

Tonal reflexes of movement in Asante Twi*

Sampson Korsah & Andrew Murphy

sampson.korsah@uni-leipzig.de andrew.murphy@uni-leipzig.de

Universität Leipzig

December 3, 2017

Abstract

We argue that Asante Twi has a process of tonal overwriting on verbs that are crossed by an A' -dependency. It is shown that this view captures the distribution of the process across ex-situ focus constructions, relative clauses and adverbial clauses, which are all contexts involving operator movement. Furthermore, we illustrate that this process is unbounded and applies to each verb in a long-distance dependency. We therefore conclude that this is a reflex of successive-cyclic movement through νP . Additionally, we provide a detailed study of resumption in Asante Twi, showing that despite island-insensitivity, resumption is still derived by movement. Finally, the morpho-phonological side of the phenomenon is investigated. It is shown that overwriting affects only those affixes below ν and not those above, which follows from cyclic Vocabulary Insertion. This also provides support for Kandybowicz' (2015) assumption that aspect and negation are lower than νP in Asante Twi.

1 Introduction

There is a well-known, yet still poorly understood, tonal alternation in Asante Twi originally noticed by Schachter & Fromkin (1968). As (1a) shows, both syllables of the verb *kita* are low-toned in an ordinary declarative clause. However, when the object is wh-moved, both of these tones surface as high (1b).

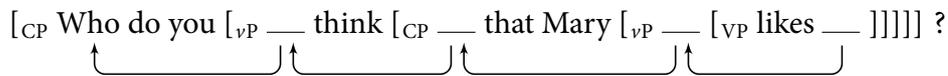
- (1) a. Ám'má **kita** bayéré.
Ama hold yam
'Ama is holding yam.'
- b. Déén₁ na Ám'má **kítá** ___₁ ?
what FOC Ama like
'What is Ama holding?'

The productivity and robustness of this low-high alternation has been independently corroborated at various points in the literature (Schachter 1973; Marfo & Bodomo 2005; Marfo 2005*a,b*; Fiedler & Schwarz 2005; Schwarz & Fiedler 2007; Ameka 2010; Genzel 2013). Nevertheless, it has generally been assumed that it is a specific quirk of the *na*-focus construction (e.g. Marfo 2005*a,b*; Genzel 2013). In this paper, we will argue that the high tone insertion in (1b) is actually a reflex of successive-cyclic \bar{A} -movement through Spec- νP . There are a number of arguments that point to this conclusion, in particular the fact that high-tone insertion is found in a wider range of \bar{A} -constructions and also that the process is unbounded.

*For helpful comments on various stages of this work, we would like to thank audiences at *Morphosyntactic Triggers of Tone* at Universität Leipzig, *Syntax Brown Bag* at NYU, *LingLunch* at UConn, *NELS 45* at Concordia University, Montréal, *SyntaxLab* at the University of Cambridge and colloquia at University College London and Leibniz-Zentrum für Allgemeine Sprachwissenschaft, Berlin.

In standard phase theory (Chomsky 2000, 2001), long-distance extraction must proceed ‘successive-cyclically’ (cf. Chomsky 1973, 1977, 1986), making a stop at the edge of each intermediate phase (ν P and CP), as shown in (2).

(2) *Successive-cyclic movement:*



A considerable body of empirical evidence has amassed in support of the claim that phasal domains constitute (at least) both ν P and CP (for overviews, see Boeckx 2008; Georgi 2014, 2017; Citko 2014; van Urk 2015). These varied arguments come from PF interface phenomena (Legate 2003; Adger 2007; Kratzer & Selkirk 2007; Kahnemuyipour & Megerdooimian 2011; Cheng & Downing 2016), the presence of overt material at intermediate positions (du Plessis 1977; McCloskey 2000; Felser 2004; Wiland 2010; Manetta 2010), interpretational effects along the movement path (Barss 1986; Fox 1999; Nissenbaum 2000; Legate 2003; Sauerland 2003) and the opaque licensing properties of moved items at intermediate positions, e.g. with inversion (Kayne & Pollock 1978; Torrego 1984; Henry 1995), gaps (Thiersch 1978; van Urk & Richards 2015) and discourse particles (Bayer et al. 2016). However, some of the most direct and compelling evidence for successive-cyclic movement comes from languages that exhibit dedicated morphological reflexes of movement (Lahne 2008; Georgi 2014, 2017). For example, Bennett et al. (2012) show that \bar{A} -movement in Defaka triggers the morpheme *-ke* on the verb (3b). Furthermore, cases of long-distance movement show this marking on verbs in both clauses (3c).

(3) *ke-marking in Defaka* (Bennett et al. 2012:296f.):

- a. Amanyá ómgbinya sóno á ama-ma kí'á 't'é ?
 Amaya shirt buy her give-NFUT market at
 ‘Amaya bought a shirt for her at the market.’
- b. Tári₁ ndo Amanyá ómgbinya sóno ___₁ ama-**ke** kí'á 't'é ?
 who FOC Amaya shirt buy give-KE market at
 ‘Who did Amaya buy a shirt for at the market?’
- c. Ándu₁ ndo Bomá faa-**ke** [_{CP} iní ___₁ été-**ke**]
 canoe FOC Boma say-KE they have-KE
 ‘It’s a canoe that Boma said they have.’

Tonal overwriting in Asante Twi has a very similar profile, as it also affects all verbs crossed by \bar{A} -movement in a long-distance dependency. In (4), the low-toned syllables in both the matrix and the embedded verb alternate to high in the wh-movement construction in (4b).

- (4) a. [_{CP} Kofi **kaé** [_{CP} sɛ Ám'má **kita** bayéré.]]
- Kofi remember that Ama hold yam
- ‘Kofi remembers that Ama is holding a yam.’
- b. [_{CP} Déén₁ na Kofi **kaé** [_{CP} sɛ Ám'má **kítá** —₁]] ?
- what FOC Kofi remember that Ama hold
- ‘What does Kofi remember that Ama is holding?’

We will therefore argue that tonal overwriting on the verb tracks whether successive-cyclic movement has taken place in that clause. In particular, we analyze overwriting as being triggered by a floating high-tone that is the realization of a phase head ν bearing a checked edge feature. This adds to the already significant body of literature on reflexes of successive-cyclic movement, but also provides a good example of a reflex of movement at the ν P level, which is still a somewhat contentious issue (e.g. Keine 2016, 2017; Dayal 2017). Furthermore, tonal overwriting provides the potentially clearest case of a purely phonological reflex of syntactic movement. While such cases have been reported, e.g. downstep deletion in Kikuyu (e.g. Clements et al. 1983; Zaenen 1983; Clements 1984*a,b*) and soft mutation in Welsh (Willis 2000; Borsley et al. 2007), they have either not been sufficiently well-studied or come with additional complications and caveats.

In addition, we provide evidence that, despite showing island-insensitive resumption, \bar{A} -constructions in Asante Twi are derived by genuine syntactic movement, tracked by tonal overwriting. This conclusion is supported by the fact that island effects correlate with the availability of a resumptive pronoun as well as the divergent properties of genuine base-generated topic constructions. Finally, we also provide a systematic investigation of the scope of the overwriting processes, showing that only affixes originating lower than ν P are affected by high-tone insertion. It is shown that this *affix generalization* follows from independently-motivated assumptions about clause structure in Asante Twi put forward by Kandybowicz (2015).

This paper is organized as follows: Section 2 outlines the phenomenon of tonal overwriting, previous approaches and provides additional data motivating a movement-based analysis. The following Section 3 justifies the movement analysis in the light of island-insensitive resumption, demonstrating that a movement analysis is still well-motivated. Section 4 discusses the morpho-phonological side of the phenomenon. It is shown that only certain types of affixes are subject to overwriting and that this follows from the syntax of the verbal domain. Finally, Section 6 concludes.

2 High tone overwriting in Asante Twi

Asante Twi is a dialect of the Kwa language Akan, spoken in Ghana (Dolphyne & Kropp Dakubu 1988; Kropp Dakubu 2009).¹ It is an SVO, terraced-level tone language with a distinction between high and low tones, as well as downstep. The syllable is typically assumed to be the tone bearing unit (see Dolphyne 1988:53; Kügler 2016*b*:92f., cf. Abakah 2005:110ff.). An example of a simple

¹Note that we focus on Asante Twi in particular here since other dialects of Akan (such as Fante) exhibit tonal polarity where the corresponding low-toned habitual verb stems in Asante Twi actually surface with high tones even in discourse-neutral contexts (see Abakah 2005:123ff.).

declarative sentence in Asante Twi is given in (5).²

- (5) Papá Kofí re-fré né bá.
 father Kofi PROG-call his child
 ‘Papa Kofi is calling his child.’ (Dolphyne 1988:57)

Since Schachter & Fromkin (1968), it has been reported that Asante Twi exhibits a tonal overwriting processes where underlying low-toned verbs become high in particular contexts. The most widely-discussed context involves *ex situ* focus constructions (see Schachter 1973; Boadi 1974; Marfo & Bodomó 2005; Marfo 2005*b*; Fiedler & Schwarz 2005; Genzel 2013). This focus strategy involves displacement of a constituent to the left of the focus particle *na* (see e.g. Boadi 1974; Saah 1988; Ameka 1992; Ermisch 2006, 2007; Amfo 2010; Genzel & Kügler 2010; Ofori 2011; Pfeil et al. 2015). In this construction, it has been noted that verbal roots with underlying low tones surface as high (sometimes referred to as the ‘link tone’; Fiedler & Schwarz 2005:115). In (6a), the verb *wɔ* (‘be’) bears a low tone, however in the corresponding example (6b) with subject focus, the tone of the verb changes to high.

- (6) a. Kofí wɔ Ényirési
 Kofi be England
 ‘Kofi is in England.’
 b. Kofí₁ na ɔ₁-wɔ́ Ényirési
 Kofi FOC 3SG-be England
 ‘It is Kofi who is in England.’ (Schachter & Fromkin 1968:209)

The same effect can be seen in the following example. The verb *ba* (‘come’) is low-toned in a discourse-neutral declarative clause (7a). If the subject is focused, the tone on the verb surfaces as high (7b). It is particularly interesting to note that the low-toned past tense marker *-a* and the person marker *me-* are not affected. We return to this in Section 4.1.

- (7) a. Me-**ba**-a há.
 1SG-COME-PAST here
 ‘I came here.’
 b. Mé na me-**bá**-a há.
 1SG FOC 1SG-COME-PAST here
 ‘It is I who came here.’ (Boadi 1974:19, Genzel 2013:207f.)

High tone overwriting also applies if an object is fronted. Furthermore, the process extends to fronting of *wh*-phrases, since *ex situ* *wh*-questions are also a sub-type of the *na*-focus construction. As (8) shows, the verb becomes high-toned when *wh*-object is moved.

- (8) a. Á[!]má pɛ bayéré.
 Ama like yam
 ‘Ama likes yam.’
 b. Déén₁ na Á[!]má pɛ́ —₁ ?
 what FOC Ama like
 ‘What does Ama like?’

²High tones are marked with an acute accent (e.g. *á*) and low tones are generally unmarked (but sometimes with a grave accent *à*). Downstepped high tones are marked with a superscript exclamation mark ([!]). While Akan has a rich array of segmental phonological processes such as assimilation (Schachter 1969) and ATR harmony (Casali 2012; Kügler 2015), we follow standard Akan orthography and do not represent such processes graphemically, unless immediately relevant.

In the corresponding *in situ* variant, the low tone on *pɛ* remains unaffected.

- (9) Ám¹má **pɛ** déén ?
 Ama like what
 ‘What does Ama like?’

An important point, to which we return in detail in Section 3, is that extraction of an animate DP triggers obligatory resumption in the base position (10b). Even with resumption, we still observe high tone overwriting.

- (10) a. Yaw **ma**-a Saka sika.
 Yaw give-PST Saka money
 ‘Yaw gave Saka money.’
 b. Hwáń₁ na Yaw **má**-a no₁ sika?
 Who FOC Yaw give-PST 3SG money
 ‘Who did Yaw give money to?’

In bisyllabic verbal roots, the process of tonal overwriting also singles out low tones. For example, the LL root *kita* in (11a) becomes HH in the presence of an extracted object (11b).³

- (11) a. Kofi **kita** bayéré.
 Kofi hold yam
 ‘Kofi is holding a yam.’
 b. Bayéré₁ na Kofi **kítá** —₁
 yam FOC Kofi hold
 ‘It is yam that Kofi is holding.’

The same can be seen with the HL stems such as *nóm* (‘drink’) which also bear the HH tonal sequence in the presence of wh-movement (12b).

- (12) a. Esi **nóm** nsúó.
 Esi drink water
 ‘Esi drinks water.’
 b. Déén₁ na Esi **nóm** —₁ ?
 what FOC Esi drink
 ‘What does Esi drink?’

Although the existence of this reflex has been rather widely reported and experimentally corroborated (e.g. Genzel 2013:208; Korsah & Murphy 2016:229ff.), the nature of this process is still poorly understood. Most of the previous literature assumes that high-tone overwriting is a construction-specific quirk of the *na*-focus construction (e.g. Boadi 1974:19; Marfo 2005b:79; Genzel 2013:207f.). This becomes particularly clear in Marfo (2005b), which is to our knowledge the only explicit analysis of this phenomenon to date.⁴ We will illustrate his analysis on the basis of the example in (13b).

- (13) a. Kofi **re-boá** Á¹bénáá
 Kofi PROG-help Abenaa
 ‘Kofi is helping Abenaa.’

³Note that we are considering examples with habitual/stative aspect here since these reflect the underlying tones of the verb (Paster 2010). Verbal morphology in other tenses and aspects interacts with tone in various ways, as will be discussed in Section 4.1.

⁴The phonological rules postulated by Schachter & Fromkin (1968:255) are arguably little more than a restatement of the facts.

- b. Kofi₁ na ɔ_1 -**ré-bóá** Á¹bénáá
 Kofi FOC 3SG-PROG-help Abenaa
 ‘It is Kofi who is helping Abenaa.’

Marfo (2005*b*) proposes the following derivation for the *na*-focus construction in (13b). First, the syntactic structure in (14) is mapped onto phonological phrases, roughly corresponding to each XP (14a) (cf. Truckenbrodt 1999; Selkirk 2011). Subsequently, a rule of ‘focus restructuring’ moves the boundary of the initial ϕ -phrase to include the Spec-TP position, i.e. the subject (14b). The next process is ‘prosodic raising’ that maps the expanded ϕ domain created in the previous step onto the next highest domain in the Prosodic Hierarchy (Selkirk 1986; Nespor & Vogel 1986), i.e. the intonation phrase (*I*) (14c). Now, it is important to note that Marfo (2005*b*) assumes that there is an ‘inserted’ floating H-tone which is lexically associated with the focus marker *na*. For reasons that are relatively unclear, ‘this inserted H prefers to dock on a constituent at the left-edge of a succeeding *I*, irrespective of its syllable structure. This left-edge constituent happens to be the verb’ (Marfo 2005*b*:108f.) (14d). After the high tone has been repositioned, it triggers spreading throughout the verbal stem, as in (14e), a process Marfo (2005*b*:109) refers to as the ‘inserted H spread rule’.

(14) *High tone overwriting by prosodic restructuring* (Marfo 2005*b*:108f.):

- [_{FOCP} Kofi [_{FOC'} na [_{TP} ɔ - [_{VP} re-boá Á¹bénáá]]]] \Rightarrow
- a. (Kofi na^{H-}) ϕ (ɔ -) ϕ (re-boá) ϕ (Á¹bénáá) ϕ \Rightarrow (*Mapping from XPs to p-phrases*)
- b. (Kofi na^{H-} (ɔ -) ϕ) ϕ (re-boá) ϕ (Á¹bénáá) ϕ \Rightarrow (*Focus Restructuring*)
- c. (Kofi na^{H-} (ɔ -) ϕ)_I ((re-boá) ϕ (Á¹bénáá) ϕ)_I \Rightarrow (*Prosodic Raising*)
- d. (Kofi na (ɔ -) ϕ)_I (H-(re-boá) ϕ (Á¹bénáá) ϕ)_I \Rightarrow (*H-tone shift*)
- e. (Kofi na (ɔ -) ϕ)_I (H-(**ré-bóá**) ϕ (Á¹bénáá) ϕ)_I (*Inserted H spread rule*)

Many aspects of Marfo’s (2005*b*) analysis are problematic, however. First, there does not appear to be any independent motivation for the prosodic ‘restructuring’ processes he proposes, beyond the data they are designed to capture. Furthermore, the core assumption of his analysis is that the high tone that triggers spreading in the verbal stem is associated with focus marker *na*. The main motivation for this comes from the observation that the superficially similar *déé*-construction does not trigger tonal overwriting, as shown by (15b).

- (15) a. Á¹má₁ na Kofi **ré-bóá** nó₁
 Ama FOC Kofi PROG-help 3SG
 ‘It is Ama who Kofi is helping.’
- b. Á¹má₁ déé Kofi **re-boá** / ***ré-bóá** nó₁
 Ama TOP Kofi PROG-help PROG-help 3SG
 ‘As for Ama, Kofi is helping her.’ (Marfo 2005*b*:110)

However, it will be shown that this assumption cannot be maintained in the light of new data from long-distance extraction. Furthermore, closer inspection reveals that *déé*-constructions do not share the same movement derivation as their *na* counterparts, despite their putative semblance (see Section 3.4). Instead, we argue that the tonal alternation in Asante Twi is a reflex of

successive-cyclic movement. Descriptively, whenever \bar{A} -movement takes place in a clause, then the low tones of the verb in that clause are replaced by high tones. More technically, it will be shown that this can be modelled as the allomorphic realization of a v head bearing an edge feature as a floating high tone. The following section provides arguments against the characterization of overwriting by high tones as an idiosyncratic property of the morpheme *na*, and in favour of an analysis in terms of a phonological reflex of \bar{A} -movement.

2.1 Tonal overwriting as a reflex of \bar{A} -movement

This section presents evidence in support of the claim that high tone overwriting in Twi verbs is triggered by the presence of an \bar{A} -dependency, and is not specific to the *na*-focus construction. The first piece of evidence involves new data from long-distance dependencies where it is shown that the process affects all verbs along the extraction path. The second argument comes from the fact that the tonal overwriting is found in contexts other than focus constructions, namely relative and adverbial clauses. These contexts can all be unified as involving an \bar{A} -dependency of some kind.

