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Wh- Question Formation in Krachi

Abstract This article describes wh- question formation in Krachi, an underdocumented and threatened Kwa language of the North Guang branch of the Tano
phylum. Krachi employs a variety of wh- question formation strategies, including the
regionally and genetically prevalent strategies of wh- movement and wh- in-situ, as
well as partial wh- movement, a highly marked phenomenon in Kwa. Based on
fieldwork, we investigate the properties of each question formation strategy, focusing
on the distribution of interrogative items and the constraints imposed upon
interrogatives across each strategy. We compare these properties in Krachi with those
in Akan, the most thoroughly studied Tano language, and find that although there are
some similarities, the majority of the features defining Krachi wh- question formation
are absent in Akan.

Keywords Krachi *wh*- questions, *wh*- focus movement, *wh*- in-situ, partial *wh*- focus movement

1. Overview

This article describes *wh*- question formation in Krachi¹ (alternatively spelled "Kaakye", "Kaakyi", "Kaci", "Krache", and "Krakye"), an under-documented and highly threatened Volta-Comoe language (Westermann and Bryan 1952, Greenberg 1963) of the North Guang branch of the Tano phylum of Kwa languages. Krachi employs a variety of *wh*- question formation strategies, including the regionally and genetically prevalent *wh*- ex-situ focus (1a) and *wh*- in-situ (1b) strategies, as well as partial *wh*- ex-situ focus (1c). These three strategies are illustrated below.²

- (1) a. Ne yı Kofi e-gyırı fee ɔ-kyı wo e-mɔ? what FOC Kofi PST-say COMP CL-woman the PST-kill 'What did Kofi say that the woman slaughtered?'
 - b. Kofi e-gyrr fee o-kyr wo e-mo ne? Kofi PST-say COMP CL-woman the PST-kill what 'What did Kofi say that the woman slaughtered?'

The following abbreviations are used in the glosses of example sentences: CL – noun class marker; COMP – complementizer; FOC – focus; FUT – future; NEG – negative; PROG – progressive; PRS – present; PST – past; REL – relative pronoun; SG – singular.

¹ This article owes its existence to the help of the following native speaker consultants who generously provided the data on which it is based: Mark Nsekou Denteh, Matthew Donkor, and Joseph Agyei Korboe, for Krachi, and Peter Afful, Selassie Ahorlu, David Opoku, and Peter Owusu-Opoku, for Akan (Asante Twi). We also extend our sincere thanks to our helpful anonymous JALL reviewers, Kofi Agyekum, Felix Ameka, Chris Collins, Mark Dundaa and the Ghana Institute for Linguistics, Literacy & Bible Translation (GILLBT), and Mr. Daniels Ananey Adonae for their logistical, material, and scholarly support.

² The Krachi data in this article are presented in the official Krachi orthography developed by the Ghana Institute for Linguistics, Literacy & Bible Translation (Dundaa 2007). Because the orthography does not mark Krachi's two surface level tones (High and Low (Snider 1990, Adonae 2005)), we have omitted tone marking from our representations.

c. Kofi e-gyırı fee ne yı o-kyı wo e-mo?

Kofi PST-say COMP what FOC CL-woman the PST-kill
'What did Kofi say that the woman slaughtered?'

The article is intended as a descriptive overview of wh- question formation in Krachi. We survey a number of interrogative question-word phenomena in the language based on fieldwork, including: wh- focus movement, the distribution of wh- in-situ in main and embedded clauses, embedded (indirect) questions, partial wh- focus movement, and constraints on wh- question formation such as islands, intervention effects, and superiority. We compare these properties in Krachi with those in Akan³, the most thoroughly studied Tano language, and find that although there are some similarities, the majority of the features defining Krachi wh- question formation are absent in Akan. The article constitutes a contribution to the small existing body of work on Krachi grammar (Korboe 2001, Korboe 2002, Agbedor and Adonae 2005, Dundaa Nd.) and will hopefully seed future research into this under-investigated threatened language.

The article is organized as follows. Section 2 provides a brief background on the Krachi language, highlighting the features of its grammar that are most relevant for the discussion that follows. Sections 3 and 4 focus on *wh*- in-situ in main and embedded complement clauses respectively. In Section 5 we discuss embedded (i.e. indirect) questions in the language, with a focus on the distribution of interrogative-items in the construction. Section 6 investigates partial *wh*- focus movement, while Section 7 explores constraints on *wh*- question formation in the language. Section 7 summarizes and concludes the article.

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 $^{^3}$ Unless otherwise noted, the Akan (Asante Twi) data presented in this article also come from fieldwork.

2. Background on Krachi

Krachi is spoken in the Krachi West and Krachi East districts of the Volta region in central eastern Ghana. The Krachi-speaking area centers around the commercial center Kete Krachi, which is situated on Lake Volta. Krachi is a member of the Guang subgroup of the Kwa languages. Within Guang, Snider (1989) places Krachi in the River group of the North Guang languages. Adonae (2005), however, classifies Krachi as a Central Guang language. By all accounts, Krachi's closest relative is Nchumburung (Cleal 1973). According to Adonae (2005), there are four dialects of Krachi: Central (spoken in Kete Krachi), West (spoken in the Kajaji, Nkomi and Odefour communities of the Sene district in the Brong Ahafo region), East (spoken in non-exclusively Krachi-speaking communities such as Dambai, Ayiremo, Kparekpare, and Tokoroano along the Oti River east of Kete Krachi) and North (spoken in the northern Volta region by a number of smaller communities along the main Krachi-Tamale road that border the Nchumburung communities). These four Krachi varieties are mutually intelligible, but dialectal differences are easily noticed by linguistically untrained native speakers. The data from this paper are drawn exclusively from the Central Krachi dialect.

Syntactically, Krachi is an SVO constituent order language.

(2) **5-kyt wv ε-m5 bwate wv**.

CL-woman the PST-kill chicken the 'The woman slaughtered the chicken.'

Like other Guang (especially North Guang) languages, Krachi has noun classes⁴, and a concordial agreement system. There is some disagreement as to the overall number of noun classes in the language. Dundaa (Nd.), for example, claims the existence of eight distinct classes, while Korboe (2002) analyzes Krachi as having eleven. See Korboe 2002 and Snider 1988 for details on the language's noun class system. As illustrated below, the noun class of a particular noun can be determined by the class prefix on the noun, which may be phonetically null in certain cases.

(3) a. **ɔ-ky**ı 'woman' b. a-kyı 'women' c. kı-kpureki 'vulture' d. a-kpvreki 'vultures' e. ku-gyo 'yam' f. **i-gyo** 'yams' 'chicken' g. Ø-bwate h. m-bwatε 'chickens'

Focused constituents are displaced in the language. They surface on the left edge of the clause and are immediately followed by the focus marker y₁.5

(4) a. **Kwaku ɛ-tɪŋ ku-gyo w**v. (Neutral clause)

Kwaku PST-cut CL-yam the
'Kwaku cut the yam.'

b. Kwaku yı o-tıŋ ku-gyo wo. (Subject focus) Kwaku FOC 3RD.SG-cut.PST CL-yam the 'KWAKU cut the yam.'

⁴ Krachi's noun class system differentiates it from other Tano language, like Akan, which has only the remnants of a noun class system (Osam 1994).

⁵ A variant of the focus marker, l_{ι} , exists in a number of regional Krachi dialects spoken outside of Kete-Krachi (Adonai, p.c.). Although our speakers know that this form exists, they do not use it. For this reason, we have represented the focus marker as y_{ι} rather than l_{ι} in this article.

c. Ku-gyo wo yi Kwaku e-tin.

(Object focus)

CL-yam the FOC Kwaku PST-cut 'Kwaku cut THE YAM.'

