and C nodes are dominated by nodes both in the first conjunct and in the second conjunct. Not shared are the two [spec,CP] nodes that contain the wh-words. Given that there are two separate conjuncts, the wh-words can move each in their own clause and not violate English or Twi strictures on single wh-movement. Also, when one assumes a certain linearization scheme, the shared nodes can be forced to be pronounced all in the second conjunct. These coupled together can derived the basic facts of CoWh constructions (see Gracanin-Yuksek 2007 for further details).

Note that the V node is shared across the conjuncts. This means it can take two internal arguments, one for each conjunct. Also, if the verb is of a sort that can do without an syntactic complement (that is, it is optionally transitive), it should be possible for that shared verb to take a complement in one conjunct and merely an adjunct in another.

Grossly simplified, this approach holds that so long as the verb in question is optionally transitive, CoWh questions involving an argument wh-word and an adjunct one should be acceptable. The verb 'shares' the to-be-moved argument wh-word and the to-be-moving adjunct wh-word. This works in (38) with optionally transitive verbs like eat. But it does not work for obligatorily transitive verbs like fix as is shown in (39). The verb in (39) is missing an obligatory complement in the second conjunct and is for this reason ruled out.

This analysis makes the correct predictions for both English (noted by Whitman 2002, Gracanin-Yuksek 2007, and Larson 2012) and Twi. As seen in (40) and (41), only optionally transitive verbs are acceptable in CoWh constructions.

(38)

(39)

This analysis makes the correct predictions for both English (noted by Whitman 2002, Gracanin-Yuksek 2007, and Larson 2012) and Twi. As seen in (40) and (41), only optionally transitive verbs are acceptable in CoWh constructions.

(40) a. What and when did Dana eat?
   b. *What and when did Dana fix?

(41) a. dɛn ne brebɛn na Kofi dii?
   b. *dɛn ne brebɛn na Kofi bɔɔ?

   ‘What and when did Kofi hit?’

However, this approach runs into a problem. The multidominance account predicts that only verb-type matters. As long as the wh-words at hand are of the sort that the verbs selection restrictions accept, the sentence should be grammatical. This is not the case. If the word order of the wh-words is altered, sentences with obligatorily transitive verbs that were heretofore unacceptable, become acceptable. This is shown in (42b) and (43b) below.

(42) a. When and what did Dana eat?  (from Larson 2012)
   b. When and what did Dana fix?

(43) a. brebɛn ne dɛn na Kofi dii?

   ‘When and what did Kofi eat?’

   when and what C Kofi eat
   ‘When and what did Kofi eat?’

   b. brebɛn ne dɛn na Kofi bɔɔ?

   ‘When and what did Kofi hit?’

So the multidominance account makes incorrect predictions based on the word order of the wh-words. The hybrid account presented here on the other predicts precisely predicts these facts. Recall
that only the rightward wh-word in the hybrid account has actually undergone movement. The leftward one merely binds a variable that it can find. Assuming that adjunct wh-words can always find a null variable to bind, they should be acceptable as the first wh-word no matter the verb-type. This is shown in (44) and it predicts that no matter what the verb is, when the adjunct wh-word is the leftward one, the CoWh sentence should be acceptable. As see above in (42) and (43) this is the case.

(44) When, and what, did Dana fix \( t_i \) \( \text{time-x} \)

In short, the promising multidominance account runs into a problem that the hybrid account offered here does not.

5. Conclusion

In this short paper I have argued that coordinated-wh questions in Twi do are not derived via ellipsis or multidominance. Instead, though it is not always definitive, the evidence from Twi points to an approach to the construction wherein only one wh-word moves syntactically and the other wh-word is base-generated in a position from which it can bind a variable.

Evidence from this view comes from four types of evidence. First, the transitive version of the verb arises in such constructions and this runs counter to what the ellipsis account would predict. Second, the particular coordinator employed is the one that joins sub-clausal elements. Third, Sluicing does not seem to be available in Twi. The fact that CoWh is possible in Twi and TagWh is not suggests that CoWh is not derived via sluicing but that perhaps TagWh is. Finally, The order of the wh-words crucially determines the acceptability of the sentences and this is something counter-predicted by multidominance accounts.

The hybrid account presented here does not obviously fail to capture these facts, but it also does not obviously capture them either. The facts however are clear and should help structure the comparison of these hypotheses further.

References