

The Role of Theory in Documentation

INTERVENTION EFFECTS AND MISSING GAPS IN THE KRACHI DOCUMENTARY RECORD

Jason Kandybowicz and Harold Torrence

9.1. Introduction

This article presents a case study of an instance in which the influence of linguistic theory on descriptive fieldwork has led to both the discovery and remedy of missing gaps in the documentary record of a language.* Our empirical focus is the distribution of in-situ *wh*- expressions in Krachi, an endangered Kwa language of Ghana. Specifically, we focus on a particular kind of restriction on *wh*- in-situ induced by so-called *intervention effects*. Most basically, an intervention effect arises when certain elements surface to the left of an unmoved *wh*- expression, as exemplified below in German.

- (1) German (Beck 2006)
- a. *Wen hat nur der Dirk wo gesehen?
whom has only the Dirk where seen
- b. Wen hat wo nur der Dirk gesehen?
whom has where only the Dirk seen
'Whom did only Dirk see where?'

In (1a), where the *only* DP (*nur der Dirk*) occurs to the left of the in-situ *wh*- item (*wo* 'where'), the result is ungrammatical. (1b) contains exactly the same lexical

items, but the *only* DP occurs to the right of both *wh*- expressions. Surprisingly, the result is grammatical. Pre-theoretically, there is some connection between the *wh*- items and the left edge of the clause that the intervening item (in this case, *nur der Dirk*) seems to disrupt. In this sense, (1a) exhibits an *intervention effect*, and the result is an ungrammatical interrogative expression.

Intervention effects provide us with an opportunity to reflect on the relationship between language documentation/description and linguistic theory. In this case, the primary direction of influence is from linguistic theory to language documentation. This owes to the fact that intervention effects were first discovered and widely discussed in a purely theoretical context (Beck 1996; Beck & Kim 1997). Awareness of and sensitivity to this fairly recently discovered theoretical concern has subsequently revealed the existence of missing gaps in the documentary records of languages' interrogative systems, particularly ones that manifest *wh*- in-situ. This, of course, assumes that the documentary record of a language should include not just an account of possible and/or attested grammatical patterns, but also a description of its constraints and limitations. It is our opinion that the documentation of a language is incomplete without the latter component.

Krachi is one such language whose existing documentary record on interrogatives (Dundaa n.d.; Kandybowicz & Torrence 2011, 2012; Kandybowicz 2017; Korboe 2002; Snider 1989) contains a gap in its treatment of the constraints on *wh*- in-situ. Investigating intervention effects therefore has the immediate result of enriching the depth of description of *wh*- constructions in the language (building on Torrence & Kandybowicz 2015). At the same time, the results of our documentation effort show that the pattern of intervention effects in Krachi is different from that found in other languages described in the literature. The Krachi data therefore provide a fresh set of empirical challenges for current theoretical accounts of intervention effects and, in this way, help to set the theoretical agenda for further work. Our case study thus supports the position that the relationship between linguistic theory and language documentation is a symbiotic one in that each complements and drives progress in the other.

9.2. Language background

Krachi (alternatively spelled Kaakye, Kaakyi, Kaci, Krache, and Krakye) is spoken in the Krachi West and Krachi East districts of the Volta region in central eastern Ghana. The Krachi-speaking area centers on 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.

Krachi is an endangered language. Data taken from the Population Census of Ghana (via the *GeoNames* database) show that the population of Kete Krachi, the locale with the highest concentration of Krachi speakers, has dropped from 14,140 in 1960 to 9,182 in 2000, an average attrition rate of 1,239.5 per decade. It is important to keep in mind that not all residents of Kete Krachi speak the language natively, an increasing trend recently. At this rate of loss, the population will bottom out in 70.41 years, at which point the number of Krachi speakers will be so low as to classify it as a critically endangered language. In such a scenario, any hope of revitalizing the language would be bleak at best. *Ethnologue* (Lewis et al. 2016) reports that Krachi is currently spoken by 58,000 speakers and displays “vigorous” language use in all domains. It is unclear where *Ethnologue's* number comes from, but it may be related to the fact that the number of reported *languages* in Ghana has ranged from 45 to 83 (Bodomo et al. 2010). As has been emphasized repeatedly in the literature, it is not merely the absolute number of speakers that is relevant in assessing the level of language endangerment. Languages with indisputably far more speakers than Krachi can still be severely endangered, both in Africa (Batibo 1992) and outside (Krauss 1992). Instead, the complex linguistic ecologies present in pervasively multilingual societies, like those in West Africa, play a major role in language shift and the march toward eventual language death (Obeng 1997; Batibo 2005; Bodomo et al. 2010; McLaughlin 2009). In the case of Krachi, even speakers with little or no formal education are almost invariably multilingual, with functional knowledge of Ewe or Akan, the regionally dominant languages. Sociolinguistic studies of language attitudes and language use in Ghana suggest that in major urban areas there is a very rapid shift (within one generation) to English, while in regional urban centers like Kete Krachi, the shift is first to regional languages like Ewe and/or Akan and then on to English (Bodomo et al. 2010). Batibo (2005) explicitly points to the existence of large populations bilingual in a dominant language as an indicator of language endangerment, as this is the group most likely to switch to the dominant language. In addition to its speaker count, the *Ethnologue* report that Krachi is “vigorously” used in all