Wh- question formation in the language involves a number of interrogative expressions. The inventory of Krachi interrogative items is given below in Table 1.6

(5) Table 1 - Wh- expressions in Krachi

Wh- expression	Translation
nse	'who'
nε	'what'
nfwε	'where'
k <i>€</i> m ık €	'when'
n en e	'how'
nan ı	'why'
n € kumus v ⁷	'why'
$n\varepsilon s v^8$	'why'

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⁶ The phonemic representation of Krachi wh- items varies from author to author. For example, Dundaa (Nd.) represents 'who' as nsa, while Korboe (2002) and Snider (1989) take it to be nse. The form for 'what' is given by both Dundaa and Korboe as ne, however, Snider writes it as n√kAetc. Other alternative representations of Krachi interrogative expressions include the following analyses: mftre 'where' (Dundaa), M-f 're 'where' (Snider), k√-mAeke 'when' (Snider), naani 'why' (Dundaa), nane 'why' (Snider), navvnv 'which' (Dundaa), and a-f're 'how many' (Snider). We speculate that these representational differences may stem from the fact that different authors had analyzed different dialects.

⁷ The item ne kumusv is itself composed from the following components: ne 'what' + kumu 'head' + sv 'on'. We have found that the expression ne kumusv patterns identically with nant in all respects investigated in this article. We leave it for future research to determine what subtle differences (if any) exist between nant and ne kumusv.

m vm v	'which'
aftrε	'how many'

Although a number of structural issues arise concerning the organization of the language's wh- paradigm (e.g. the prevalence of nasal-initial forms and front mid vowels, the use of reduplication in forms like 'how' and 'which', and the existence of apparent morphological roots in forms like 'where' and 'how many'), we leave a thorough analysis for future research as it is likely that a fuller understanding of this paradigm will require data from different Krachi dialects and other North Guang languages.

3. Main clause wh- in-situ

In main clauses, Krachi freely allows *wh*- in-situ for nearly all non-subject interrogative expressions. (6a-b) show that both simple and complex interrogative items may appear clause-internally, while (6c-e) demonstrate that adjunct interrogative expressions may also appear in-situ. Note that unlike the instance of *wh*- in-situ exemplified in (1b), the non-peripheral interrogatives below do not surface clause-finally. This illustrates that there is no requirement in the language that in-situ interrogatives must surface at the right edge of the clause.

(6) a. **5-kyι wυ ε-m5 nε ndiye**?

CL-woman the PST-kill what yesterday 'What did the woman slaughter yesterday?'

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⁸ The item nesv is composed of the pieces: ne 'what' +sv 'on'. We have found that like ne kumusv it also patterns identically with nant in all the respects investigated in this article and leave it for future research to determine what subtle differences (if any) exist between nant and nesv.

- b. o-kyt wo e-mo bwate wo momo ndiye?

 CL-woman the PST-kill chicken the which yesterday 'Which chicken did the woman slaughter yesterday?'
- c. o-kyt wo e-mo bwate wo nftre biren?

 CL-woman the PST-kill chicken the where quickly 'Where did the woman slaughter the chicken quickly?'
- d. **5-kyt wo e-m5 bwate wo kemtke biren**?

 CL-woman the PST-kill chicken the when quickly 'When did the woman slaughter the chicken quickly?'
- e. **5-kyt wo e-m5 bwate wo nene ke-nyeso?**CL-woman the PST-kill chicken the how CL-night 'How did the woman slaughter the chicken at night?'

Non-subject interrogative expressions may also appear ex-situ in left peripheral focus positions, as illustrated in (7). We have been unable to detect any interpretive or contextual differences between the in-situ constructions in (6) and the ex-situ focus constructions in (7).

- (7) a. Ne yı ɔ-kyı wv e-mɔ ndiye? what FOC CL-woman the PST-kill yesterday 'What did the woman slaughter yesterday?'
 - b. Bwate wo momo yt o-kyt wo e-mo ndiye? chicken the which FOC CL-woman the PST-kill yesterday 'Which chicken did the woman slaughter yesterday?'
 - c. Nfire yi o-kyi wo e-mo bwate wo biren? where FOC CL-woman the PST-kill chicken the quickly 'Where did the woman slaughter the chicken quickly?'
 - d. Kemtke yt o-kyt wo e-mo bwate wo biren?
 when FOC CL-woman the PST-kill chicken the quickly 'When did the woman slaughter the chicken quickly?'

e. Nene yı o-kyı wo e-mo bwate wo ke-nyeso? how FOC CL-woman the PST-kill chicken the CL-night 'How did the woman slaughter the chicken at night?'

The coexistence of both *wh*- in-situ and ex-situ *wh*- focus for non-subjects is attested in other Tano languages, such as the Akan cluster (Saah 1988). This property, however, differentiates these Tano languages from syntactically better-studied Kwa languages like those of the Gbe cluster, for instance, which do not allow *wh*- in-situ in non-echo questions (Aboh 2007).

Krachi wh- subjects can also occur either in-situ or in focus, as illustrated below.

- (8) a. **Nse e-kya**? who PST-dance 'Who danced?'
 - b. Nse yı o-kya? who FOC 3RD.SG-dance.PST 'Who danced?'

The ability of wh- subjects to freely occupy in-situ positions in non-multiple content questions differentiates Krachi from other Tano languages like Akan. (9) below illustrates that in Asante Twi, a wh- subject expression may not appear clause-internally, but rather must appear in an ex-situ focus position.

- (9) Asante Twi
 - a. *Hena boo Ama? who hit.PST Ama
 - b. **Hena na o-boo Ama**? who FOC 3RD.SG-hit.PST Ama 'Who hit Ama?'

Thus, for Krachi, there is no subject/non-subject asymmetry with respect to whin-situ in main clauses. Preliminary research suggests that Krachi's distributional profile in this regard is atypical of Tano languages in general. Among the Central Tano languages, for example, Wasa and Bono have been shown to pattern like Asante Twi in constraining subject interrogative expressions from appearing in-situ (Torrence and Kandybowicz 2012, 2013). Cross-linguistically, as well, this restrictive pattern is widely attested, further highlighting the special status of Krachi in-situ interrogative subjects. Restrictions on in-situ subject interrogatives have been documented in a variety of related and unrelated wh- in-situ languages, including Hausa (Green and Jaggar 2003), Zulu (Sabel and Zeller 2006), Kitharaka (Muriungi 2005), Kinyarwanda (Maxwell 1981), Dzamba (Bokamba 1976) and Malagasy (Potsdam 2006), among others.

Interestingly, unlike all other interrogative expressions in Krachi, the item meaning 'why' (nant) cannot occur in-situ. Instead, it must surface on the left edge of the clause.

- (10) a. *o-kyı wu e-mo bwate wu nanı ndiye?

 CL-woman the PST-kill chicken the why yesterday
 - b. Nant yt o-kyt wo e-mo bwate wo ndiye?
 why FOC CL-woman the PST-kill chicken the yesterday
 'Why (for what reason) did the woman slaughter the chicken yesterday?'

Overall, then, we have seen that there is a 'why'/non-'why' asymmetry in Krachi.⁹ Non-'why' interrogatives are highly flexible and can surface either clause-internally or

⁹ A reviewer points out that in some languages *wh*- adverbials exhibit a duality in which they pattern like arguments in some cases and adjuncts in others. Tsai (1994), for example, showed that in Mandarin Chinese there is an instrumental 'how', which functions like an argument, and a manner 'how', which functions like an adjunct. The reviewer asks whether adjuncts like 'how' exhibit a comparable duality in Krachi. As it turns out, the *wh*-item *nene* 'how' is indeed ambiguous in the language. The data below reveal that the item can either be interpreted as a manner operator or as an instrumental because either (ib) or (ic) constitute appropriate possible answers to the question posed in (ia).

- (i) a. Q: Nene yt o-kyt wv e-mo bwate wv? how FOC CL-woman the PST-kill chicken the 'How did the woman slaughter the chicken?'
 - b. A: **ν o-kyι wυ ε-mo bwatε wυ biren**. (Manner 'how' reading)

 CL-woman the PST-kill chicken the quickly

 'The woman slaughtered the chicken quickly.'
 - c. A: \checkmark **5-kyt wu e-mo bwate wu ye 5-stkan**. (Instrumental 'how' reading)

 CL-woman the PST-kill chicken the with CL-knife

 'The woman slaughtered the chicken with a knife.'

However, with regard to its in-situ status we do not find a duality of behavior comparable to what Tsai observed in Mandarin. Unlike true *wh*- adjuncts like *nant* 'why', *nene* is able to appear in-situ, regardless of its argument/adjunct status.

- (ii) a. Q: o-kyt wo e-mo bwate wo nene?