2.1.1 Long-distance dependencies

Recall that for examples such as (16), Marfo (2005*b*) proposed that the high tone that triggers overwriting on the verb is lexically associated to the *na* focus particle. Consequently, the tonal overwriting process is a construction-specific property of *na*-constructions.

- (16) a. $\acute{A}m'má\ kíta$ bayéré.
 Ama hold yam
 'Ama holds yam.'
- b. $Déén_1$ na $\acute{A}m'má\ kíta$ $__1$?
 what FOC Ama like
 'What does Ama hold?'

What previous literature on this phenomenon neglected to consider was long-distance dependencies. These reveal a very important characteristic of the low/high-alternation, namely that it is an unbounded process. If extraction takes place from an embedded clause to a focus position in the matrix clause, then both the matrix and embedded verbs exhibit high-tone overwriting. In (17b), the matrix verb *kaé* ('remember') and the embedded verb *kita* ('hold') both surface with high tones.

- (17) a. [_{CP} Kofí **kaé** [_{CP} sɛ $\acute{A}m'má\ kíta$ bayéré]]
 Kofi remember that Ama hold yam
 'Kofi remembers that Ama is holding a yam.'
- b. [_{CP} $Déén_1$ na Kofí **kaé** [_{CP} sɛ $\acute{A}m'má\ kíta$ $__1$]] ?
 what FOC Kofi remember that Ama hold
 'What does Kofi remember that Ama is holding?'

The same effect can be seen with different verbs in (18).

- (18) a. [_{CP} Kwame **nim** [_{CP} sé Ám'má **hu-u** Efua]]]
 Kwame knows that Ama see-PAST Efua
 'Kwame knows that Ama saw Efua.'
- b. [_{CP} Hwáń₁ na Kwame **ním** [_{CP} sé Ám'má **hú-u** no₁]]]
 who FOC Kwame knows that Ama see-PAST 3SG
 'Who does Kwame know that Ama saw?' (cf. Boadi 1990:81)

The unbounded nature of this process is further illustrated by example (19), which contains two levels of embedding. In the the case of extraction, the low tones on both the embedded verbs and the matrix verb alternate to high (19b).

- (19) a. [_{CP} Kofi **nim** [_{CP} sé Ésí á-**ka** [_{CP} sé Ám'má **pɛ** bayéré]]]
 Kofi know that Esi PERF-say that Ama like yam
 'Kofi knows that Esi has said that Ama likes yam.'
- b. [_{CP} Bayéré₁ na Kofi **ním** [_{CP} sé Ésí á-**ká** [_{CP} sé Ám'má **pé** —₁]]] ?
 yam FOC Kofi know that Esi PERF-say that Ama like
 'It's yam that Kofi knows that Esi has said that Ama likes.'

Consider this now in the light of Marfo's (2005b) analysis discussed in the previous section. The intuition is that a floating H tone originates on *na* and then docks onto the closest verb. Such an analysis cannot account for the fact that all verbs along the extraction path are raised to high, since there is only ever a single high tone associated with the focus marker. Thus, it seems impossible to maintain the idea that the high tone originates on *na* in the light of these data. If one wished to maintain the construction-specific view of tonal overwriting, one could formulate a rule stating that all verbs in a *na*-focus construction are raised to high. However, this would be problematic in light of (20). As (20b) shows, extraction of the matrix subject does not affect the embedded verb. Thus, it is not only the construction-type, but also the origin of the displaced constituent that must be taken into account when defining where tonal overwriting takes place.

- (20) a. Kofi **ka-a** [_{CP} sé ɔ-**ɔ** Á'má]
 Kofi say-PST that 3SG-love Ama
 'Kofi said that he loves Ama.'
- b. Hwáń₁ na ɔ₁-**ká-a** [_{CP} sé ɔ-**ɔ** Á'má] ?
 who FOC 3SG-say-PST that 3SG-love Ama
 'Who said that he loves Ama?'

On the other hand, these data make perfect sense under the view that high tone overwriting on verbs tracks the presence of \bar{A} -movement in that clause. Thus, tonal overwriting in Asante Twi patterns exactly like other established reflexes of successive-cyclicity in that they are only found in domains crossed by movement, for example in Kikuyu (Clements 1984a:47), Defaka (Bennett et al. 2012:297), Kitharaka (Muriungi 2005:48) and Indonesian (Saddy 1991:194).

2.1.2 Relative clauses

Another argument against the idea that tonal overwriting is specific to the *na*-construction comes from the fact that the low/high alternation is also found in relative clauses. Relative clauses in Asante Twi are not obviously related to *na*-focus constructions and instead involve the relative complementizer *áa* preceding the pivot constituent of the relative construction (see Saah 2010; McCracken 2013) (21). As (21) shows, the underlyingly low-toned verb *hu* ('see') bears a high-tone when it occurs inside a relative clause (21b).

- (21) a. Kofi **hu-u** křataá nó.
Kofi see-PST paper DEF
'Kofi saw the paper.'
- b. [_{DP} Křataá nó₁ [_{CP} áa Kofi **hú-u-é** —₁ nó]] da [_{PP} pónó nó só.]
paper DEF REL K. see-PST-YE CD lie table the on
'The paper that Kofi saw is on the table.'

Although much previous work on this tonal alternation has focused exclusively on focus constructions, its presence in relative clauses can be found in earlier literature, i.e. since at least Schachter (1973:23). For example, while Saah (2010) does not discuss the tonal alternation on the verb, it can be seen in many of his examples, such as (22b).

- (22) a. Ɔbáá nó **waré-e** Kofi
woman DEF marry-PST Kofi
'The woman married Kofi.'
- b. [_{DP} Ɔbáá₁ [_{CP} áa Ɔ₁-**waré-e** Kofi nó]] fi Aburí
woman REL 3SG-marry-PST Kofi CD be.from Aburi
'The woman who married Kofi is from Aburi.' (Saah 2010:92)

Fiedler & Schwarz (2005:122), on the other hand, explicitly mention the tonal alternation, reporting that in (23b) 'the verb in the relative clause changes its tone pattern in adopting a H tone'

- (23) a. Wo **bɔ-ɔ** abrántie nó.
2SG hit-PAST boy DEF
'You hit the boy.'
- b. [_{DP} Abrántie nó₁ [_{CP} áa wo-**bɔ-ɔ** nó₁ nó]] yɛ m-adámfuɔ
boy DEF REL 2SG-hit-PAST 3SG CD COP 1SG-friend
'The boy whom you hit is my friend.'
(Fiedler & Schwarz 2005:122)

Similar to the *na*-construction discussed in the previous section, this tonal overwriting is also an unbounded process, triggered on all verbs crossed by long-distance relativization (24).

- (24) *Long distance relativization:*
- a. Me-nim [_{CP} sé óbíará á-te [_{CP} sé Kofi á-ka [_{CP} sé ɔ-**dɔ**
1sg-know that everybody PERF-hear that Kofi PERF-say that 3SG-love
ɔbáá nó]]]
woman DEF.

‘I know that everybody has heard that Kofi has said that he loves the woman.’

- b. Me-hu-u [DP ɔ́báá nó₁ [CP áa óbíará á-té [CP sɛ Kofi á-ká [CP
 1SG-see woman DEF REL everybody hear-PAST that Kofi PERF-say
 sɛ ɔ́-dɔ́ nó₁ nó]]]]
 that 3SG-FUT-love 3SG CD
 ‘I saw the woman whom everybody has heard that Kofi has said that he loves her.’

The existence of the low/high-alternation inside relative clauses also follows from our hypothesis that it is a reflex of successive-cyclic movement, since both head-internal and head-external approaches to relative clauses posit some kind of \bar{A} -movement originating inside the relative CP (for overviews, see e.g. Alexiadou et al. 2000; de Vries 2002; Bhatt 2015; Salzmänn 2017). At this point, it is important to mention the fact that we find resumption inside relative clauses (and also in *na*-constructions) if the tail of the dependency corresponds to an animate DP. Nevertheless, Section 3 argues that these resumptive dependencies still involve genuine movement.

As Salzmänn (2017:194) points out, one should verify that this effect is absent with clausal complements to nouns since relative clauses may already contain an independent \bar{A} -chain, depending on their structural analysis. In (25a), the CP complement of the noun *atetésém* (‘rumour’) does not show a reflex of movement, as we would expect. However, once relativization takes place out of this noun complement, then the expected tonal reflexes emerge (25b).⁵

- (25) a. Me-te-e [DP atetésém bí [CP sé Kofi fe-e n’ anó]]
 1SG-hear-PST rumour INDEF that Kofi kiss-PST 3SG.POSS mouth
 ‘I heard a rumour that Kofi kissed her (mouth).’
 b. [DP ɔ́báá nó₁ [CP áa me-té-e [DP atetésém bí [CP sé Kofi fé-e
 woman the REL 1SG-hear-PST rumour INDEF that Kofi kiss-PST
 n’₁ anó]] nó]]
 3SG.POSS mouth CD
 ‘The woman that I heard a rumour that Kofi kissed her’ (Salzmänn 2017:194)

2.1.3 Adverbial clauses

A further context beyond the *na*-focus construction where the tonal alternation can be found is adverbial clauses. Dolphyne (1988:69) points out that there is a distinction between the tonal patterns of verbs in what she refers to as a ‘subordinate clause’. What Dolphyne (1988) is actually referring to is tone raising inside an adverbial clause, since this effect is not found in clausal complements. An example of this is given in (26).

- (26) a. Kofi re-bisá nó.
 Kofi PROG-ask him
 ‘Kofi is asking him.’
 b. [CP Kofi ré-bisá nó nó ná] Sébé á-da.
 Kofi PROG-ask him CD when Sebe PERF-sleep
 ‘While Kofi was asking him, Sebe was asleep.’ (Kügler 2016a:40)

⁵Although this example involves putative movement out of a Complex NP Island, Asante Twi has been shown to be island-insensitive in general, regardless of whether overt resumption is present or not. We discuss the island-insensitivity in greater detail in Section 3 and argue that it is ultimately not an obstacle for a movement analysis.

Although we observe the low/high-alternation here, this is clearly not an instance of a focus construction (note that high-toned *ná* here is a subordinating conjunction). The fact that there does not seem to be any overt movement inside the adverbial clause could be viewed as a challenge to our claim that tonal overwriting is a reflex of \bar{A} -movement. However, it has already been argued on independent grounds that there is movement of a covert operator in adverbial clauses (see e.g. Geis 1970, 1975; Larson 1987, 1990; Thompson 1995; Demirdache & Uribe-Etxebarria 2004; Haegeman 2007, 2010a; Zentz 2014; Kusumoto 2017). The main empirical motivation for this comes from ambiguities found in temporal adverbial clauses such as those in (27), originally noticed by Geis (1970).

- (27) a. Joan left before Harry told her to. (Geis 1970:127)
 b. I saw Mary in New York after John said that she left. (Larson 1987:261)
 c. The professor wrote the letter after the student said he needed it. (Zentz 2014:375)

In each of these cases, there are two possible readings: one in which the adverbial refers to the time of the matrix event (e.g. *saying*), and another where it refers to the time of the embedded event (*leaving* or *needing*). One influential analysis of this ambiguity involves positing movement of a null operator inside the adverbial clause (see e.g. Geis 1970:127; Larson 1987:261; Larson 1990:178; Demirdache & Uribe-Etxebarria 2004:171; Haegeman 2007:293). If the temporal operator is merged in the matrix clause of the adverbial, then we derive the high construal when it moves to Spec-CP (28a). However, the operator can also be merged in the embedded clause and then moved successive-cyclically to the matrix clause to derive the low construal (28b).

- (28) I saw Mary in New York after John said that she left.
 a. [_{PP} after [_{CP} Op_i [_{TP} John said [_{CP} that she left] t_i]]]
High construal: ‘The speaker saw Mary after hearing from John that she had left.’
 b. [_{PP} after [_{CP} Op_i [_{TP} John said [_{CP} t_i that she left t_i]]]]
Low construal: ‘The speaker saw Mary after the point of her reported departure.’

Assuming that there is also \bar{A} -movement of a null operator in Twi temporal adverbial clauses such as (26b), then the presence of tonal overwriting is unsurprising. Cross-linguistically, we also find movement reflexes in adverbial clauses in other languages such as Irish (McCloskey 2001) and also Akan (Zentz 2014). In (29), the movement-related complementizer *a^L* that triggers lenition is found inside a temporal adverbial (see Section 2.2 for more discussion).

- (29) nuair **a** tháinig siad ’na bhaile
 when *a^L* came they home
 ‘when they came home’ (McCloskey 2001:71)

If tonal overwriting in Twi adverbial clauses results from movement of a null operator, then we might expect the presence or absence of the movement reflex to correlate with different interpretations. While Geis ambiguities of the kind found in English prove rather difficult to reconstruct faithfully in Asante Twi, the following example is highly suggestive of such an effect:

- (30) [CP Op₁ Kofi **ré**-ká t₁ [CP sɛ ɔ-**pɛ** Á¹má] nó ná] Sébé á-da
 Kofi PROG-say that 3SG-like Ama CD when Sebe PERF-sleep
 ‘While Kofi was saying that he likes Ama, Sebe was asleep.’

In (30), the adverbial clause clearly refers to the time of the saying event, rather than the state expressed by the verb *pɛ* (‘like’). As such, we have an obligatory high construal of the temporal operator, i.e. no movement takes place in the embedded clause. This is reflected by the fact that tonal overwriting is found on the matrix verb (on the prefix *re*), but not on the embedded verb, suggesting that the null operator originates in the matrix in (30).

In this regard, it is particularly interesting to note that conditional clauses do not exhibit the movement reflex. As (31a) shows, the initial low tone on the LH verb *krá* (‘import’) does not become high inside a conditional, unlike when crossed by an overt \bar{A} -dependency (31b).

- (31) a. [Sé Kofi **krá** akonwá aa] Saka bé-tó.
 COND Kofi import chair COND Saka FUT-buy
 ‘If Kofi imports a chair, Saka will buy it.’
 b. Kofi₁ na ɔ₁-**krá** akonwá.
 Kofi FOC 3SG-import chair
 ‘It is Kofi who imports a chair.’

This could be taken as an indication that no operator movement takes place in conditional clauses, and hence no reflex. Indeed, it is well-known that conditional clauses differ from temporal adverbials in that they lack the low construal, as can be seen in the following example from Bhatt & Pancheva (2006:656).

- (32) I will leave if you say you will. (*high construal, *low construal*)

This has been argued to show that conditional clauses differ from temporal adverbials in lacking operator movement (e.g. Larson 1987; Citko 2000). This conclusion would appear to be supported by the lack of an overt movement reflex in (31b). Irish seems to be similar in this regard McCloskey (2001:82f.), however Zentz (2014) reports that movement reflexes are found in conditional clauses in Akɔɔse. Furthermore, Bhatt & Pancheva (2006) and Haegeman (2010b) have argued for operator movement analysis of conditionals, despite the lack of a low construal. While we will not explore this issue further here, movement reflexes clearly provide a potentially important piece of evidence in this debate. It is important to note that the fact that we find a difference between temporal and conditional adverbials is problematic for the more functionalist view that ‘the tonal replacement on the verb indicates the adverbial clausal status’ (Kügler 2016a:40). If this process instead reflects the presence of an \bar{A} -dependency in that clause, then tonal marking would seem to correlate with independently-motivated properties of the two adjunct types viz. null operator movement. In general, we see that the presence of tonal overwriting inside adverbial clauses provides further evidence of its status as a reflex of \bar{A} -movement.

allomorphy in (36). While the ordinary declarative complementizer takes the form *go* as in (36a), the presence of an \bar{A} -dependency in a clause leads to the other complementizer form *a* (36b,c).

(36) *Complementizer alternation in Irish* (McCloskey 1979:54,150f.):

- a. Dúirt mé [CP **gu**-r shíl mé [CP **go** mbeadh sé ann]
 said I go-PAST thought I go would.be he there
 ‘I said that I thought that he would be there.’
- b. [DP an fear [CP Op **a** shíl mé [CP **a** bheadh **a** ann]]
 the man a^L thought I a^L would.be there
 ‘the man that I thought would be there’
- c. [CP cen t-ursceal **a** mheas me [CP **a** duirt se [CP **a** thuig se **a**]]] ?
 which novel a^L thought I a^L said he a^L understood he
 ‘Which novel did I think he said he understood?’

McCloskey (2002) analyzes the reflex of movement by specifying distinct Vocabulary Items that realize whether a C head has triggered intermediate movement steps, i.e. whether a head bears an edge feature.⁸ In clauses in which no movement has taken place, the form *go* simply realizes the category feature of C (37b). However, if the C head also bears an EPP feature (i.e. edge feature) that was inserted to facilitate successive-cyclic movement, then this complementizer will be realized by the *a^L* (37a) rather than *go*, given standard assumptions about the ordering of VIs relative to specificity (e.g. Halle & Marantz 1993:124; Halle 1997:428; Embick 2015:95).

(37) *Vocabulary Items for Irish* (cf. McCloskey 2002:203):

- a. [C, EPP] ↔ *a^L*
 b. [C] ↔ *go*

We can then adopt an entirely analogous approach for tonal overwriting in Asante Twi. For long distance wh-movement such as (38b), there will be successive-cyclic movement through each ν P and CP projection triggered by an edge feature on the corresponding phase head, as in (35).

- (38) a. [CP Kofi **kaé** [CP se Á¹má **kita** bayéré]]]]
 Kofi remember that Ama hold yam
 ‘Kofi remembers that Ama is holding a yam.’

realization of Spec-Head wh-agreement.

⁸There is an additional complementizer *a^N* (triggering nasalization of the following segment) that occurs with resumptive dependencies (i).

- (i) an ghirseach a-r ghoid na síogaí í
 the girl a^N-PST stole the fairies her
 ‘the girl that the fairies stole away’ (McCloskey 2002:189)

McCloskey argues that this results from a base-generated *pro* in Spec-CP that binds the resumptive pronoun *í* directly. Thus, no movement is involved in an example such as (i). Thus, we would have to refine the Vocabulary Items in (37) to involve an OP(erator) feature, as McCloskey (2002) suggests. Such cases are not relevant for the Twi data. Although Asante Twi has overt resumptives with animates, they behave exactly like gaps do and also show movement effects (see Section 3).

- b. $[\text{CP } \text{Déén na Kofi } [\text{VP } \text{---} \text{káé} \text{---}] \text{---} [\text{CP } \text{sɛ Á'má } [\text{VP } \text{---} [\text{VP } \text{kítá} \text{---}]]]] ?$
 what FOC Kofi remember that Ama hold
 ‘What does Kofi remember that Ama is holding?’