domains is highly suspect. Krachi is not taught in schools at any level, nor is it used on radio, on television, or in newspapers. Interethnic communication in the area involves Akan, Ewe, or English, not Krachi (i.e., Krachi is not learned as a second language nor is it a regional *lingua franca*). Together, these facts suggest the need for an *Ethnologue* update. The movement of speakers out of the area has been accompanied by increased influence of the dominant regional languages—Akan, Ewe, and English. Older generations of Krachi speakers have noticed a decrease in language fluency in younger generations as well as a shift in their cultural/linguistic identity away from Krachi and toward more visible languages like Akan. Adonae (2005) reports that a new “unusual” type of Krachi is being spoken by younger Krachis in Kete Krachi, a form which he reports is influenced by English and which older native speakers and those from other areas find “strange and different” (Adonae 2005:13). The emergence of such new language forms, while interesting in itself, highlights the need for description of Krachi now, while it is still relatively free of influence from other languages and while there are presently large, intact communities of speakers. Krachi is an especially good candidate for documentation because, although it is endangered, use of the language as a vernacular is attested and children are still acquiring it.

Krachi has basic SVO word order, as illustrated below.

- (2) ɔ-kyɪ wɔ ɛ-mɔ bwatɛ wɔ¹.
 CL-woman the PST-kill chicken the
 ‘The woman slaughtered the chicken.’

Like other Guang (especially North Guang) languages, Krachi has noun classes and a concordial agreement system. There is some disagreement as to the overall number of noun classes in the language. Dundaa (n.d.), 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 (from Korboe 2002:33), 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-kyɪ ‘woman’
 b. a-kyɪ ‘women’
 c. kɪ-kpɔreki ‘vulture’
 d. a-kpɔreki ‘vultures’
 e. ku-gyo ‘yam’
 f. i-gyo ‘yams’
 g. Ø-bwatɛ ‘chicken’
 h. m-bwatɛ ‘chickens’

Focused constituents surface on the left edge of the clause and are immediately followed by the focus marker *ɣɪ*.

- (4) a. Kwaku ε-tɨj ku-gyo wɔ. Neutral Clause
 Kwaku PST-cut CL-yam the
 ‘Kwaku cut the yam.’
- b. Kwaku yɪ ɔ-tɨj ku-gyo wɔ. Subject Focus
 Kwaku FOC PST.SUBJ.FOC-cut CL-yam the
 ‘It’s Kwaku who cut the yam.’
- c. Ku-gyo wɔ yɪ Kwaku ε-tɨj. Object Focus
 CL-yam the FOC Kwaku PST-cut
 ‘It’s the yam that Kwaku cut.’

Note that the past tense marker in neutral (4a) and non-subject focus clauses (4c) is ε-, but in subject focus clauses (4b) it is ɔ-. That is, in addition to the presence of the focus marker yɪ, subject focusing is indicated by the form of the tense affix.

9.3. *Wh-* in-situ in Krachi

All *wh-* expressions in Krachi can surface in the left periphery of the clause followed by the focus marker yɪ.² The examples below provide a non-exhaustive sampling.