 CL-woman the PST-kill chicken the how 'How did the woman slaughter the chicken?'
 - b. A: **ν o-kyι wυ ε-mo bwatε wυ bireŋ**.

 CL-woman the PST-kill chicken the quickly 'The woman slaughtered the chicken quickly.'
 - c. A: **ν o-kyι wυ ε-mo bwate wυ yε ostkan**.

 CL-woman the PST-kill chicken the with knife 'The woman slaughtered the chicken with a knife.'

peripherally. 'Why', on the other hand, obligatorily surfaces on the left edge of the clause. Similar 'why'/non-'why' asymmetries have been documented in other Niger-Congo languages including distantly related Bantu languages like Kiitharaka (Muriungi 2005), Bakweri (Marlo & Odden 2007), Zulu (Buell 2011), and Lubukusu (Wasike 2007). They have also been observed in unrelated languages and language families, such as Italian (Rizzi 2001), Romanian (Shlonsky & Soare 2009), New Testament Greek (Kirk 2012), Persian (Karimi 2005), English (Hornstein 1995, Thornton 2008, Stepanov & Tsai 2008), Korean & Japanese (Ko 2005), and Chinese (Lin 1992). Closer to home, Saah (1988) has pointed out that unlike other non-subject interrogative expressions in the language, 'why' cannot appear in-situ in Akan.

- (11) Akan (Saah 1988)
 - a. *Kwadwo boo Ama den ade nti? Kwadwo hit.PST Ama what thing why
 - b. **Den ade nti na Kwadwo boo Ama**? what thing why FOC Kwadwo hit.PST Ama 'Why did Kwadwo hit Ama?'
 - c. *Wo-baa ha aden nti? 2ND.SG-come.PST here reason why
 - d. Aden nti na wo-baa ha?
 reason why FOC 2ND.SG-come.PST here
 'Why did you come here?'

These considerations reinforce the generalization that with regard to the distribution of *wh*- in-situ in the language, 'why' is exceptional. That is, we do not observe an argument-adjunct asymmetry. We observe a 'why'-non-'why' asymmetry.

4. Embedded clause wh- in-situ

Apart from the item 'why', all Krachi interrogative expressions may appear in-situ in embedded complement clauses. The data in (12) illustrate this for subject expressions (12a), direct objects (12b), and adjuncts (12c-e). The ungrammatical example in (12f) confirms that just as in matrix clauses, 'why' cannot surface clause-internally.

- (12) a. **Kofi ε-gyrt fεε nsε ε-mɔ bwatε w**υ?

 Kofi PST-say COMP who PST-kill chicken the 'Who did Kofi say slaughtered the chicken?'
 - b. Kofi e-gytri fee o-kyi wo e-mo ne ndiye?

 Kofi PST-say COMP CL-woman the PST-kill what yesterday 'What did Kofi say that the woman slaughtered yesterday?'
 - c. Kofi e-gyırı fee o-kyı wu e-mo bwate wu nfıre biren?

 Kofi PST-say COMP CL-woman the PST-kill chicken the where quickly 'Where did Kofi say that the woman slaughtered the chicken?'
 - d. Kofi e-gyırı fee o-kyı wu e-mo bwate wu kemıke biren?

 Kofi PST-say COMP CL-woman the PST-kill chicken the when quickly 'When did Kofi say that the woman slaughtered the chicken quickly?'
 - e. Kofi e-gyuri fee o-kyi wu e-mo bwate wu nene ke-nyeso?

 Kofi PST-say COMP CL-woman the PST-kill chicken the how CL-night 'How did Kofi say that the woman slaughtered the chicken at night?'
 - f. *Kofi e-gyırı fee o-kyı wu e-mo bwate wu nanı ndiye?

 Kofi PST-say COMP CL-woman the PST-kill chicken the why yesterday

The availability of *wh*- in-situ in Krachi is not constrained by depth of embedding. The data in (13) below illustrate in-situ interrogative items appearing in progressively more deeply embedded domains. The interrogative expressions in (13b,c), for example, are doubly embedded and the resulting structures are grammatical.

- (13) a. **Kofi ε-gyent fee Ama nyi ne**?

 Kofi PRS-think COMP Ama know what 'What does Kofi think that Ama knows?'
 - b. Kofi e-gyent fee Ama nyi fee Kwame e-mo ne?

 Kofi PRS-think COMP Ama know COMP Kwame PST-kill what 'What does Kofi think that Ama knows that Kwame slaughtered?'
 - c. Kofi e-gyent fee Ama nyi fee Kwame e-mo bwate wo nene?

 Kofi PRS-think COMP Ama know COMP Kwame PST-kill chicken the how 'How did Kwame slaughter the chicken, according to what Kofi thinks Ama knows?'

The distribution of in-situ interrogatives in Krachi embedded domains is actually broader than the facts above suggest. Instances of *wh*- in-situ across more varied embedded domains in the language appear in Sections 5 and 7.1, when embedded questions and islands are taken into consideration.

Similar to their behavior in main clauses, embedded interrogative items in the language may surface in focused left peripheral positions. The data below illustrate long-distance *wh*- focus dependencies in Krachi.

- (14) a. Nse yt Kofi e-kware o-gyt fee o-mo bwate wv?

 who FOC Kofi PST-collect 3RD.SG-eat.PST COMP 3RD.SG-kill.PST chicken the 'Who did Kofi believe slaughtered the chicken?'
 - b. Nε yι Kofi ε-kware o-gyι fee o-kyι wυ ε-mo? what FOC Kofi PST-collect 3RD.SG-eat.PST COMP CL-woman the PST-kill 'What did Kofi believe that the woman slaughtered?'
 - c. Nftre yt fe e-nu fee o-kyt wo e-mo bwate wo? where FOC 2ND.SG PST-hear COMP CL-woman the PST-kill chicken the 'Where did the woman slaughter the chicken, according to what you heard?'
 - d. Kemtke yt fe e-nu fee o-kyt wo e-mo bwate wo? when FOC 2ND.SG PST-hear COMP CL-woman the PST-kill chicken the 'When did the woman slaughter the chicken, according to what you heard?'

- e. Nene yı fe e-nu fee o-kyı wu e-mo bwate wu? how FOC 2ND.SG PST-hear COMP CL-woman the PST-kill chicken the 'How did the woman slaughter the chicken, according to what you heard?'
- f. Nant yt fe e-nu fee o-kyt wυ ε-mo bwate wυ? why FOC 2ND.SG PST-hear COMP CL-woman the PST-kill chicken the 'Why did the woman slaughter the chicken, according to what you heard?'

The availability of wh- in-situ in embedded contexts is a salient property that distinguishes Krachi from closely related languages. In Akan, for instance, all interrogative expressions are restricted from appearing in embedded domains in non-echo questions. This is shown below for non-subject and non-'why' in-situ interrogatives in Asante Twi complement clauses.

(15) Asante Twi

- a. *Wo dwene se Ama boo hwan?

 2ND.SG think COMP Ama hit.PST who
- b. *Wo nim se Ama saa ehifa? $2^{ND}.SG$ know COMP Ama dance.PST where
- c. *Wo nim se Ama saa (e)bere ben?

 2ND.SG know COMP Ama dance.PST time which
- d. *Wo nim se Ama saa sen?

 2ND.SG know COMP Ama dance.PST how

5. Embedded questions

Typological research has revealed that there is considerable cross-linguistic variation in verb selection for embedded questions. Due to this work, we know that different classes of verbs behave differently with respect to selection for embedded questions. For instance, in English (Huang 1982) and Mandarin Chinese (Cheng 1997) verbs

like 'think' and 'believe' fail to select embedded questions, whereas verbs such as 'know' do so optionally, and verbs like 'ask' and 'wonder' select for them obligatorily. In Krachi, only one verb (bise 'ask') selects for embedded questions. Other verbs that either optionally or obligatorily select for embedded questions in other languages express indirect question meanings via a relativization strategy.

To illustrate these selectional restrictions, consider the verb 'know', which in English can optionally embed an indirect question. In Krachi, the verb *nyi* 'know' may not combine with a clause containing an interrogative item, regardless of whether or not that interrogative item appears in focus (16a,c,e) or in-situ (16b,d,f).