The fact that tonal overwriting occurs on verbs points to the conclusion that this reflex is on ν rather than C. As a first approximation, overwriting can be analyzed as a floating tone that spreads through the verb. This is captured by the following Vocabulary Items for ν in Asante Twi, where the more specific exponent of ν with an edge feature is realized as a floating H tone:

(39) *Vocabulary Items for ν (preliminary):*

- a. $[\nu, \text{EPP}] \leftrightarrow \text{H-}$
 b. $[\nu] \leftrightarrow \emptyset$

The floating H tone realized on ν then triggers ‘tonal overwriting’ throughout the $\nu+V$ complex, as shown in (40). The finer details of how tonal overwriting is derived, as well as discussion of which affixes are affected, is provided in Section 4.

(40) *Tonal overwriting of $\nu+V$:*



For cases such as (20b), repeated below, where movement only takes place in the matrix clause, an edge feature will only be inserted on matrix ν . Thus, the floating H tone will only trigger overwriting on the matrix verb, as in (41b).

- (41) $\text{Hwáń}_1 \text{ na } \text{ɔ}_1\text{-ká-a } [\text{CP } \text{sé } \text{ɔ-dɔ } \text{Á'má}] ?$
 who FOC 3SG-say-PST that 3SG-love Ama
 ‘Who said that he loves Ama?’

3 Movement and resumption in Asante Twi

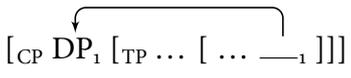
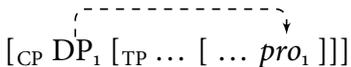
So far, we have not yet addressed the fact that we often find resumptive pronouns in constructions which we are assuming to involve movement. In many languages, resumptive \bar{A} -dependencies do not show the typical properties of movement (i.e. island-sensitivity, reconstruction) and have often been analyzed as base-generation. If this were true for Asante Twi, this would undermine the analysis of tonal overwriting as a reflex of movement, since this effect is also found with resumption. In this section, we will argue that, despite the lack of island-sensitivity, resumption is still best treated as the result of a movement derivation.

On the surface, the pattern we observe is that resumptive pronouns appear in the base position of animate, but not inanimate DPs (e.g. Saah 1988:23f.; 1994:101f.; Saah & Goodluck 1995:383). Consider the following example involving a double object construction. If the animate indirect object is extracted, then the resumptive pronoun *nó* must appear in its base position (42b). How-

ever, if the inanimate direct object is extracted (42c), then no resumptive pronoun may appear and we instead find a gap.

- (42) a. Yaw ma-a Saka siká.
 Yaw give-PST Saka money
 ‘Yaw gave Saka money.’
- b. Hwáń₁ na Yaw má-a { * —₁ / no₁ } sika?
 Who FOC Yaw give-PAST 3SG money
 ‘Who did Yaw give money to?’
- c. Déén₁ na Yaw má-a Saka { —₁ / *no₁ }?
 what FOC Yaw give-PST Saka 3SG
 ‘What did Yaw give to Saka?’

Taking this pattern at face value, it is conceivable that dependencies with gaps and resumptives could have radically different derivations. For example, it has been proposed that whereas displaced constituents leaving a gap are generated by movement (43a), resumption involves base-generation and binding (43b) (e.g. Chomsky 1977:80f.; Bayer & Salzmann 2013:305).

- (43) a.  (Movement)
- b.  (Binding)

These two different types of structures have been argued to be discernable on the basis of movement diagnostics such as island-sensitivity. For example in Hebrew, an object resumptive can occur inside a Complex NP Island (44a), but an object gap may not (44b) (see McCloskey 1979:32f. for similar facts in Irish).

(44) *Island sensitivity with gaps in Hebrew* (Borer 1984:221,223):

- a. raʔiti ʔet ha-yeled₁ she- dalya makira [DP ʔet ha-ʔisha [CP she- ʔohevet
 saw.1SG ACC the-boy that Dalya knows ACC the-woman that loves
 ʔoto]]
 him
 ‘I saw the boy that Dalya knows the woman who knows him.’
- b. *ze ha-sefer₁ she- ʔoto₁ raʔiti [DP ʔet ha-ʔish [CP she- katav —₁]]
 this the-book that him saw.1SG ACC the-man that wrote
 ‘This is the book that I saw the man that wrote.’

This would then seem to follow from the structures in (43); a movement derivation is postulated only when we find island-sensitivity, i.e. with gaps. A somewhat surprising fact about Asante Twi is that we find island-sensitivity neither with resumptives (45) nor with gaps (46) (Saah 1994; Saah & Goodluck 1995):

(45) *Island insensitivity with resumptives* (Saah 1994:172; Korsah 2017:117):

- a. Hwáń₁ na wo-hu-u [DP onipa ko [CP áa ɔ-bó-ɔ no₁ no]] ?
 who FOC 2SG-see-PST person DEF REL 3SG-hit-PST 3SG CD
 ‘Who did you see the person who hit?’ (CNP island)

- b. Á¹má na Kofi bísá-a [CP sé hwán na ε-dó nó nó]
 Ama FOC Kofi ask-PST that who FOC 3SG-love 3SG CD
 ‘It is Ama who Kofi asked who loves.’ (wh-island)

(46) *Island insensitivity with gaps* (Saah 1994:172,197):

- a. Déén na wo-nírím [DP onipa ko [CP áa ɔ-tó-ɔ-é —₁ nó]] ?
 who FOC 2SG-know person DEF REL 3SG-buy-PST-YE CD
 ‘Who do you the person that bought?’ (CNP island)
- b. Deɛn₁ na Mary bisa-a [CP sé hwán na ɔ-yɛ-e —₁ nó] ?
 what FOC Mary ask-PST that who FOC 3SG-make-PST CD
 ‘What did Mary ask who made?’ (wh-island)

This led Saah (1994) to propose that the constructions involve base-generation of a constituent in the left-periphery, which binds of a resumptive pronoun *in situ*. \bar{A} -constructions with gaps (46) are then assumed to involve binding of a null resumptive pronoun (Saah 1994:172f.). Such a derivation then contradicts the present proposal for tonal overwriting since it would mean that long-distance dependencies would not involve movement. In fact, it seems difficult to see what property of \bar{A} -constructions high tone overwriting on verbs would be tracking. One possibility would be successive-cyclic *binding*. In Irish, there is a dedicated complementizer form for resumptive dependencies, namely a^N (McCloskey 1979, 2001, 2002). Long-distance dependencies involving resumptives involve the complementizer a^N are insensitive to islands (McCloskey 1979:34), which leads to the conclusion that they do not involve movement. For resumptive dependencies, McCloskey (2002:199) reports that it is possible for each complementizer between the binder and resumptive to be marked with the complementizer a^N , which reflects base generation of a proform in its specifier. This can be seen in (47a), which is analyzed as chain of successive binding dependencies reaching down to the resumptive pronoun (RP) (47b).

- (47) a. [DP an bhean [CP a raibh mé ag súil [CP a bhfaighinn uaithi é]]]
 the woman a^N was I hope a^N get from.her it
 ‘the woman that I was hoping that I would get it from

- b. [DP ... [CP pro_i [C' a^N [TP ... [CP pro_i [C' a^N [TP ... RP_i]]]]]]]

In this analysis, we observe a particular reflex on all heads between the RP and its binder. However, there is no necessity to have binding be successive-cyclic. Since base-generation is mainly motivated by island-insensitivity, then binding by *pro* must be able to cross clause boundaries. Indeed, this means that the intermediate positions need not be filled by other binders, giving rise to ‘mixed’ chains such as (48a). Here, the intermediate C head does not select a *pro* binder in its specifier and therefore surfaces in its default form *go* (48b) (McCloskey 2002:190).

- (48) a. [DP fir [CP ar shíl Aturnae an Stáit [CP go rabh siad díleas do’n Rí]]]
 men a^N thought Attorney the State go were they loyal to.the king
 ‘men that the Attorney General thought they were loyal to the king’

- b. [DP ... [CP pro_i [C' a^N [TP ... [CP go [TP ... RP_i ...]]]]]]]

The major difficulty in developing an analogous proposal for Asante Twi is that it does not have mixed chains of the kind found in Irish. Furthermore, we find a wide range of movement diagnostics (e.g. crossover and reconstruction effects) that are difficult to capture in the absence of movement (see Section 3.3) (see Adger & Ramchand 2005; Rouveret 2008; Pan 2016 for Agree-based analyses for resumptives without reconstruction effects).

Instead, we will argue that a movement-based account of tonal overwriting can be maintained under the assumption that resumption amnesties island violations. This effect of so-called ‘intrusive’ resumption is even found in languages without grammatical resumption (49) where it functions as a kind of Last Resort (cf. Shlonsky 1992).

(49) *Resumptives inside islands in English* (Ross 1986:26of.):

- a. I just saw that girl who₁ [_{DP} Long John’s claim [_{CP} that she₁ was a Venusian]] made all the headlines
- b. King Kong is a movie which₁ you’ll laugh yourself sick [_{CP} if you see it₁]

The following sections will show that once we take the full range of facts into account, a much clearer picture emerges: Extraction of a DP always triggers resumption in its base-position. However, there are independent constraints on the realization of inanimate pronouns that also apply to resumptive pronouns. Following Korsah (2017), it will be shown that movement of inanimate DPs does in fact show overt resumption in a well-defined set of contexts. This means that pseudo-gaps such as those in (46) are actually phonologically null resumptive pronouns. If it is a general property of Asante Twi resumptives that they circumvent island violations, then the lack of island-sensitivity with nominal extraction can be straightforwardly accounted for. This conclusion will be bolstered by the fact that island effects are found with extraction of categories that lack resumptives, namely VPs and PPs. Since resumptive pronouns also show a wide range of reconstruction effects, we conclude that resumptives are the phonological realization of lower copies generated by movement. The final piece of the puzzle is provided by the *déé*-construction, which lacks tonal overwriting. While this was previously taken as evidence for the construction-specific nature of high tone insertion, we show that this construction systematically lacks reconstruction effects, and therefore involves base-generation rather than movement. This lends further support to the conclusion that \bar{A} -movement is the trigger of high tone overwriting, even in the presence of resumption.

3.1 On nominal resumption in Asante Twi

Recall that examples such as (42) initially suggest that extracted animate arguments require resumptive pronouns (50a), while inanimate object arguments seem to leave gaps in their base position (50b) (e.g. Saah 1992). However, this section shows that the ‘gap’ in (50b) is actually a phonologically null resumptive pronoun, subject to a general process of pro-drop.

- (50) a. Hwáń₁ na Yaw pé { * ___₁ / no₁ }? b. Déń₁ na Yaw pé { ___₁ / *no₁ }?
 Who FOC Yaw like 3SG what FOC Yaw like 3SG
 ‘Who does Yaw like?’ ‘What does Yaw like?’

The fact that third person inanimate object pronouns are obligatorily phonetically null has long been observed in the literature on Akan grammar (cf. Riis 1854:60, Christaller 1875/1964:85). As the following examples from Osam (1996:160) shows, a pronoun with an inanimate referent is obligatorily null (51b).

- (51) a. Kofi bɛ-tɔn [DP dua no]_i
 Kofi FUT-sell tree DEF
 ‘Kofi will sell the tree.’
- b. Kofi bɛ-tɔn { —_i / *no_i }
 Kofi FUT-sell 3SG
 ‘Kofi will sell it (the tree).’

Although this is the general rule, there are at least three contexts in which inanimate pronouns are obligatorily pronounced. These include clause-final adverbs (52a) (Saah 1994), change-of-state verbs (52b) (Boadi 1971; Osam 1996), and with secondary predicates (52c) (Korsah 2017).

(52) *Contexts for inanimate pronoun realization:*

- a. Kofi bɛ-tɔn *(no_i) ɔkyena
 Kofi FUT-sell 3SG tomorrow
 ‘Kofi will sell it (e.g. the tree) tomorrow.’
- b. Kofi bu-u *(no_i)
 Kofi break-PST 3SG
 ‘Kofi broke it (e.g. the chair).’
- c. Kuukua té [sc *(no_i) mónó]
 Kuukua pluck 3SG fresh
 ‘Kuukua plucks it (e.g. the flower) fresh.’

Putting aside what unifies these contexts for a moment, it is clear that the expected application of the inanimate pro-drop rule in Asante Twi is blocked in the contexts in (52). Furthermore, we see the same effect with resumptive pronouns corresponding to inanimates. While inanimate resumptives must be normally be dropped (53a), as we saw in (46), the presence of a clause-final VP-adverb forces it to appear overtly (53b).⁹

(53) *Inanimate resumption with clause final adverb:*

- a. Aduane nó_i na Kofi pé (*no_i)
 food DEF FOC Kofi like 3SG
 ‘It’s the food that Kofi likes.’
- b. Aduane nó_i na Kofi pé *(no_i) anɔpá
 food DEF FOC Kofi like 3SG morning
 ‘It’s the food that Kofi likes in the morning.’

Again, while we do not find resumptives corresponding to inanimate objects with most verbs (54a), change-of-state predicates such as *bu* (‘break’) trigger overt resumption (54b).

⁹ It is important to note that this is not simply an effect of ‘clause-finality’, since structurally higher clause-final material, such as the question particle *anaa*, does not license an inanimate pronoun (ib) (also see Korsah 2017:27f.).

- (i) a. Kofi di *(nó) anɔpá
 Kofi eat 3SG morning
 ‘Kofi eats it in the morning.’
- b. Kofi di *(nó) anaa ?
 Kofi eat 3SG Q
 ‘Does Kofi eat it?’

(54) *Inanimate resumption with change of state verbs:*

- a. Akonwa nó₁ na Kofi kǎ́-a (*no₁).
 chair DEF FOC Kofi import-PST 3SG
 ‘It’s the chair that Kofi imported.’
- b. Akonwa nó₁ na Kofi bú-u *(no₁).
 chair DEF FOC Kofi break-PST 3SG
 ‘It’s the chair that Kofi broke.’

Finally, when the antecedent of a resumptive is an argument of a secondary predicate, it cannot be omitted, as shown in (55) (also see Korsah 2017:25).

(55) *Inanimate resumption with secondary predication:*

- a. Aduane nó₁ na Kofi pé [SC *(no₁) hyehyééhyé]
 food DEF FOC Kofi like 3SG very.hot
 ‘It’s the food that Kofi likes very hot.’
- b. [DP Aduane nó₁ [CP áa Kofi pé *(no₁) hyehyééhyé nó]] nie
 food DEF REL Kofi like 3SG very.hot CD this
 ‘This is the food that Kofi likes very hot.’

From the preceding discussion, it is clear that the absence of inanimate resumptives patterns follows conditions on the realization of object pronouns more generally. Showing that this effect is also found in other Kwa languages, Korsah (2017) argues that inanimate object pronouns regularly undergo PF deletion and shows that all contexts where the object pronoun is obligatorily pronounced constitute situations where it has escaped the deletion operation, for principled reasons. We refer the interested reader to Korsah (2017) for details of the the analysis. As far as the present paper is concerned, we will assume that the absence of an inanimate resumptive pronoun in Asante Twi actually involves phonological non-realization of a syntactically-present resumptive pronoun.

3.2 Islands appear with true gaps

The previous section established that the ‘gaps’ found with extracted inanimate DPs are actually phonologically unrealized resumptive pronouns. Thus, they behave on a par with overt resumptions in circumventing island violations. A clear prediction of this would be that, if an extracted category lacks a resumptive pronoun, then island effects should re-emerge. This is exactly what we find with extracted PPs and VPs. In (56a), we observe that Asante Twi has PPs headed by the postposition *mú* (‘in’). While it is possible to extract this constituent in focus constructions such as (56b), it does not leave a resumptive pronoun in its base position. We can verify that this pronoun is not just phonologically deleted, as was the case with inanimate DPs, by adding a clause final adverb. We observe that there is still an obligatory gap (56c).

(56) *Extracted PPs lack resumptives:*

- a. Kofi da [PP akonwá nó mú]
 Kofi lie chair DEF in
 ‘Kofi is lying in the chair.’

- b. [PP Akonwá nó mú] na Kofí dá { —_{PP} / *hɔ }
 chair DEF in FOC Kofi lie there
 ‘Kofi is lying IN THE CHAIR.’
- c. [PP Akonwá nó mú] na Kofí dá (*hɔ) anɔpá.
 chair DEF in FOC Kofi lie there morning
 ‘Kofi lies IN THE CHAIR in the morning.’

Furthermore, PPs can also undergo long-distance movement across a finite clause boundary (57).

- (57) [PP Akonwá nó mú] na Ama níím [CP sɛ Kofí dá —_{PP}]
 chair DEF in FOC Ama know that Kofi lie
 ‘Ama knows that Kofi lies IN THE CHAIR.’

However, we now observe that PP extraction differs from DP extraction in that it is sensitive to Complex NP islands (58) and wh-islands (59).

(58) *PP extraction from Complex NP island:*

- a. Amma nim [DP neá níí [CP áa Kofí dá [PP akonwá nó mú]]
 Ama know thing because.of REL Kofi lie chair DEF in
 ‘Ama knows the reason why Kofi lies in the chair.’
- b. *[PP Akonwá nó mú] na Ama níím [DP neá níí [CP áa Kofí dá —_{PP}]]
 chair DEF in FOC Ama know thing because.of REL Kofi lie
 ‘Ama knows the reason why Kofi lies IN THE CHAIR.’

(59) *PP extraction from wh-island:*

- a. Amma bisá-a [CP sɛ bré bɛn na Kofí dá-a [PP akonwá nó mú]]
 Ama ask-PST that time Q FOC Kofi lie-PST chair DEF in
 ‘Ama asked when Kofi lies in the chair.’
- b. *[PP Akonwá nó mú] na Amma bisá-a [CP sɛ bré bɛn na Kofí dá-aɛ —_{PP}]
 chair DEF in FOC Ama ask-PST that time Q FOC Kofi lie-PST
 ‘Ama asked when Kofi lied IN THE CHAIR.’

This difference in island obviation between PP and DP extraction follows naturally if it is linked to the availability of a resumptive pronoun.

Another extractable category that lacks resumptives is the verb phrase. As Hein (2017) shows, VPs can undergo long-distance focalization (60).