- (5) a. Nse yɪ ɔ-mɔ bwatɛ wɔ ndiye?
 who FOC PST.SUBJ.FOC-kill chicken the yesterday
 ‘Who slaughtered the chicken yesterday?’
- b. Nɛ yɪ ɔ-kyɪ wɔ ε-mɔ ndiye?
 what FOC CL-woman the PST-kill yesterday
 ‘What did the woman slaughter yesterday?’
- c. **Bwatɛ wɔ momɔ** yɪ ɔ-kyɪ wɔ ε-mɔ ndiye?
 chicken the which FOC CL-woman the PST-kill yesterday
 ‘Which chicken did the woman slaughter yesterday?’
- d. **Nfire** yɪ ɔ-kyɪ wɔ ε-mɔ bwatɛ wɔ ndiye?
 where FOC CL-woman the PST-kill chicken the yesterday
 ‘Where did the woman slaughter the chicken yesterday?’

- e. **Kemke** yɪ ɔ-kyɪ wɔ ɛ-mɔ bwate wɔ ndiye?
 when FOC CL-woman the PST-kill chicken the yesterday
 'When did the woman slaughter the chicken yesterday?'

Krachi also permits *wh-* in-situ for subjects, objects, and adverbials apart from 'why'.³

- (6) a. **Nse** ɛ-mɔ bwate wɔ ndiye?
 who PST-kill chicken the yesterday
 'Who slaughtered the chicken yesterday?'
- b. ɔ-kyɪ wɔ ɛ-mɔ **ne** ndiye?
 CL-woman the PST-kill what yesterday
 'What did the woman slaughter yesterday?'
- c. ɔ-kyɪ wɔ ɛ-mɔ **bwate wɔ momo** ndiye?
 CL-woman the PST-kill chicken the which yesterday
 'Which chicken did the woman slaughter yesterday?'
- d. ɔ-kyɪ wɔ ɛ-mɔ bwate wɔ **nfire** ndiye?
 CL-woman the PST-kill chicken the where yesterday
 'Where did the woman slaughter the chicken yesterday?'
- e. ɔ-kyɪ wɔ ɛ-mɔ bwate wɔ **kemke** ndiye?
 CL-woman the PST-kill chicken the when yesterday
 'When did the woman slaughter the chicken yesterday?'

This differentiates Krachi from better-studied Kwa languages like those of the Gbe cluster, which do not allow *wh-* in-situ in non-echo questions (Aboh 2007).

The same *wh-* expressions that are permitted clause-internally in matrix contexts are permissible in embedded complement clauses as well. When occurring in-situ inside clausal complements, the resulting expressions are interpreted as true matrix interrogatives and not as embedded/indirect questions.

- (7) a. Kofi ɛ-gyɪrɪ fɛɛ **nse** ɛ-mɔ bwate wɔ ndiye?
 Kofi PST-say COMP who PST-kill chicken the yesterday
 'Who did Kofi say slaughtered the chicken yesterday?'
- b. Kofi ɛ-gyɪrɪ fɛɛ ɔ-kyɪ wɔ ɛ-mɔ **ne** ndiye?
 Kofi PST-say COMP CL-woman the PST-kill what yesterday
 'What did Kofi say that the woman slaughtered yesterday?'

- c. Kofi ε-gyɪɾɪ fɛɛ ɔ-kyɪ wɔ ε-mɔ bwate wo momo ndiye?
 Kofi PST-say COMP CL-woman the PST-kill chicken the which yesterday
 ‘Which chicken did Kofi say that the woman slaughtered yesterday?’
- d. Kofi ε-gyɪɾɪ fɛɛ ɔ-kyɪ wɔ ε-mɔ bwate wo nftre ndiye?
 Kofi PST-say COMP CL-woman the PST-kill chicken the where yesterday
 ‘Where did Kofi say that the woman slaughtered the chicken yesterday?’
- e. Kofi ε-gyɪɾɪ fɛɛ ɔ-kyɪ wɔ ε-mɔ bwate wo kemuke ndiye?
 Kofi PST-say COMP CL-woman the PST-kill chicken the when yesterday
 ‘When did Kofi say that the woman slaughtered the chicken yesterday?’

9.4. Intervention effects in Krachi

9.4.1. AN OVERVIEW OF INTERVENTION EFFECTS

The first in-depth description and analysis of intervention effects is Beck (1996). Beck observes that in certain cases in German, a *wh*-question is degraded (ungrammatical) when a *wh*-item surfaces in the c-command domain of a certain set of elements. The crucial syntactic environments in these cases are multiple *wh*-questions, where one interrogative expression has been fronted and the other remains in a clause-internal position (either in-situ or scrambled leftward to a position below the verb/auxiliary). In (8a) below, for example, the *wh*-item *wo* ‘where’ surfaces in a position c-commanded by the negative quantifier *niemand* ‘nobody’ and the result is ungrammatical. By contrast, when *wo* appears to the left of the negative quantifier (i.e. outside the item’s c-command domain), the question is well-formed (8b).