- (16) a. *Mt nyi fee nse yt o-mo bwate wo.

 1ST.SG know COMP who FOC 3RD.SG-kill.PST chicken the Intended: 'I know who slaughtered the chicken.'
 - b. *Mt nyi fee nse ε-mo bwate wo.

 1ST.SG know COMP who PST-kill chicken the Intended: 'I know who slaughtered the chicken.'
 - c. *Mt nyi fee ne yt Ama e-mo.

 1ST.SG know COMP what FOC Ama PST-kill
 Intended: 'I know what Ama slaughtered.'
 - d. *M1 nyi fee Ama e-mo ne.

 1ST.SG know COMP Ama PST-kill what
 Intended: 'I know what Ama slaughtered.'
 - e. *Mt nyi fee kemtke yt Ama e-mo bwate wo.

 1ST.SG know COMP when FOC Ama PST-kill chicken the Intended: 'I know when Ama slaughtered the chicken.'
 - f. *Mı nyi fee Ama e-mɔ bwate wu kemıke.

 1ST.SG know COMP Ama PST-kill chicken the when Intended: 'I know when Ama slaughtered the chicken.'

To render the intended interpretations above, a relative clause construction must be employed.

- (17) a. Mi nyi o-so wo ke o-mo bwate wo.

 1ST.SG know CL-person the REL 3RD.SG-kill.PST chicken the 'I know who slaughtered the chicken.'

 Literally: 'I know the person that slaughtered the chicken.'
 - b. Mt nyi ato wo ke Ama e-mo.

 1ST.SG know thing the REL Ama PST-kill
 'I know what Ama slaughtered.'

 Literally: 'I know the thing that Ama slaughtered.'
 - c. Mt nyi ke-ko wo ke Ama e-mo bwate wo. 1ST.SG PRS-know CL-time/day the REL Ama PST-kill chicken the 'I know when Ama slaughtered the chicken.' Literally: 'I know the time that Ama slaughtered the chicken.'

The majority of Krachi's interrogative embedding verbs behave the same way. The data below illustrate that embedded *wh*- question complements (of either the focus or in-situ variety) are generally ruled out in favor of the relativization strategy.

- (18) a. *Ye e-bo wt nwanwa fee nse (yt) e-mo bwate wo.

 it PST-do 1ST.SG surprise COMP who FOC PST-kill chicken the Intended: 'I wondered who slaughtered the chicken.'
 - b. Ye e-bo wt nwanwa o-so ke o-mo bwate wo.

 it PST-do 1ST.SG surprise CL-person REL 3RD.SG-kill.PST chicken the 'I wondered who slaughtered the chicken.'

 Literally: 'I wondered about the person that slaughtered the chicken.'
 - c. *Mι ε-ŋwu fεε (nε yι) Ama ε-mɔ (nε).

 1ST.SG PST-learn COMP what FOC Ama PST-kill what Intended: 'I learned what Ama slaughtered.'
 - d. Mt ε-ŋwu ato ke Ama ε-mo.

 1ST.SG PST-learn thing REL Ama PST-kill
 'I learned what Ama slaughtered.'

 Literally: 'I learned about the thing that Ama slaughtered.'

- e. *Mt e-tupso fee (kemtke yt) Ama e-mo bwate wo (kemtke).

 1ST.SG PST-forget COMP when FOC Ama PST-kill chicken the when Intended: 'I forgot when Ama slaughtered the chicken.'
- f. Mt e-tupso ke-ko ke Ama e-mo bwate wo.

 1ST.SG PST-forget CL-time/day REL Ama PST-kill chicken the 'I forgot when Ama slaughtered the chicken.'

 Literally: 'I forgot the time that Ama slaughtered the chicken.'

The verb *bise* 'ask', however, behaves in a different and exceptional way, as alluded to above. Indirect question interpretations are possible through relativization, as with the embedding verbs previously considered. In addition, *bise* 'ask' may combine directly with an embedded clause containing an ex-situ focused interrogative expression to produce a true embedded question construction. The data below illustrate.

- (19) a. Mt e-bise o-so ke o-mo bwate wv.

 1ST.SG PST-ask CL-person REL 3RD.SG-kill.PST chicken the 'I asked who slaughtered the chicken'.

 Literally: 'I asked about the person that slaughtered the chicken.'
 - b. Mt e-bise fee nse yt o-mo bwate wv. $1^{ST}.SG$ PST-ask COMP who FOC $3^{RD}.SG$ -kill.PST chicken the 'I asked who slaughtered the chicken.'
 - c. Mt e-bise ato ke Ama e-mo.

 1ST.SG PST-ask thing REL Ama PST-kill

 'I asked what Ama slaughtered.'

 Literally: 'I asked about the thing that Ama slaughtered.'
 - d. Mt e-bise fee ne yt Ama e-mo. 1ST.SG PST-ask COMP what FOC Ama PST-kill 'I asked what Ama slaughtered.'
 - e. Mt e-bise ke-ko ke Ama e-mo bwate wo.

 1ST.SG PST-ask CL-time/day REL Ama PST-kill chicken the 'I asked when Ama slaughtered the chicken.'

 Literally: 'I asked about the time that Ama slaughtered the chicken.'

f. Mt e-bise fee kemtke yt Ama e-mo bwate wo. 1ST.SG PST-ask COMP when FOC Ama PST-kill chicken the 'I asked when Ama slaughtered the chicken.'

In Section 4, we demonstrated that with the exception of 'why' wh- in-situ is available within embedded complement clauses in the language. We can now enrich this generalization by considering the distribution of wh- in-situ in embedded questions. Consistent with our generalization, all interrogative items apart from nant 'why' may appear in their base-generated positions within embedded question complements of bise 'ask'. The data in (20) below demonstrate. In the case of 'why', where the embedded wh- in-situ strategy is unavailable (20f), the two remaining options are available: embedded ex-situ wh- focus (20g) and relativization (20h).

- (20) a. **Mι e-bise fee nse e-mɔ bwate w**υ.

 1ST.SG PST-ask COMP who PST-kill chicken the 'I asked who slaughtered the chicken.'
 - b. **Mι** e-bisε fεε Ama ε-mɔ nε.

 1ST.SG PST-ask COMP Ama PST-kill what 'I asked what Ama slaughtered.'
 - c. Mu e-bise fee Ama e-mo bwate wo nftre.

 1ST.SG PST-ask COMP Ama PST-kill chicken the where 'I asked where Ama slaughtered the chicken.'
 - d. Mt e-bise fee Ama e-mo bwate wo kemtke. 1ST.SG PST-ask COMP Ama PST-kill chicken the when 'I asked when Ama slaughtered the chicken.'
 - e. Mu e-bise fee Ama e-mo bwate wo nene.

 1ST.SG PST-ask COMP Ama PST-kill chicken the how
 'I asked how Ama slaughtered the chicken.'

- f. *Mt e-bise fee Ama e-mo bwate wo nant.

 1ST.SG PST-ask COMP Ama PST-kill chicken the why Intended: 'I asked why Ama slaughtered the chicken.'
- g. Mt e-bise fee nant yt Ama e-mo bwate wo. 1ST.SG PST-ask COMP why FOC Ama PST-kill chicken the 'I asked why Ama slaughtered the chicken.'
- h. Mt e-bise ku-musu ke Ama e-mo bwate wu.

 1ST.SG PST-ask CL-reason REL Ama PST-kill chicken the 'I asked why Ama slaughtered the chicken.'

 Literally: 'I asked about the reason that Ama slaughtered the chicken.'

6. Partial wh- focus movement

We have shown that Krachi allows both *wh*- ex-situ and *wh*- in-situ. This section documents the fact that Krachi also allows partial *wh*- focus movement. To our knowledge, this is the first report of partial *wh*- movement in any Kwa language.

Regardless of their thematic status, all interrogative expressions in Krachi may undergo partial movement to a peripheral focus position in an embedded clause. (Support for characterizing ex-situ *wh*- distributions as the by-products of movement comes from island effects, which we discuss in the next section.) In the data below, we demonstrate that both displaced argument (21a-d) and adjunct (21e-h) interrogative expressions from an embedded clause can take main clause scope (as indicated by the translations), despite surfacing lower in an embedded position.¹⁰ In

(i) a. **5-gyrri fee Ama e-ŋu Kofi**. (Neutral) 3RD.SG-say.PST COMP Ama PST-see Kofi 'He/she said that Ama saw Kofi.'