- (60) [VP dán sí]-é na Á!má ká-a [CP sɛ Kofí á-yó —_{VP}]
 house build-NMLZ FOC Ama say-PAST that Kofi PERF-do
 ‘Ama said that Kofi BUILT A HOUSE (not bought a car)’ (Hein 2017:9)

Since Asante Twi lacks VP proforms and thereby resumptive pronouns, the clear prediction is that extraction of VPs should also show island effects. As Hein (2017) reports, this is precisely what we find. Movement of a VP out of a Complex NP or wh-island is ungrammatical (61).

(61) *Island sensitivity of VP movement* (Hein 2017:10):

- a. ?*[_{VP} dán sí]-é na mé-ń-té-e [_{DP} atétésém bíará [_{CP} sé Kofi
house build-NMLZ FOC 1SG-NEG-hear-PST rumour.PL any that Kofi
á-yó —_{VP}]]
PRF-do
'I didn't hear any rumours that Kofi has BUILT A HOUSE.'
- b. ?*[_{VP} dán sí]-é na Á'má bísá-a [_{CP} sɛ dabɛn na Kofi yó-ɔ-é —_{VP}]
house build-NMLZ FOC Ama ask-PST that when FOC Kofi do-PST-YE
'Ama asked when Kofi BUILT A HOUSE.'

These facts strongly support the idea that the lack of island-sensitivity with nominal extraction is linked to obligatory resumption. As soon as a resumptive strategy becomes impossible, as with PPs and VPs, then island effects re-emerge. Of course, this could still mean that the derivation of PP and VP focalization involves movement, whereas nominals are exclusively base-generated. Aside from the conceptual objection that a unified approach to focalization (via movement) would be most desirable, we actually find a number of properties of resumptive dependencies that are typically associated with movement, e.g. reconstruction and crossover effects. These are presented in the following section.

3.3 Movement diagnostics

3.3.1 Binding conditions

The first diagnostic for movement that we find is reconstruction for the various binding conditions (Chomsky 1981). As Saah (1989:18) shows, the reflexive *hó* in Asante Twi is subject to Condition A, in that it must be bound by a local c-commanding antecedent (62a). In order to test whether this is truly reconstruction in the presence of resumption, we create an analogous embedded context to (62a) and include a clause-final adverb, which will force an inanimate resumptive to appear. As (62b) shows, a coreference between the reflexive and the embedded subject is possible, thereby indicating reconstruction to the position of the resumptive.

(62) *Reconstruction for Condition A:*

- a. Kofi_i pɛ [_{CP} sé Ám'máj pírá [_{DP} ne hó_{j/*i}]]
Kofi wants that Ama hurt 3SG REFL
'Kofi_i wants Ama_j to hurt herself_{j/*i}'
- b. [_{DP} Ne hó_{j/*i}]₁ na Kofi_i pɛ [_{CP} sɛ Ám'máj pírá **no**₁ seesiá]
3SG REFL FOC Kofi wants that Ama hurt 3SG now
'It is herself_i that Kofi wants Ama_j to hurt now.'

We also find reconstruction for Condition C. As shown by (63a), a pronoun cannot c-command a co-referential R-expression. If the DP containing this R-expression is displaced (63b), the Condition C violation still pertains. This also holds in contexts in which a resumptive pronoun is obligatory (63c), i.e. in the presence of a clause-final adverb.

(63) *Reconstruction for Condition C:*

- a. * \mathcal{O}_i -pɛ [DP Kofi_i mʔónírí yí]
 3SG-like Kofi picture this
 ‘He likes the picture of Kofi’
- b. *[_{DP} Kofi_i mʔónírí yí] na \mathcal{O}_i -pɛ —_{DP}
 Kofi picture this FOC 3SG-like
 ‘It’s this picture of Kofi that he likes’
- c. *[_{DP} Kofi_i mʔónírí yí] na Ám'má ním [_{CP} sɛ \mathcal{O}_i -pɛ **no**₁ paa]
 Kofi picture this FOC Ama think that 3SG-like 3SG really
 ‘It’s this picture of Kofi that Ama thinks he really likes’

3.3.2 Variable binding

Further evidence for reconstruction to the position of the resumptive pronoun comes from variable binding (Aoun et al. 2001; Sichel 2014). This effect has been shown for Arabic by Aoun & Benmamoun (1998). A fronted expression containing a variable bound by a quantifier reconstructs at the resumption site (64a). If the resumptive is higher than the binder (64b), the result is ungrammatical due to lack of c-command.

- (64) a. *Mʔalləmt*- \mathcal{O}_i fakkarto ʔənnə kəll walad_i ʔaʔee -**ha**_i hdiyye
 teacher.F-his thought.2SG that every boy gave.3S -her gift
- b. **Mʔalləmt*- \mathcal{O}_i fakkarto ʔənnə ʔaʔee -**ha**_i kəll walad_i hdiyye
 teacher.F-his thought.2SG that gave.3S -her every boy gift
 ‘His teacher, you thought that every boy gave her a gift.’

(Aoun & Benmamoun 1998:581)

In Asante Twi, we see a similar effect. A variable bound by a quantified expression is still grammatical even if this DP is fronted with a resumption in its base position (65b).

- (65) a. *Abán* *bíará*_i dwéne [_{DP} *ne*_i-máńfó-ó *yíe-yó* hó] dáá
 government every think POSS-people-PL well-be self every day
 ‘Every_i government thinks about the well-being of its_i people every day.’
- b. [_{DP} *ne*_i-máńfó-ó *yíe-yó* hó]_i na *abán* *bíará*_i dwéné **no**₁ dáá
 POSS-people-PL well-be self FOC government every think 3SG every day
 ‘It’s the well-being of its_i people that every_i government thinks about every day.’

3.3.3 Weak crossover

Another potentially revealing diagnostic comes from crossover effects. So-called ‘weak crossover’ (WCO) effects pertain when an extracted operator crosses a coreferent element that does not c-command its trace (66a). Strong crossover (SCO) effects arise with a coreferent pronoun c-commanding the base position of the moved element (66b).

- (66) a. *Who₁ does his₁ boss dislike ___₁ ?
 b. *Who₁ did you say he₁ made you visit ___₁ ? (Lasnik & Stowell 1991:688f.)

In Asante Twi, we find both weak crossover effects (67a) and strong crossover effects with resumption (67b).

(67) *Crossover effects in Asante Twi:*

- a. $\overbrace{\text{Hwá}\acute{\text{n}}_i \text{ na } \text{ɔ}_i\text{-tán} \text{ né}_i\text{-núá} \text{ (nó) ?}}^{\text{who FOC 3SG-hate POSS.3SG-brother CD}}$
 ‘Who hates his brother?’
- b. $\overbrace{??\text{Hwá}\acute{\text{n}}_i \text{ na } \text{né}_i\text{-núá} \text{ tán } \text{nó}_i \text{ (nó) ?}}^{\text{who FOC POSS.3SG-brother hate 3SG CD}}$
 ‘Who_i does his_i brother hate?’ (Weak Crossover)
- c. $\overbrace{* \text{Hwá}\acute{\text{n}}_i \text{ na } \text{ɔ}_i\text{-tán} \text{ nó}_i \text{ (nó) ?}}^{\text{who FOC 3SG-hate 3SG CD}}$
 ‘Who_i does he_i hate?’ (Strong Crossover)

While SCO can be subsumed under reconstruction for Principle C, WCO effects require some condition that the binder crossed by movement c-commands the variable in the base position (see e.g. Koopman & Sportiche 1982; Safir 1984; Lasnik & Stowell 1991). The existence of WCO with resumption in Asante Twi follows from the idea that the resumptive pronoun behaves like a traces of the wh-movement in (66). In fact, this is what is reported for Vata by Koopman & Sportiche (1982), where resumptives behave like traces in triggering WCO effects (68).

- (68) $\overbrace{* \text{Ál}\acute{\text{o}}_i [\text{ɔ}_i \text{ n}\acute{\text{o}}] \text{ gùgù } \text{nā} \text{ } \text{ɔ}_i \text{ mli } \text{lá}}^{\text{who his mother think that 3SG left WH}}$
 ‘Who_i did his_i mother think left?’ (Koopman & Sportiche 1982:143)

One could try to argue that base-generation and \bar{A} -binding of the resumptive also creates the same configuration for WCO. However, in languages like Irish where such an analysis has been proposed, we do not find WCO effects with resumption (69a), unlike with gaps (69b).

(69) *No WCO with resumptives in Irish* (McCloskey 2011:110):

- a. [_{DP} fear_i [_{CP} a d’fhág [_{a_i} bhean] é_i]]
 man a^N left his wife him
 ‘the man_i who his_i wife left him_i’
- b. $*[_{\text{DP}} \text{fear}_i [_{\text{CP}} \text{a d’fhág} [a_i \text{ bhean}] \text{—}_i]]$
 man a^N left his wife
 ‘the man_i who his_i wife left e_i’

Thus, it seems that base-generation and binding is often not enough to induce WCO in other languages. Consequently, the fact that Asante Twi shows (weak) crossover effects suggests that the resumptive is generated by movement, as with island-sensitive resumption in Vata.

3.3.4 Scope reconstruction

More evidence for reconstruction to the position of a resumptive involves quantifier scope ambiguities. In particular, the availability of pair-list readings in *wh*-questions with a universal quantifier is often assumed to involve reconstruction of the *wh*-phrase to a position below the quantifier (e.g. Agüero-Bautista 2001; Panitz 2014). Consider the following Spanish example from Agüero-Bautista (2001:172), where a pair-list answer is reported to be possible even in the presence of a resumptive pronoun in the base position of the extracted *wh*-phrase:

- (70) A quién₁ dijo cada testigo [_{CP} que María **le**₁ quería pegar] ?
 A whom said each witness that Maria him wanted hit.INF
 ‘Who did each witness say that Maria wanted to hit?’ (∇ > *wh*, *wh* > ∇)

In Asante Twi, we also find that a resumptive dependency still permits wide-scope of the universal quantifier, i.e. a pair-list reading (71).¹⁰

- (71) Hwáń₁ na abɔ́frá bíará dɔ́ **no**₁ ?
 who FOC child every love 3SG
 ‘Who does every child love?’
Individual answer: (Abɔ́fra biara dɔ́)‘Kofi’ (wh > ∇)
Pair-list answer: ‘Kofi dɔ́ Ama, Kwame dɔ́ Kwaku, Adwoa dɔ́ Kwabena’ (∇ > wh)

In (72), wide scope of the universal is possible even in an embedded clause under long-distance extraction, as in (70).

- (72) Hwáń₁ na Kofi ká-a [_{CP} sé abɔ́frá bíará dɔ́ **no**₁] ?
 who FOC Kofi say-PST that child every love 3SG
 ‘Who did Kofi say that every child loves?’ (∇ > wh, wh > ∇)

This is important since it rules out the possibility of deriving this scopal relation via Quantifier Raising over the *wh*-phrase (É. Kiss 1993), since QR is typically assumed to be a clause-bound process (e.g. May 1985; Larson & May 1990). Thus, the only way to derive the availability of a pair-list reading in (73) is by reconstruction to the position of the resumptive pronoun.

3.3.5 Idiom reconstruction

A final diagnostic for reconstruction of displaced material to the position of the resumptive comes from the interpretation of idiom chunks (Brame 1968; Schachter 1973; Vergnaud 1974). Following Chomsky (1993:38f.), a standard assumption is that the idiomatic interpretation of phrasal idioms requires adjacency at LF. Thus, if part of an idiom chunk is \bar{A} -moved (73), then it must reconstruct to its base position in order to receive a non-literal, idiomatic interpretation.

- (73) a. [_{DP} the headway₁ [_{CP} that we made —₁]] was satisfactory (Schachter 1973:31)
 b. Those strings₁, he wouldn’t pull —₁ for you (Gazdar et al. 1985:238)

¹⁰It is interesting to note that this is not the case for all resumptive pronouns, see e.g. Doron (1982) for Hebrew.

In Asante Twi, as in many other Kwa languages, there are so-called *inherent complement verbs* (ICVs), which are fixed VP chunks that have a non-literal, idiom-like interpretation (Nwachukwu 1985; Essegbey 1999, 2010; Korsah 2016b). For example, the VP *to ndwom* ('throw song') has the non-compositional interpretation 'to sing' (74b) (Kandybowicz 2015:266). We find that, even when the complement of an ICV is extracted, the idiomatic interpretation is maintained. In (74b), resumption is obligatory with extraction of *ndwom* due to the clause-final adverb, nevertheless the idiomatic interpretation is still available. From this, we can conclude that the NP reconstructs to the position of the resumptive at LF.

- (74) a. Kofí to-o ndwóm éńóra
 Kofi throw-PST song yesterday
 'Kofi sang yesterday'
- b. Ndwóm₁ na Kofí tó-o no₁ éńóra
 song FOC Kofi throw-PST 3SG yesterday
 'It was SINGING that Kofi did yesterday.'

Similar facts hold in other languages. For example, in Hebrew relative clauses with resumption we also find idiom reconstruction (75).

- (75) [_{DP} ha-ec₁ [_{CP} še-hu tipes al-av₁]]
 the-tree that-he climbed on-it
 'the high position he took' (Sichel 2014:661)

However, we do not always find reconstruction of split idiom chunks. For example, Adger & Ramchand (2005) show that, in Scottish Gaelic, \bar{A} -moved idiom parts do not reconstruct (76).

- (76) *No idiom reconstruction in Scottish Gaelic* (Adger & Ramchand 2005:169f.):
- a. Bidh e a'toirt sop [_{PP} às gach seid]
 be.FUT he taking wisp from each bundle
 'He's not a very concentrated or focused person.'
- b. 'S ann [_{PP} às gach seid] a bhitheas e a'toirt sop ____{PP}
 its from each bundle C.REL be.FUT.REL he taking wisp
 (i) #'He tries his hand at everything.' (*idiomatic reading)
 (ii) It's from every bundle that he has taken a wisp.' (✓literal reading)

3.4 Base generation in *déé*-constructions

Further evidence for the fact that even resumptive dependencies involve movement comes from the *déé*-construction. Recall it contrasts such as those in (15), repeated below as (77), that led Marfo (2005b) and others to conclude that high tone overwriting was an idiosyncractic property of the *na*-construction. As (77b) shows, there is a superficially similar construction involving the left-peripheral particle *déé* that lacks the tonal reflex entirely.

- (77) a. Á!má₁ na Kofí ré-bóá nó₁
 Ama FOC Kofi PROG-help 3SG
 'It is Ama who Kofi is helping.'

- b. Á¹má₁ déé Kofi **re-boá** / ***ré-bóá** nó₁
 Ama TOP Kofi PROG-help PROG-help 3SG
 ‘As for Ama, Kofi is helping her.’ (Marfo 2005b:110)

However, the *déé*-construction turns out to be the exception that proves the rule. Under the present analysis, the lack of tonal overwriting in (77b) must indicate that these constructions are not derived by movement and, in fact, there is evidence that the *déé*-construction involves a base-generated left-peripheral topic.

The *déé*-construction has sometimes been described as a variant of the focus construction, but this seems to be a mischaracterization. Boadi (1974) and Saah (1994:142) assume that *déé* is a marker of (non-exhaustive) focus, however it actually displays the properties of a topic construction (see e.g. Saah 1992:236f.; Ermisch 2006:58f.). For example, the pivot of the *déé*-construction cannot contain new information, e.g. in the question-answer pair in (78) (cf. Marfo 2005b:93).

- (78) A: Hwáń na ɔ-ré-sómá abofrá nó?
 who FOC 3SG-PROG-send child DEF
 ‘Who is sending the child?’
 B: Baá na ɔ-ré-sómá abofrá nó
 Baah FOC 3SG-PROG-send child DEF
 ‘It is Baah who is sending the child’
 B': #Baá déé ɔ-re-somá abofrá nó
 Baah TOP 3SG-PROG-send child DEF
 ‘As for Baah, he is sending the child’

Furthermore, wh-phrases, which constitute new (non-given) information, are not possible in the *déé*-construction (as originally noted by Boadi 1974:53), further supporting the conclusion that *déé* is a marker of topic, rather than focus:

- (79) *Hwáń déé Baá re-kyeá nó?
 who TOP Baah PROG-greet 3SG
Int. ‘Who is Baah greeting?’ (Marfo 2005b:83)

Having established that *déé*-constructions are topic constructions, it is interesting to note that there is a cross-linguistic tendency for topic constructions to involve base-generation. If this is the case for Asante Twi, then the absence of movement reflexes in these constructions would not be surprising. For example, Collins (1993, 1994) shows that Ewe has a reflex of successive-cyclicity involving optionality in the form of the pronoun in embedded clauses. In the presence of movement, the embedded 3SG pronoun can optionally take the form *wò*, as with focus movement in (80b). Interestingly, Collins (1993) notes that this effect is absent in topic constructions (80c), which leads him to the conclusion that they involve base-generation.

- (80) *No movement reflex in Ewe topic constructions* (Collins 1993:179,182):

- a. Kofi gblɔ [CP be é/*wò fo Kɔsi]
 Kofi said that he hit Kosi
 ‘Kofi said that he hit Kosi.’

- b. Kofi_i ε me gblɔ [CP be é/wò fo —_i]
 Kofi FOC 1SG said that he hit-3SG
 ‘It is Kofi that I said s/he hit’
- c. Kofi_i de me gblɔ [CP be é/*wò fo-e₁]
 Kofi TOP 1SG said that he hit-3SG
 ‘As for Kofi, I said that s/he hit him.’

In fact, we find supporting evidence for the absence of movement in *déé*-constructions from the lack of reconstruction effects found with focus movement and relative clauses. For example, we do not find reconstruction for idiomatic interpretation (see Section 3.3.5). Consider the verb phrase *gya nán* (‘leave leg’) that has the idiomatic reading ‘to defecate’ (81).

- (81) ɔ-**gya**-a ne-nán [PP wɔ dán nó mú]
 3SG-leave-PST 3SG.POSS-leg LOC room DEF inside
 a. ‘He defecated in the room.’
 b. *Lit.* ‘He left his leg in the room.’

We observe that, under displacement, the idiomatic reading is still available in *na*-focus constructions (82a), but disappears with *déé* (82b). This follows if (82b) does not involve movement.