- (8) German (Beck 2006)
- a. *Wen hat niemand wo gesehen?
 whom has nobody where seen
- b. Wen hat wo niemand gesehen?
 whom has where nobody seen
 ‘Where did nobody see whom?’

Another way of viewing (8a) is that the problem is that some element (in this case, *niemand*) intervenes between the surface position of the *wh*-item and the position where that interrogative takes scope, presumably Spec, CP (i.e., the left edge of the clause). More generally, intervention effects (or “Beck effects,” as they are also known) arise when some element, an intervener, occurs between a *wh*-item and the position where that item takes scope, leading to ungrammaticality. The representation in (9) below schematizes an intervention configuration.

(9) [_{CP} C° ... [INTERVENER ... [...*wh* ...]]]

There are two major classes of analysis for intervention effects. For syntactic approaches (e.g. Beck 1996; Hagstrom 1998; Pesetsky 2000, among others), the syntactic “problem” is that a *wh*- expression must move to/agree with a +Q complementizer. Interveners somehow disrupt the movement/agreement relation between the +Q complementizer and *wh*- item. In broad strokes, for semantic approaches (e.g. Beck 2006; Cable 2010, among others), when an intervener c-commands the *wh*-item, the result is a semantically uninterpretable string that crashes the derivation.

Since Beck's discovery, intervention effects have been documented in a variety of languages drawn from typologically diverse families (e.g. Japanese, Mandarin, Malayalam, Turkish, French, English, Dutch, and Asante Twi). The effect is comparable across languages. Consider the case of Korean, a *wh*- in-situ language where the item *-man* ‘only’ has the status of an intervener, just as ‘only’ in German (1).

(10) Korean (Beck & Kim 1997)

- | | | | |
|----|---------------------------|-------------------|------------|
| a. | Minsu-nun | nuku-lûl | po-ass-ni? |
| | Minsu-TOP | who-ACC | see-PST-Q |
| | ‘Who did Minsu see?’ | | |
| b. | *Minsu- man | nuku -lûl | po-ass-ni? |
| | Minsu-only | who-ACC | see-PST-Q |
| c. | Nuku -ûl | Minsu- man | po-ass-ni? |
| | who-ACC | Minsu-only | see-PST-Q |
| | ‘Who did only Minsu see?’ | | |

Example (10a) contains no intervener and the *wh*- item appears in-situ, as expected. In (10b), the in-situ *wh*- expression is c-commanded by the intervener *-man* ‘only’ and the result is ungrammatical. By contrast, (10c) is grammatical because the *wh*-item has scrambled leftward out of the c-command domain of the particle. In other words, when *-man* occurs between the *wh*- item and the scope position of the *wh*-expression, ungrammaticality obtains.

Cross-linguistically, a range of items tend to induce intervention effects.

(11) INTERVENERS ACROSS LANGUAGES (Beck 2006:4)

- Negation and negative quantifiers (e.g. ‘no’, ‘not’, ‘never’)
- Focus particles (e.g. ‘only’, ‘even’)
- Universal quantifiers (e.g. ‘every’, ‘almost every’)
- Adverbial quantifiers (e.g. ‘always’, ‘often’)

Several questions arise concerning the typology of intervening elements. One issue is the robustness of the inventory listed in (11). In other words, to what extent is the set of interveners listed in (11) stable cross-linguistically? Are the items listed

in (11) exceptionless interveners across languages, or do the categories listed above only *tend* to have the status of interveners cross-linguistically? These questions can only be settled by rigorous documentation of intervention effects across languages, a pursuit largely driven by theoretical considerations, as discussed in the introduction. A separate question is why particular items do or do not induce intervention effects in either a particular language or cross-linguistically. In this article, we take a step toward dealing with the first question. Dealing with the second issue must await detailed investigation of the syntax and semantics of individual languages and their lexical items. In the remainder of this section, we show that Krachi displays intervention effects, and that the set of interveners in Krachi is different from those in the languages discussed in Beck (2006) and subsequent work. The discovery of intervention effects in Krachi thus fills a gap in both the language’s documentary record and the typology of intervention effects more broadly.

9.4.2. NEGATION

Negation acts as a common intervener cross-linguistically. We illustrate the status of negation as an intervener by way of French, a language that allows both *wh*-movement and *wh*-in-situ.