¹⁰ A reviewer asks whether embedded non-interrogative expressions in the language can undergo focus movement to an intermediate peripheral position and whether or not in this shifted state they can take matrix scope. The data below show that it is indeed possible for non-interrogative expressions to undergo short focus movement into an embedded/intermediate focus position.

Krachi, partial *wh*- focus movement to any peripheral embedded position is tolerated, as demonstrated by the data below, which show that an embedded interrogative expression can partially move to either the most embedded focus position or to a focus position in an intermediate clause.

- (21) a. **Kofi e-gyur fee Ama nyi fee nse yı ɔ-mɔ bwate wv**?

 Kofi PST-say COMP Ama know COMP who FOC 3RD.SG-kill.PST chicken the 'Who did Kofi say that Ama knows slaughtered the chicken?'
 - b. Kofi e-gyrr fee nse yr Ama nyi fee o-mo bwate wo?

 Kofi PST-say COMP who FOC Ama know COMP 3RD.SG-kill.PST chicken the 'Who did Kofi say that Ama knows slaughtered the chicken?'
 - b. **5-gytrt fee Ama yt 6-nu Kofi**. (Embedded subject focus) 3^{RD} .SG-say.PST COMP Ama FOC 3^{RD} .SG-see.PST Kofi 'He/she said that AMA saw Kofi.'
 - c. **5-gytrt** fee Kofi yt Ama e-nu. (Embedded object focus) 3RD.SG-say.PST COMP Kofi FOC Ama PST-see 'He/she said that Ama saw KOFI.'

At first blush, binding facts suggest that in these shifted positions, embedded non-interrogative foci cannot take wide scope like partially focused interrogative expressions can. The representations below give the impression that in constructions like (ib-c) the embedded focused nominal is unable to bind/act as an antecedent for the matrix subject pronominal.

- (ii) a. $o_{i,i}$ -gyrr fee Ama_j yr o-nu Kofi_k.

 3RD.SG-say.PST COMP Ama FOC 3RD.SG-see.PST Kofi
 'He/she said that AMA saw Kofi.'
 - b. $o_{i/^ak}$ -gyrrt fee Kofi $_k$ yr Ama $_j$ e-nu. 3^{RD} .SG-say.PST COMP Kofi FOC Ama PST-see 'He/she said that Ama saw KOFI.'

However, the data in (ii) is not conclusive because the unattested interpretations are likely ruled out by Strong Crossover effects at LF. Thanks to Chris Collins for pointing this out to us. Thus, determining whether there is a scope-based difference between partially moved interrogative and non-interrogative focused expressions in Krachi is something we leave for future research.

- c. Kofi e-gytrt fee Ama nyi fee ne yt Kwame e-mo? Kofi PST-say COMP Ama know COMP what FOC Kwame PST-kill 'What did Kofi say that Ama knows that Kwame slaughtered?'
- d. Kofi e-gytri fee ne yi Ama nyi fee Kwame e-mo? Kofi PST-say COMP what FOC Ama know COMP Kwame PST-kill 'What did Kofi say that Ama knows that Kwame slaughtered?'
- e. Kofi e-nu fee nftre yt Ama e-mo bwate wo? Kofi PST-hear COMP where FOC Ama PST-kill chicken the 'Where did Kofi hear that Ama slaughtered the chicken?'
- f. Kofi e-nu fee kemtke yt Ama e-mo bwate wo? Kofi PST-hear COMP when FOC Ama PST-kill chicken the 'When did Kofi hear that Ama slaughtered the chicken?'
- g. Kofi e-nu fee nene yt Ama e-mo bwate wv? Kofi PST-hear COMP how FOC Ama PST-kill chicken the 'How did Kofi hear that Ama slaughtered the chicken?'
- h. Kofi e-nu fee nant yt Ama e-mo bwate wv?

 Kofi PST-hear COMP why FOC Ama PST-kill chicken the 'Why did Ama slaughter the chicken, according to what Kofi heard?'

Note that in Krachi partial *wh*- focus movement constructions, the moved interrogative is unaccompanied by an overt question particle in the clause where it takes scope (i.e. the main clause). Because no such scope-marking particle appears in the root clause, we can identify the breed of partial *wh*- movement attested in the language as "naked partial movement", referencing Fanselow's (2006) typology.

In the closely related Akan language Asante Twi, partial wh- focus movement is not available, regardless of the thematic status of the interrogative expression. Example (22a) below shows that long-distance movement of a questioned object of an embedded clause into a root clause focus position is possible. However, it is not possible for that interrogative to undergo a shorter movement into the embedded

clause focus position, marked by na 'FOC' (22b). Note too that the presence or absence of the complementizer se has no effect on the grammaticality of partial focus movement in Asante Twi.

(22) Asante Twi

- a. **Hena na wo dwene se Kofi booye**? who FOC 2ND.SG think COMP Kofi hit.PST 'Who do you think Kofi hit?'
- b. *Wo dwene (sε) hena na Kofi booyε?

 2ND.SG think COMP who FOC Kofi hit.PST

Surprisingly, in Akyem, also from the Akan cluster, this restriction does not appear to hold and partial *wh*- focus movement seems possible. The example below is taken from Boadi (2005), who only presented one such example, but did not formally recognize it as exemplifying the phenomenon of partial focus movement.

(23) Akyem (Boadi 2005: 39) **Kwasí bias-è sɛ háe nà ɔ bá-è**?

Kwasi ask-PST COMP who FOC 3RD.SG come-PST

'Who was it that Kwasi inquired about whether or not he came?'

These facts raise the descriptive question of exactly how widespread partial whfocus movement is across the Tano languages and the Kwa languages more generally.

It is probably not a coincidence that both Krachi and Akyem have partial wh- focus
movement, even though this is not possible in Asante Twi. This distribution might
suggest that Krachi and Akyem have retained an older construction that has been lost
in Asante Twi. If this is correct, we might expect that the partial wh- focus
movement construction has been retained in other members of the Akan cluster as

well as in other Tano languages. We leave this as an open question for future research.

7. Constraints on wh- movement

In previous sections, we have shown that Krachi allows for three *wh*- interrogative strategies. In this section, we discuss how these three strategies are constrained in the language. Specifically, we look at islands, intervention effects, and superiority.

7.1. Islands

Ross (1967) identified several syntactic domains out of which *wh*- movement yields either very marginal or ungrammatical results. He called these domains "islands". In the case of *wh*- movement, it is known that island effects can be ameliorated by simply not moving the offending interrogative expression (i.e. by leaving the interrogative item in-situ). In fact, there are a number of languages in which in-situ interrogative expressions are immune to island effects. For example, certain interrogative items in French (Obenauer 1994, Starke 2001), Mandarin Chinese (Huang 1981), and Japanese (Lasnik & Saito 1984) among others, though unable to move out of islands, may appear in-situ island-internally. Krachi is an interesting language to look at with respect to islands because, as we have shown, it freely allows for both *wh*- focus movement and *wh*- in-situ.

Sentential subjects like the bracketed string in (24a) below are islands for movement in the language. This is demonstrated in (24b), where moving the interrogative expression $n\varepsilon$ 'what' out of the sentential subject gives rise to ungrammaticality. In other words, Krachi wh- focus movement is subject to the

Sentential Subject Constraint (Ross 1967). However, (24c) shows that a sentential subject can host an in-situ interrogative item and be interpreted as a genuine content question.¹¹

- (24) a. [Ke Kofi e-mo bwate wo] ye wa wu nwanwa.

 REL Kofi PST-kill chicken the it do 1ST.SG surprise

 'That Kofi slaughtered the chicken is surprising (to me).'
 - b. *Ne yı [ke Kofi e-mɔ] ye wa wı ŋwaŋwa? what FOC REL Kofi PST-kill it do 1ST.SG surprise
 - c. [**Kε Kofi ε-mɔ nɛ**] **yɛ wa wι ŋwaŋwa**?