- (82) a. Ne-nán_i na ɔ-**gyá**-ε —_i [PP wɔ dán nó mú]
 3SG.POSS-leg FOC 3SG-leave-PST LOC room DEF inside
 (i) ‘It’s defecating that he did in the room.’ (✓*idiomatic*)
 (ii) ‘It’s his leg that he left in the room.’ (✓*literal*)
- b. Ne-nán_i déé ɔ-**gya**-ε —_i [PP wɔ dán nó mú]
 1SG.POSS-leg TOP 3SG-leave-PST LOC room DEF inside
 (i) #‘As for defecating he did it in the room.’ (**idiomatic*)
 (ii) ‘As for his leg, he left it in the room.’ (✓*literal*)

We also find an asymmetry in reconstruction for Condition C. As argued in Section 3.3.1, resumptive dependencies in *na*-constructions show reconstruction effects for Condition C. However, such effects are absent in the analogous topic construction with *déé*.

- (83) a. ??[DP Kofi_i nua yi]_j na ɔ_i-**dɔ́** no_j paa
 Kofi brother DEM FOC 3SG-love 3SG really
 ‘It is this brother of Kofi’s that he really loves.’
- b. [DP Kofi_i nua yi]_j déé ɔ_i-**dɔ** no_j paa
 Kofi brother DEM TOP 3SG-love 3SG really
 ‘As for this brother of Kofi’s, he really loves him.’

A consequence of the base-generation analysis of *déé*-constructions is that the base-generated XP must be able to bind a pronoun in the relevant position for reasons of semantic composition. Thus, the prediction is that syntactic categories that independently lack proforms should not be able to occur in the *déé*-construction, as there is no element that could occupy its associated thematic position. Recall from Section 3.2 that extracted VPs are subject to island effects since they lack a relevant proform that could act as a resumptive. Consequently, it is possible for a VP

to undergo movement as in (84a), since it can later reconstruct to its base position. However, it cannot appear as the pivot of *déé* (84b), as correctly predicted by the base-generation analysis.

- (84) a. [_{VP} Dán sí]-é na Kofi ré-yɔ —_{VP}
house build-NMLZ FOC Kofi PROG-do
‘Kofi is BUILDING A HOUSE.’
- b. ?*[_{VP} Dán sí]-é déé Kofi re-yɔ **pro*_{VP}
house build-NMLZ TOP Kofi PROG-do
Int. ‘As for building a house, Kofi did that.’

A final asymmetry between *na-* and *déé-*constructions pertains to another putative reflex of movement noted by Korsah (2016a, 2017). As we have seen, subject extraction triggers obligatory resumption on the verb. There are two types of 3SG subject pronouns in Asante Twi; *ɔ-* for animate referents (85a), and *ε-* for inanimate referents (85b) (see Korsah 2017:106).

- (85) a. Kofi hu-u né-wɔfa_i. ɔ/*ε_i-yε sikani.
Kofi see-PST 3SG.POSS-uncle. 3SG-be rich.man
‘Kofi saw his uncle_i. He_i is a rich man.’
- b. Kofi hu-u né-krátaá nó_i. *ɔ/ε_i-da pónó nó só.
Kofi see-PST 3SG.POSS-book DEF. 3SG-lie table DEF on
‘Kofi saw his book_i. It_i is on the table.’

While resumptive pronouns generally agree with their antecedents in φ -features, Korsah (2016a, 2017) shows that \bar{A} -movement of an animate subject allows for the unagreeing resumptive *ε-* in both focus constructions (86a) and relative clauses (86b). This can be understood in terms of (optional) anti-agreement, which is an established reflex of subject extraction (see Ouhalla 1993; Campos 1997; Schneider-Zioga 2007; Henderson 2013; Baier 2017). If this is correct, then it is particularly revealing that anti-agreement is not an option in the *déé-*construction (86c).

(86) *Anti-agreement in Asante Twi subject extraction* (Korsah 2017:118,121):

- a. Kofi_i na ε/ɔ_i-káń-n krátaá nó
Kofi FOC 3SG-read-PST book DEF
‘It is Kofi who read the book.’
- b. [_{DP} Abofrá nó_i [_{CP} aá ε/ɔ_i-káń-n krátaá nó]] nie
child DEF REL 3SG-read-PST book DEF this
‘This is the child who read the book.’
- c. Kofi_i déé, *ε/ɔ_i-kan-n krátaá nó
Kofi TOP 3SG-read-PST book DEF
‘As for Kofi, he read the book.’

Again, this follows naturally if no movement is involved in the derivation of the *déé-*construction.

3.5 Section summary: reconstruction and resumption

The evidence for reconstruction effects presented in this section strongly points to the conclusion that resumptives in Asante Twi behave like traces of movement (Zaenen et al. 1981; Koopman &

Sportiche 1982, 1986; Alexopoulou 2006). Given the positive results of various reconstruction diagnostics, we can therefore conclude that, despite the lack of island-sensitivity, resumption in Asante Twi is derived by movement. On the other hand, one could object that reconstruction effects are not necessarily a reliable indicator of movement. Guilliot & Malkawi (2006, 2011) argue that in dialects of Arabic, certain reconstruction effects with resumptives can be derived by base-generation of two identical phrases and application of NP ellipsis to derive the resumptive pronoun in the lower copy (see Postal 1966; Elbourne 2001; van Urk to appear).

(87) *Resumption as NP ellipsis:*

[... [DP D NP] ... [... [DP D NP]]]

While it is unclear whether such an approach can actually account for all reconstruction effects without movement (see Salzmann 2017:223ff. for discussion), we can rule out such an analysis for Asante Twi resumption on independent, language-internal grounds. Recall that resumptives and definite determiners in Asante Twi are homophonous (*nó*). Initially, this may seem to legitimize an analysis such as the one in (87), as Arkoh & Matthewson (2013:27) suggest. Despite the appeal of such a unification, there are good reasons to believe that resumptive pronouns in Asante Twi are not derived by NP ellipsis. The evidence for this comes from a haplology effect reported by Saah (1994). Saah shows that a sequence of homophonous *nó* elements is tolerated when one is a resumptive pronoun and the other is the clausal determiner, as in (88a). However, if the two homophonous items both correspond to determiners, then one of them must be deleted (88b). This anti-haplology rule is therefore sensitive to syntactic category and projection type, i.e. it rules out adjacent, identical D⁰ elements (also see Kramer 2010:231f.).

(88) *Determiner haplology effect* (Saah 1994:151f.):

a. [DP Abrofrá₁ [CP áa Kofí hú-u **nó**₁ *(**nó**)]] á-ba
 child REL Kofi saw-PAST 3SG CD PFV-COME
 ‘The child that Kofi saw has come.’

b. [DP Onípá₁ [CP áa ɔ₁-tó-o [DP ndwóm **nó**] (***nó**)]] yε-ε adé
 person REL 3SG-throw-PAST song DEF CD do-PST something
 ‘The person who sang the song did well.’

This is problematic for the view that resumptive pronouns are derived by NP ellipsis, since the ‘resumptive pronoun’ in (88a) would actually correspond to the determiner of the elided NP as in (89). Under this analysis, we would expect it to be subject to the same haplology effect as in (88b), contrary to fact.

(89) [DP Abrofrá₁ [CP áa Kofí hú-u [DP abrofrá **nó**₁] *(**nó**)]] á-ba
 child REL Kofi saw-PAST child 3SG CD PFV-COME

Instead, *nó* behaves like a genuine pronoun in such cases, which is presumably a phrasal projection DP and therefore immune from the haplological dissimilation rule. In fact, Section 3.1 also showed that inanimate resumptive pronouns share the same distribution as anaphoric pronouns, namely that they are obligatorily null in all but a few clearly-defined contexts. This last

observation in particular suggests that we are dealing with genuine pronouns, which means that the general availability of reconstruction becomes rather puzzling. A tentative proposal at this point would be to suggest that resumptive pronouns are indeed the Spell-Out of a lower copy in a movement chain. Rather than deriving resumptives by somehow reducing the lower copy (Kandybowicz 2008:135), we suggest that there is a PF process of *Pronoun Conversion* in which a copy is transformed into a pronoun. This is analogous to the LF process of *Trace Conversion* (Fox 1999, 2002) in which a copy of a moved item is turned into a definite description for the purposes of interpretation. The advantage of such an approach is that we can explain not only why resumptive pronouns derived by movement share the same overt distribution as regular pronouns, but also why they obviate islands. While *Pronoun Conversion* applies regularly with nominal extraction in Asante Twi, it is a limited strategy in many other languages that gives rise to ‘intrusive’ resumptives that can ameliorate island violations (Sells 1984; Erteschik-Shir 1992). As the discussion in Section 3.2 showed, it seems correct to link the obviation of island violations to resumption since island effects resurface for extraction of categories that lack proforms independently.

4 Morpho-phonological aspects of tonal overwriting

4.1 The scope of the process

While the previous sections dealt with the syntactic aspects of movement and tonal overwriting in Asante Twi, we now turn to the morpho-phonological side of the phenomenon. So far, we have said that low tones on the verb are replaced with high tones in the presence of an \bar{A} -dependency. While all tones on the verbal root are affected, it is not always the case that affixes undergo the alternation. For example, (90) shows that the low-toned progressive prefix *re-* surfaces as high in extraction contexts, whereas the low-toned resumptive marker \varnothing - does not.

- (90) a. Kusí re-somá mé
 Kusi PROG-send 1SG
 ‘Kusi is sending me.’
- b. Kusí₁ na \varnothing ₁-ré-sómá mé
 Kusi FOC 3SG-PROG-send 1SG
 ‘It is Kusi who is sending me.’ (Marfo & Bodomo 2005:193)

While progressive aspectual prefixes are affected, the past suffix *-a* in (91b) remains low, despite the verbal root alternating to high (Marfo 2005b:109,fn.31; Genzel 2013:208).

- (91) a. Kofí boá-a Afía
 Kofi help-PST Afia
 Kofi helped Afia.’
- b. Kofí na \varnothing -bóá-a Afía
 Kofi FOC 3SG-help-PST Afia
 ‘It is Kofi who helped Afia’ (Marfo 2005b:9)

Previous literature only mentions these facts in passing and the full scope of the tonal overwriting

process has not yet been systematically investigated. As shown by Paster (2010), Asante Twi has a relatively rich inventory of verbal inflection (also see Boadi 1965:41f.; Dolphyne 1988:87ff.; Ofori 2006:7ff.; Boadi 2008:13; Stump 2016:136). Inflection for tense, aspect and negation is primarily expressed by the affixes in (92).

(92) *Verbal affixes in Asante Twi* (cf. Paster 2010:107):

-Ø	(stative)	bisá	‘asks’
-V	(past)	bisá-a	‘asked’
bɛ-	(future)	bɛ́-bísá	‘will ask’
re-	(progressive)	re-bisá	‘is asking’
a-	(perfective)	á-bísá	‘has asked’
kɔ-	(egressive)	kɔ-bísá	‘go and ask’
be-	(ingressive)	be-bísá	‘come and ask’
N-	(negation)	m-bísá	‘not ask’

The examples in (90) and (91) showed that the low-toned progressive prefix *re-* is subject to high-tone raising, whereas the low-toned past suffix is not. This poses the question of how the other affixes behave. Testing this is not entirely straightforward, since some affixes (such as future *bɛ-*) are invariably high and thus do not allow us to check whether they have been affected by tonal overwriting. However, Paster (2010) shows that the tone of other prefixes is conditioned by the preceding subject. For example, the perfective marker *á-* is typically reported as bearing a high tone (93a), however Paster (2010) shows that if the preceding subject ends in a low tone (e.g. *Yaw*), then the prefix surfaces as low (93b).

- (93) a. Ésí á-'káé Kofi
 Esi PERF-remember Kofi
 ‘Esi has remembered Kofi.’
- b. Yaw a-káé Kofi
 Yaw PERF-remember Kofi
 ‘Yaw has remembered Kofi.’
- (Paster 2010:103)

We will leave aside the question of whether this involves tonal spreading or phonologically-conditioned allomorphy. What is clear is that, in contexts such as (93b), we are now able to check whether we find the low/high-alternation in \bar{A} -contexts. In the extraction equivalent of (93b), the low-toned *a-* prefix is affected by tonal overwriting (94).

(94) *Perfective aspect undergoes alternation:*

Hwáń ₁	na	Yaw	á-káé	nó ₁
who	FOC	Yaw	PERF-remember	3SG
‘Who has Yaw remembered?’				

There are also the low-toned motion prefixes *kɔ* and *be-* expressing egressive and ingressive aspect, respectively (Osam 2008; Kusmer 2011; Paster 2010).¹¹ Such prefixes are also affected by the

¹¹Although these affixes are cognates of the verbs for ‘come’ and ‘go’, it is not possible to analyze them (synchronously) as serial verb constructions. In serial verb constructions, both verbs typically inflect for

tonal overwriting process (95b).

(95) *Motion aspect undergoes alternation:*

- a. Yaw kɔ-bisá-a Kofi
 Yaw MOT-ask-PST Kofi
 ‘Yaw went and asked Kofi.’
- b. Yaw₁ na ɔ₁-kɔ́-bísá-a Kofi
 Yaw FOC 3SG-MOT-ask-PST Kofi
 ‘It is Yaw who went and asked Kofi.’

Furthermore, negation, expressed as a homorganic nasal *N-*, behaves like the aspectual prefix *a-* in that its tone is conditioned by the preceding subject. When preceded by a low-toned subject such as *Saka*, it surfaces as low (96a). As (96b) shows, it also changes to high in \bar{A} -contexts.

(96) *Low-toned negation undergoes alternation:*

- a. Saka n-krá n-konwá.
 Saka NEG-import PL-chair
 ‘Saka hasn’t imported chairs.’
- b. Deɛn₁ na Saka n̄-krá —₁ ?
 what FOC Saka NEG-import
 ‘What hasn’t Saka imported?’

So far, we have seen that aspectual and negation prefixes are affected by tonal overwriting, and the past tense suffix is not. While this may invite the conclusion that we are dealing with a prefix/suffix-distinction, we will argue that this is not correct. First, there is another suffix *-yɛ* that appears in combination with the past tense. While the exact nature of this marker will be discussed further in Section 4.3, Kandybowicz (2015) analyzes this as the default realization of aspect in a prosodically-vacuous domain. A prosodically-vacuous VP can be created by moving the object as in (97b). When we do so, we see that the ordinarily low-toned morpheme *yɛ* surfaces with a high tone.

- (97) a. ɔ-di-i aduá
 3SG-eat-PST beans
 ‘He ate beans.’
- b. Aduá₁ na ɔ-dí-i-yé —₁
 beans FOC 3SG-eat-PST-YE
 ‘It is beans that he ate.’

(Schwarz & Fiedler 2007:274)

Although Kandybowicz (2015) does not want to treat *yɛ* as an affix, there is good reason to believe it is. First, non-verbal material can never intervene between *yɛ* and the verb (e.g. Kandybowicz 2015:261). Second, it undergoes ATR-harmony with the verb, suggesting its integration in the verbal complex. As discussed by Dolphyne (1988:94) and Ofori (2006:42f.), the suffix *-yɛ* in

tense/aspect/agreement (see Hellan et al. 2003). In some aspects, the second verb in a SVC bears ‘infinitive’ or ‘consecutive’ marking as with *kɔ* in (i), which makes it distinct from its grammaticalized use as an aspectual prefix.

- (i) ɔ-re-tɔ bí á-kɔ
 3SG-PROG-buy some INF-go
 ‘He is buying some to take away.’

(Boadi 2008:12)

Asante Twi surfaces either as invariant [(j)ε] or as [i]/[ɪ], depending on the ATR specification of the preceding vowel (98).

- (98) a. Kofi fo-o-ε [fɔː.ɪ]
 Kofi climb-PST-YE
 ‘Kofi climbed’
 b. Kofi su-u-ε [suː.i]
 Kofi cry-PST-YE
 ‘Kofi cried.’

In terms of autosegmental representation, we can assume apocope of the final -ε, with the glide becoming moraic and harmonizing with the verbal stem in ATR values (99). This supports the integration of -yε into the word.¹²

- (99) a. /fɔ-^μ-jε/ → [fɔː.ɪ]

 b. /su-^μ-jε/ → [suː.i]

A similar argument can be made for the 3rd singular subject marker ɔ-. As (100) makes clear, this prefix also participates in ATR-harmony (Saah 1994:54.fn.7; Osam 1994:15of.).

- (100) a. ɔ-bé-fré no
 3SG-FUT-call 3SG
 ‘S/he will call him/her.’
 b. O-bé-hú no
 3SG-FUT-see 3SG
 ‘S/he will see him/her.’

As examples such as (95b) and (97b) showed that, despite being part of the verbal complex, the subject marker/resumptive is not affected by high-tone insertion.

So far, we have seen that aspectual affixes such as progressive, perfect, motion and -yε, as well as negation, are all affected by tonal overwriting, whereas the past-tense marker and subject pronoun are not. We therefore propose the following preliminary generalization:

- (101) *Affix generalization (to be revised):*

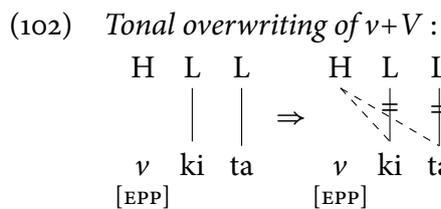
Tense and agreement affixes are not affected by high tone insertion in \bar{A} -constructions.

It will ultimately be shown that this generalization follows from independently-motivated assumptions about the clause structure of Asante Twi. Before showing this, we will first briefly consider how tonal overwriting works.

4.2 The nature of overwriting

In Section 2.2, we proposed that tonal overwriting involves the realization of $\nu_{[EPP]}$ with a floating H tone that subsequently spreads overwriting the tones in the verb (102).

¹² Kügler (2015) shows that there are some limited cases of ATR-harmony across words in Akan, however they only include regressive harmony between a sequence of [-ATR]-[+ATR] and only within a phonological phrase (φ). We therefore do not believe that such exceptions fundamentally undermine the applicability of this diagnostic.



In light of the preceding discussion, the challenge for an analysis of overwriting is how to limit spreading to affixes of a particular kind. An approach in which spreading is triggered by alignment constraints would predict complete overwriting in the verbal complex (e.g. McCarthy & Prince 1993; Hyde 2012). Interestingly, tonal overwriting is also found elsewhere in Asante Twi. Paster (2010) shows that a floating L tone overwrites any H tones on the verb in the imperative:

(103) *L-tone overwriting in the imperative* (Paster 2010:115):

	Habitual		Imperative	
H	tɔ́	‘buy’	tɔ pɛ́n	‘Buy a pen!’
HL	nóm	‘drink’	nom insyu	‘Drink water’
LH	kaé	‘remember’	kae kofi	‘Remember Kofi!’
	bisá	‘ask’	bisa asé	‘Ask something!’