(12) French

- a. Jean mange **quoi**? *Wh*-in-situ
 Jean eat.3RD.SG what
 ‘What does Jean eat?’

- b. **Qu**’est-ce que Jean mange? *Wh*-movement
 what-be-it that Jean eat.3RD.SG
 ‘What does Jean eat?’

Bošković (2000) observes that when negation c-commands a *wh*-expression in French, the result is highly marginal or ungrammatical (13a) and *wh*-movement becomes obligatory (13b). This pattern is expected under the assumption that negation is an intervener for *wh*-in-situ.

(13) French (adapted from Bošković 2000)

- a. ?*Jean **ne** mange **pas** **quoi**?
 Jean NEG eat.3RD.SG NEG what
 ‘What does Jean not eat?’

- b. **Qu**’est-ce que Jean **ne** mange **pas**?
 what-be-it that Jean NEG eat.3RD.SG NEG
 ‘What does Jean not eat?’

In Krachi, like French, negation acts as an intervener. Ungrammaticality obtains when an in-situ interrogative falls under the scope of negation (14a, c), necessitating *wh*-movement to a structurally superior position to obviate the intervention effect (14b, d).

- (14) a. *ɔ-kyɪ wɔ ɛ-n-dɪka nɛ?
CL-woman the PST-NEG-cook what
- b. Nɛ yɪ ɔ-kyɪ wɔ ɛ-n-dɪka?
what FOC CL-woman the PST-NEG-cook
'What didn't the woman cook?'
- c. *ɔ-kyɪ wɔ ɛ-n-dɪka ku-gyo wɔ nɛnɛ?
CL-woman the PST-NEG-cook CL-yam the how
- d. Nɛnɛ yɪ ɔ-kyɪ wɔ ɛ-n-dɪka ku-gyo wɔ?
how FOC woman the PST-NEG-cook CL-yam the
'How didn't the woman cook yam?'

As predicted by the characterization of intervention effects above, an asymmetry between subjects and non-subjects can be observed in the language. 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 in the presence of verbal negation, as illustrated in (15).

- (15) Nɛɛ ɛ-n-dɪka ku-gyo wɔ?
who PST-NEG-cook CL-yam the
'Who didn't cook the yam?'

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

- (16) a. ɔ-kyɪ wɔ ɛ-n-dɪka ku-gyo wɔ kɛmɪkɛ?
CL-woman the PST-NEG-cook CL-yam the when
'When didn't the woman cook the yam?'
- b. ɔ-kyɪ wɔ ɛ-n-dɪka ku-gyo wɔ nɛfɛrɛ?
CL-woman the PST-NEG-cook CL-yam the where
'Where didn't the woman cook the yam?'

We take the grammaticality of (16a–b) as indicating that the adjuncts 'when' and 'where' in Krachi attach higher than/outside the c-command domain of negation (i.e., they right-adjoin to the entire clause).

Is the Krachi intervention effect a clause-mate condition? That is, must the intervener c-command the *wh*- expression from within the same local clause? The data in (17) indicate a negative answer. Although *wh*- in-situ is possible in embedded clauses (7), intervention effects limit the availability of embedded *wh*- in-situ when an interrogative falls under the scope of negation in the matrix clause.

- (17) a. *Kofi ε-n-gyɪɾɪ fɛɛ nse ε-mɔ bwate wɔ? (Compare with (7a))
 Kofi PST-NEG-say COMP who PST-kill chicken the
- b. *Kofi ε-n-gyɪɾɪ fɛɛ ɔ-kyɪ wɔ ε-mɔ nɛ? (Compare with (7b))
 Kofi PST-NEG-say COMP CL-woman the PST-kill what
- c. *Kofi ε-n-gyɪɾɪ fɛɛ ɔ-kyɪ wɔ ε-mɔ bwate wɔ nɛre? (Compare with (7d))
 Kofi PST-NEG-say COMP CL-woman the PST-kill chicken the where

4.3. FOCUS PARTICLES

In a number of languages, focus particles act as interveners. For example, in both Korean and French, a *wh*- item cannot be c-commanded by an ‘only’ phrase (18a), (19a). The *wh*- item must raise to a position outside the c-command domain of the intervener (18b), (19b).