 REL Kofi PST-kill what it do 1ST.SG surprise

 'That Kofi slaughtered what is surprising (to me)?'

 ('What is the x, such that Kofi's slaughtering of x is surprising (to me)?')

Similarly, Krachi relative clauses are also islands for movement. (25a) below shows a relative clause in the language. The ungrammaticality of (25b), in which a relative clause-internal interrogative item has undergone movement beyond the relative clause edge, indicates that it is not possible to move an interrogative expression out of a relative clause. As such, *wh*- focus movement in Krachi is also subject to Ross' (1967) Complex Noun Phrase Constraint. As with sentential subjects, though, island constraints may be circumvented and *wh*- question formation may proceed via *wh*- in-situ. (25c) illustrates that an in-situ interrogative item in a relative clause yields a grammatical matrix scope question.

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clarification on a misheard item or expressing surprise/disapproval.

¹¹ According to our native speaker consultants, questions like (24c) can be issued in out-of-the-blue contexts and thus, are not restricted to echo question contexts such as those in which the questioner is merely requesting

- (25) a. **Kofi nyi [ɔ-kyı wu kɛ ɔ-mɔ bwatɛ wu**].

 Kofi know CL-woman the REL 3RD.SG-kill.PST chicken the 'Kofi knows the woman who slaughtered the chicken.'
 - b. *Ne yı Kofi nyi [ɔ-kyı wo ke ɔ-mɔ]? what FOC Kofi know CL-woman the REL 3RD.SG-kill.PST
 - c. Kofi nyi [ɔ-kyt wo ke ɔ-mɔ ne]?

 Kofi know CL-woman the REL 3RD.sg-kill.PST what 'Kofi knows the woman who slaughtered what?'

 ('What is the x, such that Kofi knows the woman who slaughtered x?')

Ross also observed that neither of the conjuncts in a conjoined constituent could be wh- moved (the so-called Coordinate Structure Constraint). As we show below, wh-focus movement in Krachi is also subject to the Coordinate Structure Constraint. (26a) gives the input structure with a coordinated object constituent. Neither the first conjunct (26b) nor the second conjunct (26c) can be extracted out of the coordinated constituent, but if either interrogative item is left in-situ (26d-e), the result is a grammatical question where the interrogative item takes main clause scope.

- (26) a. **5-kyı** wu ɛ-mɔ [bwatɛ wu yɛ gyoro wu].

 CL-woman the PST-kill chicken the and dog the 'The woman slaughtered the chicken and the dog.'
 - b. *N ϵ yt [3-kyt wo ϵ -m3 [___ y ϵ gyoro wo]? what FOC CL-woman the PST-kill and dog the
 - c. *Nε yι [ɔ-kyι wυ ε-mɔ [bwatε wυ yε ___]? what FOC CL-woman the PST-kill chicken the and
 - d. **5-kyt wo \varepsilon (ne ye gyoro wo**]?

 CL-woman the PST-kill what and dog the 'The woman slaughtered what and the dog?'

 ('What is the x, such that the woman slaughtered x and the dog?')

e. o-kyt wo e-mo [bwate wo ye ne]? CL-woman the PST-kill chicken the and what 'The woman slaughtered the chicken and what else?'

('What is the x, such that the woman slaughtered the chicken and x?')

Finally, wh- focus movement in Krachi is also constrained by the Adjunct Condition, which forbids extraction out of an adjunct phrase such as a temporal adverbial clause. In (27a) below, the bracketed adjunct 'before' clause contains the direct object *bwate wv* 'the chicken'. (27b) shows the ungrammatical result of moving the object interrogative expression $n\varepsilon$ 'what' out of the 'before' clause. (27c), however, demonstrates that if the interrogative item is left in-situ inside of the island, the result is a grammatical wh- question with root clause scope.

- (27) a. Kofi ε-kya [aŋsaŋ ɔ-kyt wυ ε-mɔ bwatɛ wυ].

 Kofi PST-dance before CL-woman the PST-kill chicken the 'Kofi danced before the woman slaughtered the chicken.'
 - b. *Nε yι Kofi ε-kya [aŋsaŋ ɔ-kyι wo ε-mɔ]? what FOC Kofi PST-dance before CL-woman the PST-kill
 - c. Kofi e-kya [aŋsaŋ ɔ-kyt wu e-mɔ ne]?

 Kofi PST-dance before CL-woman the PST-kill what 'Kofi danced before the woman slaughtered what?'

 ('What is the x, such that Kofi danced before the woman slaughtered x?')

Similar results obtain in attempts to move adjunct interrogative items like *nfwe* 'where' out of adjunct clauses. Note that (28a) below is grammatical, but only when the interrogative expression is construed with the main clause predicate 'dance', indicating movement from a root clause-internal position. The sentence cannot be interpreted as asking about the location of the slaughtering event, hence the judgment

"#" when the moved interrogative takes narrow scope over the embedded verb 'kill'. However, it is possible to form a content question in which 'where' is construed with the adjunct-internal predicate 'kill' if the item is left in-situ in the adjunct clause. This is shown in (28b).

- (28) a. Nftre yt Kofi e-kya [aŋsaŋ ɔ-kyt wo e-mɔ bwate wo]?

 where FOC Kofi PST-dance before CL-woman the PST-kill chicken the 'Where did Kofi dance before the woman killed the chicken?'

 #'What is the location x, such that Kofi danced before the woman slaughtered the chicken at x?'
 - b. Kofi ε-kya [aŋsaŋ ɔ-kyt wυ ε-mɔ bwatɛ wυ nftrɛ]?

 Kofi PST-dance before CL-woman the PST-kill chicken the where 'Kofi danced before the woman slaughtered the chicken where?'

 ('What is the location x, such that Kofi danced before the woman slaughtered the chicken at x?)

In Asante Twi, islands have the same limiting effect on wh- question formation that they do in Krachi; however, the effect is more severe. As the data below establish, wh- extraction from an island is blocked, as in Krachi. But unlike Krachi, island-internal interrogatives may not appear in-situ as an alternative wh- question formation strategy. (29a) illustrates a temporal adjunct clause, which takes the form of a relative clause in the language. (29b-c) show that wh- focus movement from the island is not possible, while (29d-e) show that wh- in situ is likewise prohibited.

- (29) a. Na me re-sua ade [abere na Kofi bɔɔ Ama no].

 PST 1ST.SG PROG-study thing time REL Kofi hit.PST Ama the 'I was studying when Kofi hit Ama.'
 - b. *Hena na na me re-sua ade [abere na boo Ama no]? who FOC PST 1ST.SG PROG-study thing time REL hit.PST Ama the Intended: 'Who is the x, such that I was studying when x hit Ama?'

- c. *Hena na na me re-sua ade [abere na Kofi boo no]? who FOC PST 1ST.SG PROG-study thing time REL Kofi hit.PST the Intended: 'Who is the x, such that I was studying when Kofi hit x?'
- d. *Na me re-sua ade [abere na hena bɔɔ Ama no]?

 PST 1ST.SG PROG-study thing time REL who hit.PST Ama the Intended: 'Who is the x, such that I was studying when x hit Ama?'
- e. *Na me re-sua ade [abere na Kofi bɔɔ hena no]?

 PST 1ST.SG PROG-study thing time REL Kofi hit.PST who the Intended: 'Who is the x, such that I was studying when Kofi hit x?'

Thus, whereas islands merely limit the means by which *wh*- question formation may proceed in Krachi, they outright block *wh*- question formation in Asante Twi.

While wh- focus movement out of an island is forbidden in Krachi, partial whfocus movement inside an island is allowed. (30a) below shows an argument
interrogative item partially moved to the embedded focus position (marked by yt'FOC'), while (30b) illustrates an adjunct interrogative expression undergoing partial
movement.

- (30) a. **Kofi ε-kya** [aŋsaŋ nε yι ɔ-kyι wυ ε-mɔ]?

 Kofi PST-dance before what FOC CL-woman the PST-kill 'Kofi danced before the woman slaughtered what?'

 ('What is the x, such that Kofi danced before the woman slaughtered x?')
 - b. Kofi e-kya [aŋsaŋ nftre yt ɔ-kyt wo e-mɔ bwate wo]?

 Kofi PST-dance before where FOC CL-woman the PST-kill chicken the 'Kofi danced before the woman slaughtered the chicken where?'