Even within Twi, there is evidence for overwriting with both H and L tones. We therefore need a general theory of tonal overwriting. We will follow Trommer (2011) in proposing that tonal overwriting involves a floating tonal circumfix (^H-^H). Trommer (2011:126) proposes that overwriting is driven by a constraint CONT_τ (104) requiring that tones belonging to the same morpheme are adjacent (see Landman 2003; Zimmermann 2017 on morpheme contiguity).

(104) CONT_τ :

Tautomorphemic tones form a contiguous melody.

Additionally, let us assume the following standard markedness/faithfulness constraints for tonal processes in (105) (see Yip 2002:79ff.):

(105) a. *FLOAT(H):

No floating high tones.

b. MAX-AL:

Do not delete association lines.

c. SPECIFY:

No toneless syllables.

In Trommer’s (2011) analysis, the combined effect of a discontinuous morpheme and a high-ranked contiguity constraint lead to inward spreading to achieve adjacency between the parts of the circumfix. This is illustrated in the following OT analysis of overwriting with the verb *re-somá* in (90). Candidates (106a–c) are ruled out due to the lack of morpheme contiguity. Leaving one of the syllables toneless (106d) fatally violates SPECIFY (105c). The optimal candidate therefore involves complete delinking and overwriting of all tones between the suffix (106e).

(106) *Tonal overwriting in Asante Twi (rè-sòmá ⇒ ré-sómá):*

	(H) L L H (H)	CONT _T	*FLOAT(H)	MAX-AL	SPECIFY
	 re so ma				
a.	 re so ma	*!	**		
b.	 re so ma	*!	*	*	
c.	 re so ma	*!	*	**	
d.	 re so ma		*	***	*!
e.	 re so ma		*	***	

The attachment of a floating circumfix therefore deterministically results in overwriting due to the importance of contiguity. Thus, morphemes that obligatorily trigger overwriting such as ^H-^H on *v* and the imperative marker ^L-^L (103) can be analyzed in this fashion. Consequently, we can refine the Vocabulary Items for *v* proposed in (39) to involve a floating tonal circumfix (107a).

(107) *Vocabulary Items for v (final):*

- a. [*v*, EPP] ↔ ^H-^H
- b. [*v*] ↔ ∅

The following section will now demonstrate how this view of tonal overwriting can explain its selective nature with regard to the affixes affected.

4.3 Deriving the affix generalization

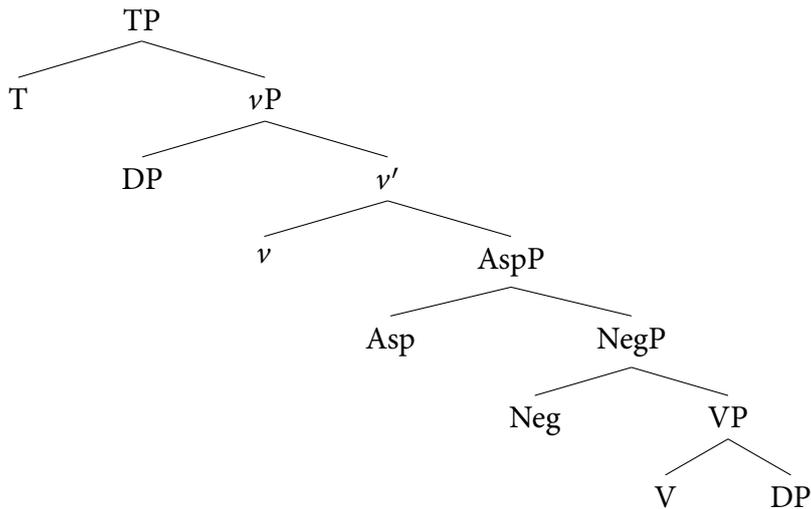
Recall the preliminary version of the *affix generalization* from (101), repeated below.

(108) *Affix generalization:*

Tense and agreement affixes are not affected by high tone insertion in \bar{A} -constructions.

This section will demonstrate that this generalization can be rephrased in structural terms based on the independently-motivated assumption that aspect and negation are actually lower than *v* (109), as proposed by Kandybowicz (2015:257).

(109) Clause structure of Asante Twi:



Kandybowicz (2015) primarily motivates this structure on the basis of the distribution of the morpheme $y\epsilon$. He argues that $y\epsilon$ is the realization of Asp in a prosodically vacuous Spell-Out domain, i.e. the complement of v . This morpheme is only found in past tense contexts with the suffix $-V$ (110a). In other words, $y\epsilon$ is in complementary distribution with aspect (110b).¹³

- (110) a. Kofi sa-a- ϵ
 Kofi dance-PST-YE
 ‘Kofi danced’
- b. Kofi {re-/a-}sa(*- ϵ)
 Kofi {PROG-/PERF-}dance(*-YE)
 ‘Kofi is dancing/has danced’ (Kandybowicz 2015:244)

This distinction is explained by assuming that the verb moves to T, where the $-V$ ending is hosted, unless ‘blocked by an overt/contentful head’ such as aspect (Kandybowicz 2015:249).¹⁴ With an intransitive verb (110a), V-to-T movement will render the Spell-Out domain of v prosodically vacuous, leading to insertion of $y\epsilon$. The fact that aspectual affixes obviate $y\epsilon$ -insertion (110b) suggests that they must remain in the Spell-Out domain of v , i.e. occupying a position lower than v as in (109). The assumption that $y\epsilon$ -insertion has to do with prosodic vacuity is further supported by the fact that even in cases where the verb moves, $y\epsilon$ is blocked if there is a direct object of a transitive verb (111a) or a low, VP-level adverb (111b).

- (111) a. Kofi bɔ-ɔ(*- ϵ) Ama
 Kofi kick-PST(*-YE) Ama
 ‘Kofi kicked Ama.’
- b. Kofi sa-a(*- ϵ) ntɛm
 Kofi dance-PST(*-YE) quickly
 ‘Kofi danced quickly’ (Kandybowicz 2015:245f.)

¹³ We diverge from Kandybowicz (2015) by continuing to represent the $y\epsilon$ morpheme as $-\epsilon$, following standard Akan orthography.

¹⁴This presupposes that the Head Movement Constraint cannot be absolute, but rather relativized for certain heads, see Baker & Collins (2006:313) for a similar assumption. Kandybowicz (2015) provides further evidence for V-to-T movement from the periphrastic expression of past tense with *na*, which will not be discussed here.

We can furthermore argue that negation is even lower than aspect based on the data in (112).

- (112) a. Na Kofi re-n-sa / *n-re-sa
 PST Kofi PROG-NEG-dance *NEG-PROG-dance
 ‘Kofi was not dancing.’
- b. Na Kofi a-n-sa / *n-a-sa
 PST Kofi PERF-NEG-dance *NEG-PERF-dance
 ‘Kofi did not dance.’ (Kandybowicz 2015:256)

Given the structure in (109), Kandybowicz (2015) argues that *na* occupies T and the verb does not move out of the ν P domain. Since we see that the aspectual prefix *re-* must precede negation (112), mirror principle reasoning would therefore dictate that negation is located lower than aspect as in (109).¹⁵ Given this clause structure, then the generalization in (108) translate into a structural one – affixes that originate in a position lower than ν (e.g. aspect and negation) are affected by tonal overwriting, whereas those in a higher position (e.g. tense, subject agreement/resumption) are not. This is summarized in (113).

- (113) *Affix generalization (final):*
 Only affixes higher than ν are affected by high tone insertion in \bar{A} -constructions.

The generalization in (113) will now follow both from the fact that tonal overwriting involves a floating tonal circumfix and standard assumptions about word formation in Distributed Morphology (DM). In standard DM approaches (e.g. Halle & Marantz 1993; Harley & Noyer 2003; Embick & Noyer 2007; Embick 2015), Vocabulary Insertion and concatenation of affixes applies cyclically from the root-outwards inside a complex head (Bobaljik 2000; Embick 2010). Consider (114) where both the tones of the root and the progressive prefix *re-* have been affected by tonal overwriting (*re-boá* \Rightarrow *ré-bóá*).

- (114) Á¹má₁ na Kofi **ré-bóá** nó₁
 Ama FOC Kofi PROG-help 3SG
 ‘It is Ama who Kofi is helping.’

Assuming that aspect blocks verb movement to T (Kandybowicz 2015), then the complex head in (115) is formed either by head movement or post-syntactic Lowering (Embick & Noyer 2001) (or a combination thereof). Since AspP is structurally lower than ν , the low-toned prefix *re-* combines with the root first (116a).¹⁶ Subsequently, ν combines with the Asp constituent. Since it

¹⁵Furthermore, motion aspect seems to occur even lower than negation (and in conjunction with other aspects) (i) (also see Boadi 2008:14), suggesting it occupies a head even lower than negation (e.g. Mot⁰; Kusmer 2011:18).

- (i) a. Kofi re-m-be-didi
 Kofi PROG-NEG-MOT-eat
 ‘Kofi is not coming to eat.’
- b. Yaw re-n-kɔ-to bayerɛ
 Yaw PROG-NEG-MOT-buy yam
 ‘Yaw is not going to buy yam.’ (cf. Kusmer 2011:25)

This aspectual marker does not block movement to T, since it is compatible with the -V past marker (95).

¹⁶A standard assumption is that roots are acategorical and must therefore first combine with a designated cate-

is realized as a floating tonal circumfix, this now attaches outside both the aspectual prefix and the root (116b). This then triggers overwriting of both the prefix and the root (116c), as shown in Section 4.2.

- (115)
-
- (116) a. $\text{Asp} + \sqrt{\text{boá}} \Rightarrow \text{rè-bòá}$
 b. $\nu + [\text{rè-bòá}] \Rightarrow \text{H-rè-bòá-H}$
 c. $\text{H-rè-bòá-H} \Rightarrow \text{ré-bóá}$

Given the Mirror Principle (e.g. Baker 1985; Harley 2011), prefixes located lower than νP in the clause (such as aspect and negation) will always combine with the root before ν and therefore always intervene between the floating tonal circumfix. Affixes originating higher than νP , on the other hand, will be attached after ν and therefore be immune from the effects of overwriting. To see this, let us consider the more complex example from (95), repeated as (117). Recall that this example involves both aspect and tense morphemes and we observe that, while the root and egressive prefix $k\text{ɔ}$ become high, the past tense $-a$ and subject prefix ɔ- do not.

- (117) a. Yaw $k\text{ɔ}$ -bisá- a Kofi
 Yaw MOT-ask-PST Kofi
 ‘Yaw went and asked Kofi.’
 b. Yaw₁ na ɔ_1 - $k\text{ɔ}$ -bisá- a Kofi
 Yaw FOC 3SG-MOT-ask-PST Kofi
 ‘It is Yaw who went and asked Kofi.’

In this example, the verb moves to T and therefore receives overt past tense inflection expressed by the $-V$ suffix (following Kandybowicz 2015). Subsequently, the complex head T in (118) formed by head movement is subject to Vocabulary Insertion, as above.

- (118)
-

The low-toned affix $k\text{ɔ-}$ is first attached to the root. At the next cycle, the exponent of ν (the gorizing head such as ν^0 , n^0 and a^0 that may also be responsible for selecting arguments (e.g. Harley 2005, 2014). While we also take this to be the case, we omit such heads to simplify matters.

floating H-tone circumfix) attaches to this complex and triggers overwriting of all low tones. Subsequently, the subject resumptive marker is attached. For present purposes, we assume this to be a realization of an Agr projection, but it could also be a clitic in Spec- ν P.¹⁷ Since ν attaches after ν , it is not subject to tonal overwriting and remains low-toned. The same holds for the past tense exponent in T, which is realized as a floating moraic suffix that triggers lengthening of the final segment of the verb (e.g. Ofori 2006:29; Zimmermann 2017:188). Since this affix is also structurally higher than ν , it is immune from the effects of overwriting.

This section has shown that the selective nature of the tonal overwriting process follows from the cyclic nature of Vocabulary Insertion, the assumption of a floating H-tone circumfix and the independently-motivated assumption that both aspect and negation affixes originate lower than ν . The fact that both Kandybowicz's (2015) analysis of γ E-insertion and the *affix generalization* in (108) require the same assumptions about the clause structure of Asante Twi constitutes a striking convergence across empirical domains and thereby lends further support to the assumption of a low AspP and NegP projection in the language.

5 Further issues

5.1 Subject extraction

One issue we have not yet addressed regards tonal overwriting with subject extraction. Recall from Section 2.2 that we are proposing that the floating high-tone exponent that triggers overwriting is the realization of ν bearing an edge feature ([EPP]) inserted to facilitate successive-cyclic movement. With local extraction of a wh-object, this feature is inserted to trigger movement to the edge of the ν P phase (119).

(119) *Local object extraction:*

$$[_{CP} \textit{wh} [_{C'} C_{[EPP]} \dots [_{\nu P} \textit{---} [_{\nu'} DP [_{\nu'} \nu_{[EPP]} [_{VP} V \textit{---}]]]]]]$$

However, wh-subjects already originate at the edge of ν P and can therefore move to their local Spec-CP position without any intermediate step (120).

(120) *Local subject extraction:*

$$[_{CP} \textit{wh} [_{C'} C_{[EPP]} \dots [_{\nu P} \textit{---} [_{\nu'} \nu [_{VP} V DP]]]]]]$$

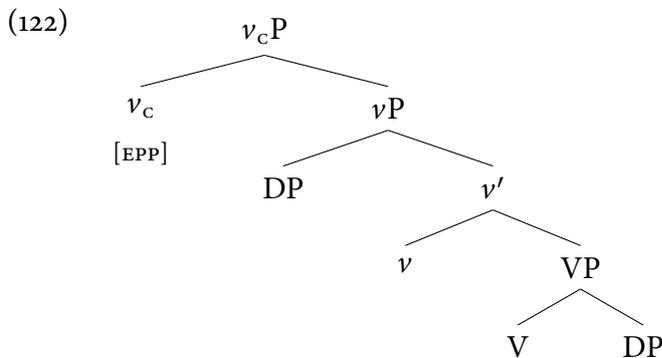
All else being equal, we would not expect to find movement reflexes with local subject extraction since there is no trigger for edge-feature insertion in (120). This has been reported to be the case in Duala (Epée 1976), Indonesian (Saddy 1991) and Defaka (Bennett et al. 2012). However, like many other languages (Clements et al. 1983), local subject extraction in Asante Twi does show

¹⁷Either way, this would still conform to the *affix generalization*. There are a few reasons to believe that subject 'resumptives' are different from objects in being a manifestation of agreement. For example, subject (but not object) resumptives are strictly bound morphemes and allow for a kind of anti-agreement marking in A-constructions (86) and even outside them (Korsah 2017:109).

reflexes of movement, i.e. tonal overwriting on the verb (121b).

- (121) a. Hwáń **ḁ** Saka?
 who love Saka
 ‘Who loves Saka?’
- b. Hwáń₁ na ɔ₁-**ḁ** Saka?
 who FOC love Saka
 ‘Who loves Saka?’

In order to reconcile this with the analysis proposed so far, we could either propose that wh-subjects must undergo string-vacuous intermediate movement for independent reasons (e.g. Müller 2007:86) or we can dissociate the phase edge and the base position of the subject. We will adopt the latter view in line with others (e.g. Richards 2010; Baltin 2012; Harley 2013) and propose the existence of ν P shells as in (122). While the outer ν P is often given the label Voice, we label it ν_c P following Richards (2010:14) and also adopt his proposal that it is this head, and not the lower one, that is the phase head.



With this structure, subject extraction now requires insertion of an edge feature on ν_c (123), which is realized as the familiar overwriting circumfix.

- (123) *Local subject extraction is successive-cyclic:*
- $$[_{CP} wh [_{C'} C_{[EPP]} \dots [_{\nu_c P} \text{---} [_{\nu_c'} \nu_{c[EPP]} [_{\nu P} \text{---} [_{\nu'} \nu [_{VP} V DP]]]]]]]]$$

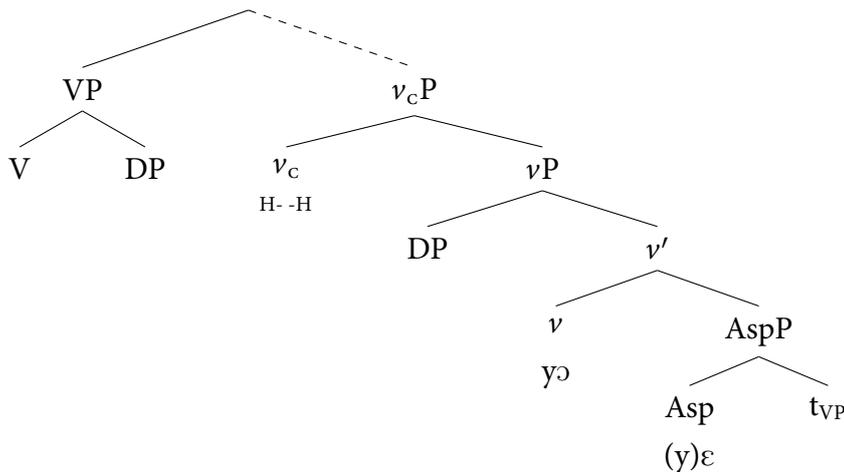
The postulation of ν P shells in Asante Twi is not only motivated by a theory-internal quandry regarding the base position of the subjects, there is also a potential empirical advantage. Hein (2017) discusses the fact that topicalization of a VP in Asante Twi leads to a process of $y\text{ɔ}$ -support, analogous to *do*-support in English (124a). While it may be tempting to treat this as a variant of the morpheme $y\epsilon$ discussed by Kandybowicz (2015), Hein (2017) points out that this is not possible since the two morphemes co-occur (124b).¹⁸

- (124) a. [_{VP} Dán sí]-é na Kofí ré-yó —_{VP}
 house build-NMLZ FOC Kofi PROG-do
 ‘Kofi is BUILDING A HOUSE.’
- b. [_{VP} Dán sí]-é na Kofí yó-ɔ-é —_{VP}
 house build-NMLZ FOC Kofi do-PST-YE
 ‘Kofi BUILT A HOUSE.’
- (Hein 2017:7,fn.3)

¹⁸Also, (124a) shows that this morpheme occurs with progressive aspect *re-*, unlike $y\epsilon$ (110b).