- (18) Korean (Beck & Kim 1997)
- a. *Minsu-**man** nuku-lɪl manna-ss-ni?
 Minsu-only who-ACC meet-PST-Q
- b. Nuku-lɪl Minsu-**man** manna-ss-ni?
 who-ACC Minsu-only meet-PST-Q
 ‘Who did only Minsu meet?’
- (19) French
- a. ***Seulement** Jean arrive à faire **quoi**?
 only Jean arrives to do what
- b. **Qu’est-ce** que **seulement** Jean arrive à faire?
 what-be-it that only Jean arrives to do
 ‘What does only Jean manage to do?’

A similar effect obtains with ‘even’ phrases, as exemplified below in French.

(20) French (adapted from Mathieu 1999, (13a-b))

- a. ***Même** JEAN arrive à faire **quoi**?
 even Jean arrives to do what
- b. **Qu'est-ce** que **même** JEAN arrive à faire?
 what-be-it that even Jean arrive to do
 'What does even JEAN manage to do?'

Krachi appears to buck the cross-linguistic trend with respect to the status of focus particles as interveners. First consider 'only' phrases in the language, marked by *doo*.

- (21) ɔ-kyɪ wɔ **doo** yɪ ɔ-mɔ bwatɛ wɔ.
 CL-woman the only FOC PST.SUBJ.FOC-kill chicken the
 'Only the woman slaughtered the chicken.'

As the data below reveal, Krachi in-situ *wh*- items (both argument and adjunct, D-linked and non-D-linked) are grammatical in the c-command domain of 'only' phrases.

- (22) a. ɔ-kyɪ wɔ **doo** yɪ ɔ-mɔ **nɛ**?
 CL-woman the only FOC PST.SUBJ.FOC-kill what
 'What did only the woman slaughter?'
- b. ɔ-kyɪ wɔ **doo** yɪ ɔ-mɔ **bwatɛ wɔ mɔmɔ**?
 CL-woman the only FOC PST.SUBJ.FOC-kill chicken the which
 'Which chicken did only the woman slaughter?'
- c. ɔ-kyɪ wɔ **doo** yɪ ɔ-mɔ bwatɛ wɔ **nfire**?
 CL-woman the only FOC PST.SUBJ.FOC-kill chicken the where
 'Where did only the woman slaughter the chicken?'
- d. ɔ-kyɪ wɔ **doo** yɪ ɔ-mɔ bwatɛ wɔ **nɛnɛ**?
 CL-woman the only FOC PST.SUBJ.FOC-kill chicken the how
 'How did only the woman slaughter the chicken?'

Next, consider 'even' phrases in the language, marked by *kɔraa*.

- (23) ɔ-kyɪ wɔ **kɔraa** ɛ-mɔ bwatɛ.
 CL-woman the even PST-kill chicken
 'Even the woman slaughtered a chicken.'

As with ‘only’ constituents, a broad range of Krachi *wh*-expressions can appear in the c-command domain of ‘even’ phrases. That is to say, ‘even’ and ‘only’ pattern alike in the language in their status as non-interveners.

- (24) a. ɔ-kyɪ wɔ kɔraa ɛ-mɔ nɛ?
 CL-woman the even PST-kill what
 ‘What did even the woman slaughter?’
- b. ɔ-kyɪ wɔ kɔraa ɛ-mɔ bwate nɛfɛ?
 CL-woman the even PST-kill chicken where
 ‘Where did even the woman slaughter a chicken?’
- c. ɔ-kyɪ wɔ kɔraa ɛ-mɔ bwate nɛnɛ?
 CL-woman the even PST-kill chicken how
 ‘How did even the woman slaughter a chicken?’

The Krachi focus particle intervention data are particularly intriguing from a theoretical perspective. Beck (2006) considers focus-induced intervention to be the core intervention effect. Based on Kim (2002), she formulates the following generalization:

- (25) A quantificational or focusing element may not intervene between a *wh*-phrase and its licensing complementizer (Beck 2006:9).

The data from Krachi considered in this section strongly suggest the need for a reformulation of this generalization. The considerations in this section also vividly illustrate the variable nature of intervention effects cross-linguistically. This variation is highlighted by the fact that even genetically related languages like Krachi and Asante Twi can exhibit complementary patterns with respect to focus-related intervention effects. Unlike Krachi, but patterning with German, Korean, and French, ‘only’ and ‘even’ induce intervention effects in closely related Asante Twi.