 ('What is the location x, such that Kofi danced before the woman slaughtered the chicken at x?)

As we have seen in other cases, 'why' patterns differently from the other interrogative expressions in the language. As expected, 'why' cannot appear in-situ inside of a 'before'-clause island:

(31) *Kofi ε-kya [ansan o-kyι wυ ε-mo bwate wυ nant]?

Kofi PST-dance before CL-woman the PST-kill chicken the why

Surprisingly, though, despite the fact that 'why' may undergo partial wh- focus movement in non-island domains (cf. (21h)) and that island-internal partial movement is independently available in the language (cf. (30)), it is not possible to partially move 'why' in an adjunct island configuration. This is illustrated below in (32).

(32) *Kofi e-kya [ansan nant yt o-kyt wo e-mo bwate wo]?

Kofi PST-dance before why FOC CL-woman the PST-kill chicken the Intended: 'What is the reason x, such that Kofi danced before the woman slaughtered the chicken for x?'

Because partial wh- focus movement is unattested in Akan (cf. (22b)), we cannot compare island-internal partial wh- focus movement patterns in Krachi and Akan.

7.2. Intervention effects

We have shown above that there are constraints on wh- focus movement in Krachi. In this section, we demonstrate that there are constraints on wh- in-situ in the language as well. Specifically, we show that wh- in-situ in Krachi is sensitive to so-called "intervention effects", first described in Beck 1996. Descriptively, an intervention effect arises when one of a certain class of items (an "intervener") occurs between the

surface position of an interrogative expression and the left edge of the clause (i.e. where the focus marker would occur in Krachi). The discovery of intervention effects in Krachi builds on the work of Kobele and Torrence (2006), who demonstrated the existence of intervention effects in Asante Twi. Specifically, Kobele and Torrence showed that in Asante Twi, negation cannot intervene between an in-situ interrogative expression and the left edge of the clause, as shown below.

- (33) Asante Twi (Kobele and Torrence 2006:166)
 - a. **Kofi boo hena**? Kofi hit.PST who 'Who did Kofi hit?'
 - b. *Kofi a-m-bo hena?

 Kofi PST-NEG-hit who
 Intended: 'Who did Kofi not hit?'
 - c. **Hena na Kofi a-m-bo (no)**? who FOC Kofi PST-NEG-hit 3RD.SG 'Who did Kofi not hit?'

(33a) establishes the fact that Asante Twi independently allows wh- in-situ. The contrast in grammaticality between (33a) and (33b) shows that an interrogative expression cannot appear in-situ if negation (m-) occurs between the interrogative item and the left edge of the clause. (33c) illustrates that it is not merely the presence of negation that is the problem in (33b). If an interrogative expression is focus fronted so that negation no longer intervenes between the interrogative item and the left edge of the clause, the intervention effect is cancelled and the resulting interrogative is grammatical (33c). More formally, an intervention effect arises when an interrogative expression surfaces in the c-command domain of an intervener. As it

turns out, negation is a common cross-linguistic intervener (Beck 1996, Beck and Kim 1997, Kobele and Torrence 2006).

The data in (34) below, elicited utilizing appropriate contexts following in the spirit of Engdahl (2006), illustrate that interrogative expressions in Krachi must take surface scope over negation by way of obligatory *wh*- focus fronting. Examples (34a) and (34c), with argument and adjunct interrogative items, ¹² show that interrogative expressions cannot surface in the c-command domain of negation, marked by the prefix *n*-. However, if the vulnerable interrogative item is moved higher into a left peripheral focus position where it is no longer c-commanded by negation, the resulting question becomes grammatical. This is illustrated in (34b) and (34d). Because subjects c-command negation in Krachi root clauses, no intervention effect arises when interrogative subjects appear in-situ in negative clauses. In other words, in-situ interrogative subjects need not be fronted into the left periphery in the presence of verbal negation, as demonstrated by (34e).

- (34) a. ***5-kyι wυ ε-n-dιka nε**?

 CL-woman the PST-NEG-cook what
 (% NEG c-commands 'what')
 - b. Nε yι o-kyι wυ ε-n-dιka?
 what FOC CL-woman the PST-NEG-cook
 'What didn't the woman cook?'
 (& 'What' c-commands NEG)

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¹² As discussed in note 9, the Krachi expression *nene* 'how' can either function as a manner or instrumental interrogative operator. The intervention effect illustrated in (34c) holds regardless of whether 'how' is interpreted as a manner expression or as an instrumental, illustrating that in either case negation c-commands the in-situ operator.

c. *5-kyι wu ε-n-dika ku-gyo wu nene?

CL-woman the PST-NEG-cook CL-yam the how (\% NEG c-commands 'how')

d. Nene yt ο-kyt wu ε-n-dika ku-gyo wu?

how FOC CL-woman the PST-NEG-cook CL-yam the 'How didn't the woman cook yam?'
(& 'How' c-commands NEG)

e. Nse ε -n-dika ku-gyo wo?

who PST-NEG-cook CL-yam the 'Who didn't cook yam?'
(& 'Who' c-commands NEG)

Interestingly, in-situ temporal and locative interrogative expressions are grammatical when negation occurs between them and the left edge of the clause.

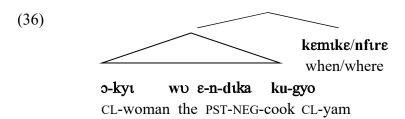
(35) a. **3-kyι** wυ ε-n-dika ku-gyo kemikε?

CL-woman the PST-NEG-cook CL-yam when 'When didn't the woman cook yam?'

b. **5-ky**ι wυ ε-n-dıka ku-gyo nfırε?

CL-woman the PST-NEG-cook CL-yam where 'Where didn't the woman cook yam?'

We take the grammaticality of (35a-b) as indicating that the adjuncts 'when' and 'where' in Krachi are attached higher than/outside the c-command domain of negation, roughly:



In addition to negation, certain modals like *fuŋkı* 'might' also induce intervention effects in Krachi. That is, the modal *fuŋkı* cannot intervene between an interrogative expression and the left edge of the clause. This is demonstrated by the ungrammaticality of (37a) and (37c)¹³ below. As with negation, an in-situ interrogative item is only vulnerable when c-commanded by the intervener. Thus, co-occurrence of an interrogative item and *fuŋkı* is possible in the case of (37b) and (37d) because the interrogative item has been fronted so that the modal no longer intervenes. Subject interrogative expressions, as in (37e), occur to the left of (and higher than) *fuŋkı* and therefore, intervention effects fail to obtain when in-situ subject interrogatives appear in 'might' clauses in the language.

- (37) a. *o-kyı wu fuŋkı kɛ-mɔ nɛ?

 CL-woman the might FUT-kill what
 - b. Ne yı o-kyı wo funkı ke-mo? what FOC CL-woman the might FUT-kill 'What might the woman slaughter?'
 - c. *o-kyı wu fuŋkı ke-mo bwate wu nene?

 CL-woman the might FUT-kill chicken the how
 - d. Nene yt o-kyt wo fonkt ke-mo bwate wo? how FOC CL-woman the might FUT-kill chicken the 'How might the woman slaughter the chicken?'

¹³ Once again, the intervention effect in (37c) obtains regardless of the interpretation of **nene** 'how' (manner or instrumental). See notes 9 and 12.

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e. Nse funkt ke-mo bwate wu? who might FUT-kill chicken the 'Who might slaughter the chicken?'

Similar to the negation case, an adjunct like *kemike* 'when' can occur to the right of *fuŋki* (see (38)), but we assume that this is because it is adjoined higher than the modal, as in (36).

(38) o-kyı wo fonkı ke-mo bwate wo kemike?

CL-woman the might FUT-kill chicken the when 'When might the woman slaughter the chicken?'

At this stage of our research, we have been unable to determine whether modal expressions like 'might' induce intervention effects in Asante Twi as well. We leave this as an open question for future research. Thus, for now, 'might' is a Krachispecific intervener.