For cases such as (124b), we can place $y\text{ɔ}$ in ν and $y\epsilon$ in Asp (following Kandybowicz 2015) (125).

(125)



The general idea would be that ν is realized as zero in the context of the root, however if ν is not local to the root, for example because the VP has been fronted, then it receives a default realization as $y\text{ɔ}$. This is then very similar to Thoms' (2011) and Baltin's (2012:417) approach to *do*-support/British-*do* in English. Locating $y\text{ɔ}$ in ν is also supported by the fact that it is subject to tonal overwriting (126b), in line with the *affix generalization* (108) stating that material structurally lower than the floating circumfix (now in ν_c) is affected by overwriting.

- (126) a. Kofí á-yɔ
Kofi PERF-do
'Kofi has done it.'
- b. [_{VP} dán sí]-é na Kofí á-yɔ —_{VP}
house build-NMLZ FOC Kofi PRF-do
'Kofi has BUILT A HOUSE.'

5.2 Covert movement and wh-in-situ

Another issue pertains to wh-in-situ: wh-words can stay in-situ in Asante Twi and do not trigger to tonal overwriting when they do (127a).

- (127) a. Baá re-seré hwáń?
Baah PROG-laugh who
- b. Hwáń₁ na Baá ré-séré nó₁?
who FOC Baah PROG-laugh 3SG
'Who is Baah laughing at?' (Marfo 2005b:81)

This is a cross-linguistically familiar picture where in-situ wh-phrases do not trigger putative reflexes of \bar{A} -movement (but cf. Reintges et al. 2006). Nevertheless, arguably the standard view of wide-scope wh-in-situ would be that it involves wh-movement in the syntax but pronunciation of the lowest copy at PF (e.g. Bobaljik 2002). Under this view, we would expect to find the same reflexes that we do with overt movement.

While not being able to resolve this issue completely, we will point to two pieces of evidence which suggest that wh-in-situ and wh-ex-situ in Asante Twi do not share the same syntactic derivation. The first argument comes from the observation by Kobele & Torrence (2006) that

in-situ wh-phrases in non-echo questions are sensitive to intervention effects by negation, for example (128) (Beck 2006). Ex-situ wh-phrases, on the other hand, are not subject to intervention effects (128c).

- (128) a. Kofi bɔ-ɔ hwan ?
 Kofi hit-PST who
 ‘Who did Kofi hit?’
 b. *Kofi a-m-bɔ hwan ?
 Kofi PST-NEG-hit who
 c. Hwan_i na Kofi a-m-bɔ no ?
 who FOC Kofi PST-NEG-hit 3SG
 ‘Who didn’t Kofi hit?’ (Kobele & Torrence 2006:166)

The second asymmetry pertains to wh-in-situ in embedded contexts. As originally noticed by Kobele & Torrence (2006) (and corroborated by Kandybowicz 2017:117), an in-situ wh-phrase cannot take wide scope out of an embedded clause (129a). By comparison, movement out of an embedded CP is unproblematic (129b).

- (129) a. *Wo dwene [_{CP} sɛ Kofi bɔ-ɔ hwan] ?
 2SG think that Kofi hit-PST who
 b. Hwan na wo dwene [_{CP} sɛ Kofi bɔ-ɔ no_i] ?
 who FOC 2SG think that Kofi hit-PST 3SG
 ‘Who do you think that Kofi hit?’ (Kobele & Torrence 2006:168f.)

Both of these asymmetries serve to show that the syntax of wh-in-situ cannot simply involve the same syntactic derivation as wh-ex-situ, with differences in the pronunciation site. Instead, we can find alternative ways to compute wide-scope of wh-phrases without movement (e.g. Reinhart 1998). Importantly, the absence of movement reflexes with wh-in-situ is not a particular challenge for the analysis developed here.

5.3 Predicate clefts

Hein (2017) points out that we also find tonal overwriting in predicate doubling constructions such as (130b).

- (130) a. Kofi **re-boá** Á'má.
 Kofi PROG-help Ama
 ‘Kofi is helping Ama.’
 b. Boá na Kofi **ré-bóá** Á'má.
 help FOC Kofi PROG-help Ama
 ‘Kofi is HELPING Ama.’

As he dicusses, this supports the view that these constructions are derived by movement (Lan-dau 2006; Vicente 2009) and not base-generation (Cable 2004). Furthermore, the fact that the fronted verb in (130b) is not affected by high-tone insertion supports the idea that this is a post-syntactic process applying low in the structure.

6 Conclusion

This paper has argued that, contrary to previous claims, high-tone overwriting on verbs in Asante Twi is not a property of focus constructions. Instead, we have shown that it has a much wider distribution across other \bar{A} -constructions, which leads to the conclusion that it is best analyzed as a reflex of successive-cyclic operator movement through νP . The most compelling evidence for this view comes from the observation that tonal overwriting affects all verbs crossed by an \bar{A} -dependency, which is a hallmark of such movement reflexes (see Georgi 2014). We also addressed a challenge for the view that movement is involved in \bar{A} -dependencies in Asante Twi, namely the presence of obligatory, island-insensitive resumption. Nevertheless, we showed that obviation of islands is linked directly to resumption, since island effects re-emerge with extraction of categories that lack resumptives independently (i.e. PPs and VPs). Furthermore, resumptive pronouns show an array of reconstruction effects which would be unusual for genuine pronouns. What is more, it was shown that *déé* topic constructions lack both movement reflexes and reconstruction effects, and are therefore genuine base-generated structures. All of this constitutes evidence against the view that resumptive constructions involve base-generation (Saah 1994).

This paper also provided the first detailed investigation of the morpho-phonological aspects of overwriting. In particular, we showed that there is an asymmetry regarding the affixes which undergo the alternation. While the verb root and aspect and negation affixes are subject to overwriting, tense and agreement affixes are not affected. We showed that this generalization corresponds to the position of the affix in the structure of the clause. Kandybowicz (2015) proposed, on independent grounds, that both AspP and NegP are lower than νP in Asante Twi. Furthermore, there are the affixes which undergo the alternation together with the verb. Given that the structure of complex heads is assumed to mirror their hierarchical order in the clause, any affix that is below ν will be in the scope of the overwriting tonal circumfix and therefore affected. Affixes generated higher attach later and are immune from its effects.

Aside from adding to the evidence for successive-cyclic movement through νP , the preceding discussion also shows that even formal features such as the EPP can be realized as floating autosegmental material (cf. Akinlabi 1996). Finally, we also see the importance of the syntax/phonology interface in informing syntactic theory. Boeckx (2008:23) points out that ‘Kikuyu is the only language I am aware of that offers phonological reflexes of successive-cyclic movement. But this may be due to the fact that the relation between tone and syntactic movement hasn’t been studied as much as it ought to be’. We concur with Boeckx and hope to have demonstrated on the basis of Asante Twi that tone can potentially tell us a lot about movement if we start looking in the right places.

References

- Abakah, Emmanuel N. (2005). Tone Rules in Akan. *Journal of West African Languages* 32(1–2). 109–134.
- Adger, David (2007). Stress and Phasal Syntax. *Linguistic Analysis* 33(3–4). 238–266.

- Adger, David & Gillian Ramchand (2005). Merge and Move: Wh-Dependencies Revisited. *Linguistic Inquiry* 36(2). 161–193.
- Agüero-Bautista, Calixto (2001). *Cyclicity and the Scope of Wh-Phrases*. PhD thesis, MIT.
- Akinlabi, Akinbiyi (1996). Featural Affixation. *Journal of Linguistics* 32(2). 239–289.
- Alexiadou, Artemis, Paul Law, André Meinunger & Chris Wilder (2000). Introduction. In A. Alexiadou, P. Law, A. Meinunger & C. Wilder (eds). *The Syntax of Relative Clauses*. John Benjamins: Amsterdam. 1–51.
- Alexopoulou, Theodora (2006). Resumption in Relative Clauses. *Natural Language and Linguistic Theory* 24(1). 57–111.
- Ameka, Felix K. (1992). Focus Constructions in Ewe and Akan: A Comparative Perspective. In C. Collins & V. Manfredi (eds). *Proceedings of the Kwa Comparative Syntax Workshop*. MITW-PIL: Cambridge, MA. 1–25.
- Ameka, Felix K. (2010). Information Packaging Constructions in Kwa: Microvariation and Typology. In E. O. Aboh & J. Essegbey (eds). *Topics in Kwa Syntax*. Springer: Dordrecht. 141–176.
- Amfo, Nana Aba Appiah (2010). Lexical Signaling of Information Structure in Akan. *Linguistics* 48(1). 195–225.
- Aoun, Joseph & Elabbas Benmamoun (1998). Minimality, Reconstruction and PF Movement. *Linguistic Inquiry* 29(4). 569–597.
- Aoun, Joseph, Lina Choueiri & Norbert Hornstein (2001). Resumption, Movement and Derivational Economy. *Linguistic Inquiry* 32(3). 371–403.
- Arkoh, Ruby & Lisa Matthewson (2013). A Familiar Definite Article in Akan. *Lingua* 123. 1–30.
- Baier, Nico (2017). Antilocality and Antiagreement. *Linguistic Inquiry* 48(2). 367–377.
- Baker, Mark C. (1985). The Mirror Principle and Morphosyntactic Explanation. *Linguistic Inquiry* 16(3). 373–415.
- Baker, Mark C. & Chris Collins (2006). Linkers and the Internal Structure of vP. *Natural Language and Linguistic Theory* 24(2). 307–354.
- Baltin, Mark (2012). Deletion versus Pro-Forms: An Overly Simple Dichotomy?. *Natural Language and Linguistic Theory* 30(2). 381–423.
- Barss, Andrew (1986). *Chains and Anaphoric Dependence: On Reconstruction and its Implications*. PhD thesis, MIT.
- Bayer, Josef, Jana Häussler & Markus Bader (2016). A New Diagnostic for Cyclic Wh-Movement: Discourse Particles in German Questions. *Linguistic Inquiry* 47(4). 591–629.
- Bayer, Josef & Martin Salzmann (2013). *That-trace* Effects and Resumption – How Improper Movement Can Be Repaired. In P. Brandt & E. Fuß (eds). *Repairs: The added value of being wrong*. de Gruyter: Berlin. 275–333.
- Beck, Sigrid (2006). Intervention Effects Follow from Focus Interpretation. *Natural Language Semantics* 14(1). 1–56.
- Bennett, William G., Akinbiyi Akinlabi & Bruce Connell (2012). Two Subject Asymmetries in Defaka Focus Constructions. In J. Choi et. al. (ed.). *Proceedings of the 29th West Coast Conference on Formal Linguistics*. Cascadilla Proceedings Project: Somerville, MA. 294–302.

- Bhatt, Rajesh (2015). Relative Clauses and Correlatives. In A. Alexiadou & T. Kiss (eds). *Syntax – Theory and Analysis: An International Handbook*. de Gruyter: Berlin. 708–749.
- Bhatt, Rajesh & Roumyana Pancheva (2006). Conditionals. In M. Everaert & H. van Riemsdijk (eds). *The Blackwell Companion to Syntax*. Vol. 1. Blackwell: Oxford. 638–687.
- Boadi, Lawrence A. (1965). Some Twi Phrase Structure Rules. *Journal of West African Languages* 2(1). 37–46.
- Boadi, Lawrence A. (1971). The Passive in Akan. *Journal of African Languages* 10(3). 34–41.
- Boadi, Lawrence A. (1974). Focus marking in Akan. *Linguistics* 140. 5–57.
- Boadi, Lawrence A. (1990). Questions in Akan. *Frankfurter Afrikanistische Blätter* 2. 70–92.
- Boadi, Lawrence A. (2008). Tense, Aspect and Mood in Akan. In F. K. Ameka & M. K. Dakubu (eds). *Aspect and Modality in Kwa Languages*. John Benjamins: Philadelphia. 9–68.
- Bobaljik, Jonathan (2000). The Ins and Outs of Contextual Allomorphy. In K. K. Grohmann & C. Struijke (eds). *University of Maryland Working Papers in Linguistics* 10. University of Maryland: College Park. 35–71.
- Bobaljik, Jonathan David (2002). A-Chains at the PF-interface: Copies and “Covert” Movement. *Natural Language and Linguistic Theory* 20(2). 197–267.
- Boeckx, Cedric (2008). *Understanding Minimalist Syntax: Lessons from Locality in Long-Distance Dependencies*. Blackwell: Oxford.
- Borer, Hagit (1984). Restrictive relatives in Modern Hebrew. *Natural Language and Linguistic Theory* 2(2). 219–260.
- Borsley, Robert D., Maggie Tallerman & David Willis (2007). *The Syntax of Welsh*. Cambridge University Press: Cambridge.
- Brame, Michael (1968). A New Analysis of the Relative Clause: Evidence for an Interpretive Theory. Ms. MIT.
- Cable, Seth (2004). Predicate Clefts and Base-Generation: Evidence from Yiddish and Brazilian Portuguese. Ms. MIT.
- Campos, Héctor (1997). On Subject Extraction and the Antiagreement Effect in Romance. *Linguistic Inquiry* 28(1). 92–119.
- Casali, Roderic F. (2012). [+ATR] Dominance in Akan. *Journal of West African Languages* 39(1). 33–59.
- Cheng, Lisa L.-S. & Laura J. Downing (2016). Phasal Syntax = Cyclic Phonology?. *Syntax* 19(2). 156–191.
- Chomsky, Noam (1973). Conditions on Transformations. In S. R. Anderson & P. Kiparsky (eds). *A Festschrift for Morris Halle*. Holt, Rinehart and Winston: New York. 232–286.
- Chomsky, Noam (1977). On wh-movement. In P. Culicover, T. Wasow & A. Akmajian (eds). *Formal Syntax*. Academic: New York. 71–132.
- Chomsky, Noam (1981). *Lectures on Government and Binding*. Foris: Dordrecht.
- Chomsky, Noam (1986). *Barriers*. MIT Press: Cambridge, MA.
- Chomsky, Noam (1993). A Minimalist Program for Linguistic Theory. In K. Hale & S. J. Keyser (eds). *The View from the Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*. MIT

- Press: Cambridge, MA. 1–52.
- Chomsky, Noam (2000). Minimalist Inquiries: The Framework. In R. Martin, D. Michaels, J. Uriagereka & S. J. Keyser (eds). *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. MIT Press: Cambridge, MA. 89–155.
- Chomsky, Noam (2001). Derivation by Phase. In M. Kenstowicz (ed.). *Ken Hale: A Life in Language*. MIT Press: Cambridge, MA. 1–52.
- Chomsky, Noam (2008). On Phases. In R. Freidin, C. Otero & M.-L. Zubizarreta (eds). *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*. MIT Press: Cambridge, MA. 133–165.
- Christaller, Johann G. (1875/1964). *A Grammar of the Asante and Fante language called Tshi [Chwee, Twi]*. Gregg Press: New Jersey.
- Citko, Barbara (2000). On the Syntax and Semantics of Polish Adjunct Clauses. *Journal of Slavic Linguistics* 8(1–2). 5–27.
- Citko, Barbara (2014). *Phase Theory: An Introduction*. Cambridge University Press: Cambridge.
- Clements, George (1984a). Binding Domains in Kikuyu. *Studies in the Linguistic Sciences* 14. 37–56.
- Clements, George (1984b). Principles of Tone Assignment in Kikuyu. In G. Clements & J. Goldsmith (eds). *Autosegmental Studies in Bantu Tone*. Foris: Dordrecht. 281–339.
- Clements, George, James McCloskey, Joan Maling & Annie Zaenen (1983). String-Vacuous Rule Application. *Linguistic Inquiry* 14(1). 1–17.
- Collins, Chris (1993). *Topics in Ewe Syntax*. PhD thesis, MIT.
- Collins, Chris (1994). Economy of Derivation and the Generalized Proper Binding Condition. *Linguistic Inquiry* 25(1). 45–61.
- Dayal, Veneeta (2017). Does Hindi-Urdu have Feature Driven Wh-Movement to Spec vP?. *Linguistic Inquiry* 48(1). 159–172.
- de Vries, Mark (2002). *The Syntax of Relativization*. PhD thesis, University of Amsterdam.
- Demirdache, Hamida & Myriam Uribe-Etxebarria (2004). The Syntax of Time Adverbs. In J. Guéron & J. Lecarme (eds). *The Syntax of Time*. MIT Press: Cambridge, MA. 143–180.
- Dolphyne, Florence A. (1988). *The Akan (Twi-Fante) language: Its Sound Systems and Tonal Structure*. Ghana University Press: Accra.
- Dolphyne, Florence A. & Mary E. Kropp Dakubu (1988). The Volta-Comoé Languages. In M. E. Kropp Dakubu (ed.). *The Languages of Ghana*. Kegan Paul: New York. 50–90.
- Doron, Edit (1982). On the Syntax and Semantics of Resumptive Pronouns. *Texas Linguistics Forum* 19. 1–48.
- du Plessis, Hans (1977). Wh-Movement in Afrikaans. *Linguistic Inquiry* 8(4). 723–726.
- É. Kiss, Katalin (1993). Wh-Movement and Specificity. *Natural Language and Linguistic Theory* 11(1). 85–120.
- Elbourne, Paul (2001). E-Type Anaphora as NP-Deletion. *Natural Language Semantics* 9(3). 241–288.
- Embick, David (2010). *Localism versus Globalism in Morphology and Phonology*. MIT Press:

Cambridge, MA.

Embick, David (2015). *The Morpheme: A Theoretical Introduction*. de Gruyter: Boston.

Embick, David & Ralf Noyer (2001). Movement Operations After Syntax. *Linguistic Inquiry* 32(4). 555–595.

Embick, David & Ralf Noyer (2007). Distributed Morphology and the Syntax/Morphology Interface. In G. Ramchand & C. Reiss (eds). *Oxford Handbook of Linguistic Interfaces*. Oxford University Press: Oxford. 289–324.

Epée, Roger (1976). On Some Rules That Are Not Successive Cyclic in Duala. *Linguistic Inquiry* 7(1). 193–198.

Ermisch, Sonja (2006). Focus and Topic Constructions in Akan. *Frankfurt Afrikanistische Blätter* 18. 51–68.

Ermisch, Sonja (2007). *Issues in the Left Periphery: A Typological Approach to Topic and Focus Constructions*. Peter Lang: Frankfurt a.M.