- (26) Asante Twi (Kobele & Torrence 2006)
- a. *Kofi nkoara bɔɔ hɛna?
 Kofi only hit.PST who
- b. Hɛna na Kofi nkoara bɔɔ (no)?
 who FOC Kofi only hit.PST 3RD.SG
 ‘Who did only Kofi hit?’
- c. *Kofi mpo bɔɔ hɛna?
 Kofi even hit.PST who

- d. **Hena** na Kofi **mpo** bɔɔ (no)?
 who FOC Kofi even hit.PST 3RD.SG
 'Who did even Kofi hit?'

9.4.4. UNIVERSAL QUANTIFIERS

Beck (2006) observes that universal quantifiers tend to act as interveners. For example, in Japanese, a universal quantifier cannot occur to the left of (i.e. c-command) a *wh*-item (27a). This configuration forces the *wh*-item to scramble to the left of the quantifier (27b).

- (27) Japanese (Pesetsky 2000)
- a. ?***Dono hito-mo nani-o** yonda no?
 every person what-ACC read Q
- b. **Nani-o dono hito-mo** yonda no?
 what-ACC every person read Q
 'What did every person read?'

Comparable intervention effects triggered by universal quantifiers have been discovered in Korean (Kim 2002) and German (Beck 2006).

Unlike these languages, Krachi in-situ *wh*-items are able to surface in the c-command domain of a universal quantifier.

- (28) a. **ɔ-kyɪ bɪaa** ε-dɪka **nɛ?**
 CL-woman every PST-cook what
 'What did every woman cook?'
- b. **ɔ-kyɪ bɪaa** ε-dɪka i-gyo **nfɪrɛ?**
 CL-woman every PST-cook CL.PL-yam where
 'Where did every woman cook yams?'
- c. **ɔ-kyɪ bɪaa** ε-dɪka i-gyo **kɛmɪkɛ?**
 CL-woman every PST-cook CL.PL-yam when
 'When did every woman cook yams?'
- d. **ɔ-kyɪ bɪaa** ε-dɪka i-gyo **nɛnɛ?**
 CL-woman every PST-cook CL.PL-yam how
 'How did every woman cook yams?'

Universal quantifiers are therefore not *wh*- interveners in Krachi. Once again, the Krachi facts suggest that Beck’s generalization requires revision, and that the inventory of interveners presented in (11) is not universal.

9.4.5. A KRACHI-SPECIFIC INTERVENER

Krachi possesses a few modal-like particles that occur between the subject and the inflected verb. One of these, the modal *fɔŋki* ‘might’, acts as an intervener. This can be seen in the contrast between the ungrammatical (29a)—where the modal *c*-commands the in-situ *wh*- object *ne* ‘what’—and the grammatical (29b), where the object *wh*- item has been fronted and is no longer *c*-commanded by the modal. The same pattern occurs in (29c–d), where the *wh*- expressions are adjuncts.

- (29) a. *ɔ-kyɪ wɔ **fɔŋki** kɛ-mɔ **ne**?
 CL-woman the might FUT-kill what
- b. **Ne** yɪ ɔ-kyɪ wɔ **fɔŋki** kɛ-mɔ?
 what FOC woman the might FUT-kill
 ‘What might the woman slaughter?’
- c. *ɔ-kyɪ wɔ **fɔŋki** kɛ-mɔ bwate wɔ **nene**?
 CL-woman the might FUT-kill chicken the how
- d. **Nene** yɪ ɔ-kyɪ wɔ **fɔŋki** kɛ-mɔ bwate wɔ?
 how FOC CL-woman the might FUT-kill chicken the
 ‘How might the woman slaughter the chicken?’

Subject *wh*-items, which occur higher than the modal, are immune to this effect, as expected.

- (30) **Nse** **fɔŋki** kɛ-mɔ bwate wɔ?
 who might FUT-kill chicken the
 ‘Who might slaughter the chicken?’

The only cases we have found where *fɔŋki* can surface to the left of a *wh*- expression involve the items ‘when’ and ‘where’, as shown below.

- (31) a. ɔ-kyɪ wɔ **fɔŋki** kɛ-mɔ bwate wɔ **kemke**?
 CL-woman the might FUT-kill chicken the when
 ‘When might the woman slaughter the chicken?’

- b. ɔ-kyɪ wɔ fɔŋki kɛ-mɔ bwatɛ wɔ nfire?
 CL-woman the might FUT-kill chicken the where
 'Where might the woman slaughter the chicken?'