Beck (2006) considers focus-induced intervention to be the core intervention effect. In languages like Korean (Beck and Kim 1997) and French (Mathieu 1999), the focus item 'only' acts as an intervener. In Asante Twi, as well, the item *nkoara* 'only' constrains the distribution of *wh*- in-situ, as shown below. In (39a), when 'only' appears to the left of an in-situ interrogative item, *wh*- question formation is blocked. In (39b), on the other hand, *wh*- focus movement past the intervening item cancels the intervention effect. Thus, in the presence of a structurally superior occurrence of 'only', *wh*- focus fronting becomes obligatory in Asante Twi.

- (39) Asante Twi
 - a. *Kofi nkoara boo hena? Kofi only hit.PST who
 - b. **Hena na Kofi nkoara boo (no)**? who FOC Kofi only hit.PST 3RD.SG 'Who did only Kofi hit?'

In Krachi, however, 'only' does not have the status of an intervener. The data below show that *wh*- in-situ is not compromised when *doo* 'only' precedes an unmoved interrogative expression. As such, *wh*- focus movement is not obligatory in the language when preceded by 'only', an unexpected result given Beck 2006. This finding may suggest that in-situ interrogative items in the language are not focused.

- (40) a. **5-kyι wo doo ε-m5 nε**?

 CL-woman the only PST-kill what 'What did only the woman slaughter?'
 - b. o-kyt wo doo e-mo bwate wo kemtke?

 CL-woman the only PST-kill chicken the when 'When did only the woman slaughter the chicken?'
 - c. **5-kyı** wo doo e-m5 bwate wo nene?

 CL-woman the only PST-kill chicken the how 'How did only the woman slaughter the chicken?'

In languages like French, the item 'even' acts as an intervener, constraining the distribution of *wh*- in-situ (Mathieu 1999). In Asante Twi as well, the item *mpo* 'even' has the status of an intervener and as such, forces *wh*- focus movement. Consider the data below.

- (41) Asante Twi
 - a. *Kofi mpo boo hena? Kofi even hit.PST who

b. Hena na Kofi mpo boo (no)?

who FOC Kofi even hit.PST 3RD.SG
'Who did even Kofi hit?'

Once again, we see a difference between Krachi and Asante with respect to the status of certain interveners in the languages. In Krachi, *kvraa* 'even' is not an intervener. The data in (42) illustrate that *wh*- in-situ is still possible when 'even' precedes an unmoved interrogative item.

- (42) a. **5-kyι** wo koraa ε-mɔ nε?

 CL-woman the even PST-kill what 'What did even the woman slaughter?'
 - b. o-kyı wo koraa ɛ-mo bwatɛ wo kemıkɛ?

 CL-woman the even PST-kill chicken the when 'When did even the woman slaughter the chicken?'
 - c. **5-kyt wo koraa e-m5 bwate wo nene?**CL-woman the even PST-kill chicken the how 'How did even the woman slaughter the chicken?'

The considerations in this section vividly illustrate the variable nature of intervention effects cross-linguistically. This variation is highlighted by the fact that even among the Tano phylum, genetically related languages like Krachi and Akan can exhibit complementary patterns with respect to a number of intervention effects. It is quite clear that a richer typology of intervention and a more complete understanding of the nature of its variation would result from increased attention to intervention effects in African languages.

7.3. Superiority

Kuno and Robinson (1972) observed that in English, one *wh*- expression cannot move to the left over another *wh*- item. Thus, so-called "superiority effects" (Chomsky 1977) arise in cases like (43a), where an object *wh*- item has been moved over a subject *wh*- item. In (43b), by contrast, the object *wh*- expression appears in-situ and the resulting question is grammatical.

- (43) a. *What did who see?
 - b. Who saw what?

Unlike English, Krachi does not manifest superiority effects. This is illustrated below in (44). (44a) shows that an object interrogative expression can be successfully moved over a subject interrogative item. (44b) is similar to the English example in (43b), where the in-situ object interrogative item does not cross over the subject interrogative. Both questions in (44) are interpreted identically in that they both require pair-list answers. The translations given below were provided by our native speaker consultants.

- (44) a. Ne yı nse e-mɔ?

 what FOC who PST-kill

 'What is it that who slaughtered?'
 - b. Nse e-mo ne?
 who PST-kill what
 'Who slaughtered what?'

Along the same lines, Saah (1994: 83) presents examples from the Agona dialect of Akan that mirror the Krachi superiority violations in (44) in that they appear to involve the movement of one interrogative item over a more superior interrogative to its left. Consider the data in (45) below.

- (45) Agona Akan (Saah 1994: 83)
 - a. **Den na hena hui?**what FOC who see.PST
 'What did who see?'
 - b. **Hena na o-huu den?**who FOC 3RD.SG-see.PST what
 'Who saw what?'

The absence of superiority effects has been noticed in other West African languages as well. For instance, Adesola (2005, 2006) showed that Yoruba interrogative item distribution is not constrained by superiority effects. Consider the Yoruba data in (46) below, which illustrate the ability of interrogative items to move over structurally superior interrogatives in the language.

- (46) Yoruba (Adesola 2006:309)
 - a. **Kí ni o rò pé taní rà**? what FOC 2ND.SG think that who buy 'What do you think that who bought?'
 - b. **Ta ni o rò pé ó ra kíni**? who FOC 2ND.SG think that 3RD.SG buy what 'Who do you think bought what?'

We do not attempt to address the nature of superiority here. However, it may not be coincidental that in the languages that fail to manifest the effect (i.e. Krachi, Akan, and Yoruba), wh- movement constructions appear to be focus/cleft-like structures rather than wh- movement constructions in the classical sense of Chomsky 1977, where the interrogative moves to a dedicated CP position (i.e. "Comp" or Spec, CP).

Along these lines, Stepanov (1998), among others, has shown that when wh- fronting is due to reasons other than attracting the Q feature to C, superiority effects fail to emerge. From this perspective, perhaps it is no surprise that these languages fail to exhibit superiority effects since they are driven by Focus features rather than Q features on C (i.e. they lack English-style wh- movement). Nonetheless, the lack of superiority effects in these West African languages highlights the question of exactly how widespread or universal the superiority condition actually is and what its configurational underpinnings are.

8. Summary and conclusions

In this article, we have documented the rich variety of question-word interrogative strategies available in Krachi and the various constraints that limit *wh*- question formation. The properties of Krachi content questions were then compared to Akan, perhaps the most thoroughly studied Tano language, in order to determine the extent to which the Krachi interrogative system is genetically and typologically distinct. Our findings are summarized in Table 2 below.

(47) Table 2 - Properties of content questions in Krachi with comparison to Akan

	KRACHI	AKAN
SUBJECT wh- IN-SITU (MAIN CLAUSES)	√	×
NON-SUBJECT wh - IN-SITU (MAIN CLAUSES)	✓	✓
'why' IN-SITU	×	×
wh- IN-SITU (EMBEDDED CLAUSES)	✓	×
wh- IN-SITU (ISLANDS)	√	×
PARTIAL wh- FOCUS MOVEMENT	✓	×
NEGATION = INTERVENER	✓	√
'MIGHT' = INTERVENER	√	?

'ONLY' = INTERVENER	×	✓
'EVEN' = INTERVENER	×	✓
SUPERIORITY EFFECTS	×	×

Table 2 reveals that in most respects, the Krachi interrogative system is distinct from that of Akan. Out of the eleven dimensions of interrogative syntax we considered, Krachi and Akan share only four properties in common: both allow non-subject interrogatives to appear in-situ in main clauses, neither language allows the item 'why' to appear clause-internally, both languages treat negation as an intervener for licensing *wh*- in-situ, and neither language manifests superiority effects. The fact that the interrogative systems of Krachi and Akan show less than 40% of an overlap in the properties we investigated is somewhat surprising given the fairly close genetic affiliation of the two languages.

Our detailed investigation into the undocumented Krachi interrogative system and comparison to Akan has revealed a wealth of novel discoveries and systematic variation. We believe this highlights the value of under-documented languages like Krachi to advance our understanding of the range of possibilities involved in the grammar of wh- question formation. With its typologically marked partial wh- focus movement strategy, unusually flexible wh- in-situ distribution, and unique assortment of intervention effects, it is clear that Krachi has the potential to play an important role in advancing our understanding of the grammar of wh- question formation. We hope that this article seeds future research into the language so that this potential is realized.

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