Given the exceptional behavior of 'when' and 'where' with respect to negation-induced intervention effects in the language (see (16)), it is not surprising that these items are immune to the effects of the modal intervener. Once again, we understand these facts to be a consequence of the high structural attachment of 'when' and 'where' in Krachi, which, we argue, right-adjoin to the TP above both negation and the modal *fɔŋki*.

As with negation (see (17)), the intervention effect of the modal is not constrained by considerations of locality. That is, the modal and the interrogative need not be clause-mates in order for an intervention effect to ensue. This is demonstrated in (32), where the c-commanding modal in the main clause renders the embedded in-situ interrogative ungrammatical.

- (32) a. *Kofi fɔŋki kɛ-gyɪrɪ fɛɛ nse ɛ-mɔ bwatɛ wɔ?
 Kofi might FUT-say COMP who PST-kill chicken the
 Intended meaning: 'Who might Kofi say slaughtered the chicken?'
- b. *Kofi fɔŋki kɛ-gyɪrɪ fɛɛ ɔ-kyɪ wɔ ɛ-mɔ ne?
 Kofi might FUT-say COMP CL-woman the PST-kill what
 Intended meaning: 'What might Kofi say that the woman slaughtered?'
- c. *Kofi fɔŋki kɛ-gyɪrɪ fɛɛ ɔ-kyɪ wɔ ɛ-mɔ bwatɛ wɔ nfire?
 Kofi might FUT-say COMP CL-woman the PST-kill chicken the where
 Intended meaning: 'Where might Kofi say that the woman slaughtered the chicken?'

9.5. Concluding remarks

To the extent that it is even possible for the documentary record of a language to ever be "complete," we maintain that a description of a linguistic system that omits details about grammatical constraints can never be considered complete (or sufficiently revelatory of that language's grammar, for that matter). This is where linguistic theory has the potential to make vital contributions to language documentation and description. Unlike documentary linguistics, theoretical linguistics focuses considerably on the abstract principles that underpin the structural organization and inner workings of a language's grammar. For this reason, the discovery of grammatical limitations and structural constraints, often unexpected and surprising, tends to be accomplished in the theoretical domain. Given the relative

infancy of the field of theoretical linguistics as compared to descriptive linguistics, the tendency is thus that discoveries about the limits of grammatical expression will be new discoveries. And as new discoveries, they reveal the existence of missing gaps in the existing documentary record of a language.

The discovery of intervention effects in Krachi is a shining example of the valuable role linguistic theory plays in the documentation of a language. The limiting effects of negation on *wh*-in-situ in the language, for example, would hardly have been considered before Beck's discovery of intervention effects. We found that although negation functions as an intervener in the language, as it does in a variety of genetically unrelated languages, a number of other elements known to be cross-linguistically stable interveners, such as focus particles and universal quantifiers, do not behave this way in Krachi. This broadens our understanding of the typology of intervention effects and adds depth to our understanding of variation within this domain of grammar. Furthermore, we found that the existential modal 'might' in the language acts as an intervener, a very surprising result given that modals have previously been unknown to induce intervention effects (to the best of our knowledge). This highlights the important role endangered and under-documented languages can play in advancing our understanding of universal grammar.

At this stage of research, a number of questions remain, and although we have made some progress filling gaps in the existing Krachi documentary record, our description of the language's interrogative system is far from complete. For example, although we have discovered that existential modals in the language behave as interveners, we do not know if all Krachi modals function this way. Do universal modals give rise to intervention effects in Krachi? The prediction is unclear in this case, for although modals like 'might' serve as interveners in the language, universal quantifiers like 'every' do not. Another example of our present state of ignorance concerns the behavior of quantificational adverbs like 'often' and 'always', which act as interveners in languages like French (Matthieu 1999) and Korean (Kim 2002). These current knowledge gaps, as revealed by theoretically oriented research, have the ability to set the agenda for future documentation of the language's interrogative system, further exemplifying the interdependent and symbiotic relationship between linguistic theory and language documentation.

Notes

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sentences in this article: ACC, accusative; CL, noun class marker; COMP, complementizer; FOC, focus; FUT, future; NEG, negative; PL, plural; PST, past; Q, question particle; SG, singular; SUBJ, subject; TOP, topic.

1. The Krachi data in this article are presented in the official Krachi orthography developed by the Ghana Institute for Linguistics, Literacy and 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.

2. See Torrence & Kandybowicz (2015) for a detailed description of *wh*-movement constructions in Krachi.

3. See Torrence & Kandybowicz (2015) for the restriction on 'why' in-situ in the language.

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