Erteschik-Shir, Nomi (1992). Resumptive Pronouns in Islands. In H. Goodluck & M. Rochemont (eds). *Island Constraints: Theory, Acquisition and Processing*. Kluwer: Dordrecht. 89–108.

Essegbey, James (1999). *Inherent Complement Verbs Revisited: Towards an Understanding of Argument Structure in Ewe*. PhD thesis, Radboud University Nijmegen.

Essegbey, James (2010). Inherent Complement Verbs and the Basic Double Object Construction in Gbe. In E. O. Aboh & J. Essegbey (eds). *Topics in Kwa Syntax*. Springer: Dordrecht. 177–193.

Felser, Claudia (2004). Wh-Copying, Phases, and Successive Cyclicity. *Lingua* 114. 543–574.

Fiedler, Ines & Anne Schwarz (2005). Out-of-Focus Encoding in Gur and Kwa. In S. Ishihara, M. Schmitz & A. Schwarz (eds). *Interdisciplinary Studies on Information Structure* 03. Universität Potsdam: Potsdam. 111–142.

Fox, Danny (1999). Reconstruction, Binding Theory and the Interpretation of Chains. *Linguistic Inquiry* 30(2). 157–196.

Fox, Danny (2002). Antecedent-Contained Deletion and the Copy Theory of Movement. *Linguistic Inquiry* 33(1). 63–96.

Gazdar, Gerald, Ewan Klein, Geoffrey Pullum & Ivan Sag (1985). *Generalized Phrase Structure Grammar*. Harvard University Press: Cambridge, MA.

Geis, Michael L. (1970). *Adverbial Subordinate Clauses in English*. PhD thesis, MIT.

Geis, Michael L. (1975). English Time and Place Adverbials. In M. L. Geis, S. G. Geoghegan, J. K. Gundel, R. L. Neeld, G. K. Pullum & A. M. Zwicky (eds). *Working Papers in Linguistics No. 18*. Ohio State University: Columbus, OH. 1–24.

Genzel, Susanne (2013). *Lexical and Post-Lexical Tones in Akan*. PhD thesis, Universität Potsdam.

Genzel, Susanne & Frank Kügler (2010). How to Elicit Semi-Spontaneous Focus Realizations with Specific Tonal Patterns. In M. Grubic, S. Genzel & F. Kügler (eds). *Linguistic Fieldnotes I: Information Structure in Different African Languages*. Universitätsverlag Potsdam: Potsdam. 77–102.

Georgi, Doreen (2014). *Opaque Interactions of Merge and Agree: On the Nature and Order of Elementary Operations*. PhD thesis, Universität Leipzig.

- Georgi, Doreen (2017). Patterns of Movement Reflexes as the Result of the Order of Merge and Agree. *Linguistic Inquiry* 48(4). 585–626.
- Guilliot, Nicolas & Nouman Malkawi (2006). When Resumption Determines Reconstruction. In D. Baumer, D. Montero & M. Scanlon (eds). *Proceedings of WCCFL 25*. Cascadilla Press: Cambridge, MA. 168–176.
- Guilliot, Nicolas & Nouman Malkawi (2011). Weak versus Strong Resumption: Covarying Differently. In A. Rouveret (ed.). *Resumptive Pronouns at the Interfaces*. John Benjamins: Amsterdam. 395–423.
- Haegeman, Liliane (2007). The Movement Analysis of Temporal Adverbial Clauses. *Folia Linguistica* 41(3–4). 279–325.
- Haegeman, Liliane (2010a). The Internal Syntax of Adverbial Clauses. *Lingua* 120. 628–648.
- Haegeman, Liliane (2010b). The Movement Derivation of Conditional Clauses. *Linguistic Inquiry* 41(4). 595–621.
- Halle, Morris (1997). Distributed Morphology: Impoverishment and Fission. In B. Bruening, Y. Kang & M. McGinnis (eds). *PF: Papers at the Interface*. MITWPIL: Cambridge, MA. 425–449.
- Halle, Morris & Alec Marantz (1993). Distributed Morphology and the Pieces of Inflection. In K. Hale & S. Keyser (eds). *The View from Building 20*. MIT Press: Cambridge, MA. 111–176.
- Harley, Heidi (2005). One-Replacement, Unaccusativity, Acategorial Roots and Bare Phrase Structure. In S. Gorbachov & A. Nevins (eds). *Harvard Workings Papers in Linguistics*. Harvard University: Cambridge, MA. 59–78.
- Harley, Heidi (2011). Affixation and the Mirror Principle. In R. Folli & C. Ullbricht (eds). *Interfaces in Linguistics: New Research Perspectives*. Oxford University Press: Oxford. 166–186.
- Harley, Heidi (2013). External Arguments and the Mirror Principle: On the Distinctness of Voice and v. *Lingua* 125. 34–57.
- Harley, Heidi (2014). On the Identity of Roots. *Theoretical Linguistics* 40(3–4). 255–276.
- Harley, Heidi & Rolf Noyer (2003). Distributed Morphology. In L. Cheng & R. Sybesma (eds). *The Second Glot International State-of-the-Article Book*. de Gruyter: Berlin. 463–496.
- Hein, Johannes (2017). Doubling and *do*-Support in Verbal Fronting: Towards a Typology of Repair Operations. *Glossa* 2(1). 67. 1–36.
- Hellan, Lars, Dorothée Beermann & Eli S. Andenes (2003). Towards a Typology of Serial Verb Constructions in Akan. In M. E. Kropp Dakubu & E. K. Osam (eds). *Studies in the Languages of the Volta Basin*. Vol. 1. University of Ghana: Legon. 61–86.
- Henderson, Brent (2013). Agreement and Person in Anti-Agreement. *Natural Language and Linguistic Theory* 31(2). 453–481.
- Henry, Alison (1995). *Belfast English and Standard English: Dialect Variation and Parameter Setting*. Oxford University Press: Oxford.
- Hyde, Brett (2012). Alignment Constraints. *Natural Language and Linguistic Theory* 30(3). 789–836.
- Kahnemuyipour, Arsalan & Karine Megerdooimian (2011). Second-Position Clitics in the vP

- Phase: The Case of the Armenian Auxiliary. *Linguistic Inquiry* 42(1). 152–162.
- Kandybowicz, Jason (2008). *The Grammar of Repetition: Nupe Grammar at the Syntax-Phonology Interface*. John Benjamins: Amsterdam.
- Kandybowicz, Jason (2009). Embracing Edges: Syntactic and Phono-Syntactic Edge Sensitivity in Nupe. *Natural Language and Linguistic Theory* 27(2). 305–344.
- Kandybowicz, Jason (2015). On Prosodic Vacuity and Verbal Resumption in Asante Twi. *Linguistic Inquiry* 46(2). 243–272.
- Kandybowicz, Jason (2017). On Prosodic Variation and the Distribution of Wh-in-Situ. *Linguistic Variation* 17(1). 111–148.
- Kayne, Richard & Jean-Yves Pollock (1978). Stylistic Inversion, Successive-Cyclicity and Move NP in French. *Linguistic Inquiry* 9(4). 595–621.
- Keine, Stefan (2016). *Probes and their Horizons*. PhD thesis, University of Massachusetts Amherst.
- Keine, Stefan (2017). Agreement and vP Phases. In N. LaCara, K. Moulton & A.-M. Tessier (eds). *A Schrift to Fest Kyle Johnson*. Linguistics Open Access Publications: Amherst, MA. 177–185.
- Kobele, Gregory M. & Harold Torrence (2006). Intervention and Focus in Asante Twi. *ZAS Papers in Linguistics* 46. 161–184.
- Koopman, Hilda & Dominique Sportiche (1982). Variables and the Bijection Principle. *The Linguistic Review* 2(2). 136–160.
- Koopman, Hilda & Dominique Sportiche (1986). A Note on Long Extraction in Vata and the ECP. *Natural Language and Linguistic Theory* 4(3). 357–374.
- Korsah, Sampson (2016a). Beyond Resumptives and Expletives in Akan. In D. L. Payne, S. Pacchiarotti & M. Bosire (eds). *Diversity in African Languages: Selected Papers from the 46th Annual Conference on African Linguistics*. Language Science Press: Berlin. 103–117.
- Korsah, Sampson (2016b). On Deriving Inherent Complement Verb Constructions. In K. Bellamy, L. Karvovskaya, M. Kohlberger & G. Saad (eds). *Proceedings of ConSOLE XXIII*. Leiden University Linguistics Centre: Leiden. 52–69.
- Korsah, Sampson (2017). *Issues in Kwa Syntax: Pronouns and Clausal Determiners*. PhD thesis, Universität Leipzig.
- Korsah, Sampson & Andrew Murphy (2016). What can tone tell us about successive-cyclic movement? Evidence from Asante Twi. In C. Hammerly & B. Prickett (eds). *Proceedings of NELS 46*. GLSA: Amherst, MA. 227–240.
- Kramer, Ruth (2010). The Amharic Definite Marker and the Syntax-Morphology Interface. *Syntax* 13(3). 196–240.
- Kratzer, Angelika & Elisabeth Selkirk (2007). Phase Theory and Prosodic Spellout: The Case of Verbs. *The Linguistic Review* 24(2–3). 93–135.
- Kropp Dakubu, Mary Esther (2009). Akan. In K. Brown & S. Ogilvie (eds). *Concise Encyclopedia of Languages of the World*. Elsevier: Amsterdam. 17–20.
- Kügler, Frank (2015). Phonological Phrasing and ATR Vowel Harmony in Akan. *Phonology* 32(1). 177–204.

- Kügler, Frank (2016a). Embedded Clauses and Recursive Prosodic Phrasing in Akan. In C. Di-Canio, J. Malins, J. Good, K. Michelson, J. Jaeger & H. Keily (eds). *Proceedings of Tonal Aspects of Languages 2016*. ISCA: Baixas. 38–42.
- Kügler, Frank (2016b). Tone and Intonation in Akan. In L. J. Downing & A. Rialland (eds). *Intonation in African Tone Languages*. de Gruyter: Berlin. 89–130.
- Kusmer, Leland (2011). There Is No Future: Diachronic Verbal Morphology in Fante Twi. Ms. Swarthmore College.
- Kusumoto, Kiyomi (2017). Geis-Ambiguity and Tense Harmony. In N. LaCara, K. Moulton & A.-M. Tessier (eds). *A Schrift to Fest Kyle Johnson*. Linguistics Open Access Publications: Amherst, MA. 203–205.
- Lahne, Antje (2008). *Where There is Fire There is Smoke. Local Modelling of Successive-Cyclic Movement*. PhD thesis, Universität Leipzig.
- Landau, Idan (2006). Chain Resolution in Hebrew V(P)-fronting. *Syntax* 9(1). 32–66.
- Landman, Meredith (2003). Morphological Contiguity. In A. Carpenter, A. Coetzee & P. de Lacy (eds). *Papers in Optimality Theory II: University of Massachusetts-Amherst Occasional Papers in Linguistics*. Vol. 26. GLSA: Amherst.
- Larson, Richard K. (1987). ‘Missing Prepositions’ and the Analysis of English Free Relative Constructions. *Linguistic Inquiry* 18(2). 239–266.
- Larson, Richard K. (1990). Extraction and Multiple Selection in PP. *The Linguistic Review* 7(2). 169–182.
- Larson, Richard K. & Robert May (1990). Antecedent Containment or Vacuous Movement: Reply to Baltin. *Linguistic Inquiry* 21(1). 103–122.
- Lasnik, Howard & Tim Stowell (1991). Weakest Crossover. *Linguistic Inquiry* 22(4). 687–720.
- Legate, Julie Anne (2003). Some Interface Properties of the Phase. *Linguistic Inquiry* 34(3). 506–516.
- Manetta, Emily (2010). Wh-Expletives in Hindi-Urdu: The vP Phase. *Linguistic Inquiry* 41(1). 1–34.
- Marfo, Charles (2005a). Akan Focus and Topic Constructions and the Prosody-Syntax Interface. *Journal of West African Languages* 32(1–2). 45–59.
- Marfo, Charles (2005b). *Aspects of Akan Grammar and the Phonology-Syntax Interface*. PhD thesis, University of Hong Kong.
- Marfo, Charles & Adams Bodomo (2005). Information Structuring in Akan Question-Word Fronting and Focus Constructions. *Studies in African Linguistics* 32(4). 179–208.
- May, Robert C. (1985). *Logical Form: Its Structure and Derivation*. MIT Press: Cambridge, MA.
- McCarthy, John J. & Alan Prince (1993). Generalized Alignment. In G. Booij & J. van Marle (eds). *Yearbook of Morphology 1993*. Kluwer: Dordrecht. 79–153.
- McCloskey, James (1979). *Transformational Syntax and Model Theoretic Semantics: A Case Study in Modern Irish*. Dordrecht: Riedel.
- McCloskey, James (2000). Quantifier Float and Wh-Movement in an Irish English. *Linguistic Inquiry* 31(1). 57–84.

- McCloskey, James (2001). The Morphosyntax of WH-Extraction in Irish. *Journal of Linguistics* 37(1). 67–100.
- McCloskey, James (2002). Resumption, Successive Cyclicity, and the Locality of Operations. In S. Epstein & T. Seely (eds). *Derivation and Explanation in the Minimalist Program*. Blackwell: Oxford. 184–226.
- McCloskey, James (2011). Resumptive Pronouns, \bar{A} -Binding and Levels of Representation in Irish. In A. Rouveret (ed.). *Resumptive Pronouns at the Interfaces*. John Benjamins: Amsterdam. 65–119.
- McCracken, Chelsea (2013). Relative Clauses in Asante Twi. *Rice Working Papers in Linguistics* 4. 1–28.
- Müller, Gereon (2007). Towards a Relativized Concept of Cyclic Linearization. In U. Sauerland & H.-M. Gärtner (eds). *Interfaces + Recursion = Language?*. de Gruyter: Berlin. 61–114.
- Müller, Gereon (2011). *Constraints on Displacement: A Phase-Based Approach*. John Benjamins: Amsterdam.
- Muriungi, Peter (2005). Wh-Questions in Kitharaka. *Studies in African Linguistics* 34(1). 43–104.
- Nespor, Marina & Irene Vogel (1986). *Prosodic Phonology*. Foris: Dordrecht.
- Nissenbaum, Jon (2000). *Investigations of Covert Phrase Movement*. PhD thesis, MIT.
- Nwachukwu, P. Akujooobi (1985). Inherent Complement Verbs in Igbo. *Journal of the Linguistics Association of Nigeria (JOLAN)* 3. 61–74.
- Ofori, Seth Antwi (2006). *Topics in Akan Grammar*. PhD thesis, Indiana University.
- Ofori, Seth Antwi (2011). On the Basic Focus Marker, and the Basic Focus Sentence, in Akan (Twi). *Nordic Journal of African Studies* 20(3). 241–262.
- Osam, E. Kweku (2008). Akan As An Aspectual Language. In F. K. Ameka & M. E. Kropp Dakubu (eds). *Aspect and Modality in Kwa Languages*. John Benjamins: Amsterdam. 69–89.
- Osam, Emmanuel K. (1994). *Aspects of Akan Grammar: A Functional Perspective*. PhD thesis, University of Oregon.
- Osam, Emmanuel K. (1996). Animacy Distinctions in Akan Grammar. *Studies in the Linguistic Sciences* 23(2). 153–164.
- Ouhalla, Jamal (1993). Subject-Extraction, Negation and the Anti-Agreement Effect. *Natural Language and Linguistic Theory* 11(3). 477–518.
- Pan, Victor J. (2016). *Resumptivity in Mandarin Chinese*. de Gruyter: Berlin.
- Panitz, Ezekiel J. (2014). Strong Islands, Resumption and Reconstruction. *UCL Working Papers in Linguistics* 26. 13–42.
- Paster, Mary (2010). The Verbal Morphology and Phonology of Asante Twi. *Studies in African Linguistics* 39(1). 77–120.
- Pfeil, Simone, Susanne Genzel & Frank Kügler (2015). Empirical Investigation of Focus and Exhaustivity in Akan. In F. Bildhauer & M. Grubic (eds). *Mood, Exhaustivity and Focus Marking in Non-European Languages*. Universitätsverlag Potsdam: Potsdam. 87–109.
- Postal, Paul M. (1966). On So-Called ‘Pronouns’ in English. In F. P. Dinneen (ed.). *Report of the 17th Annual Round Table Meeting on Language and Linguistics*. Georgetown University Press:

- Washington, D.C. 177–206.
- Reinhart, Tanya (1998). Wh-in-Situ in the Framework of the Minimalist Program. *Natural Language Semantics* 6(1). 29–56.
- Reintges, Chris H., Philip LeSourd & Sandra Chung (2006). Movement, Wh-Agreement and Apparent Wh-in-Situ. In L. Cheng & N. Corver (eds). *Wh-Movement: Moving On*. MIT Press: Cambridge, MA. 165–194.
- Richards, Norvin (2010). *Uttering Trees*. MIT Press: Cambridge, MA.
- Riis, Hans N. (1854). *Grammatical Outline and Vocabulary of the Oji- language With Especial Reference to the Akuapim-Dialect*. Bahnmaier's Buchhandlung (G. Detloff): Basel.
- Ross, John R. (1986). *Infinite Syntax!*. Ablex Publishing: Norwood.
- Rouveret, Alain (2008). Phasal Agreement and Reconstruction. In R. Freidin, C. P. Otero & M. L. Zubizarreta (eds). *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*. MIT Press: Cambridge, MA. 167–195.
- Saah, Kofi K. (1988). Wh-Questions in Akan. *Journal of West African Languages* 18(1). 17–28.
- Saah, Kofi K. (1989). Reflexivization in Akan. *Journal of West African Languages* 19(2). 15–28.
- Saah, Kofi K. (1992). Null Object Constructions in Akan. In C. Collins & V. Manfredi (eds). *Proceedings of the Kwa Comparative Syntax Workshop*. MITWPL: Cambridge, MA. 219–244.
- Saah, Kofi K. (1994). *Studies in Akan Syntax, Acquisition and Sentence Processing*. PhD thesis, University of Ottawa.
- Saah, Kofi K. (2010). Relative Clauses in Akan. In E. O. Aboh & J. Essegbey (eds). *Topics in Kwa Syntax*. Springer: Dordrecht. 91–109.
- Saah, Kofi K. & Helen Goodluck (1995). Island Effects in Parsing and Grammar: Evidence from Akan. *The Linguistic Review* 12(4). 381–409.
- Saddy, Douglas (1991). Wh-Scope Mechanisms in Bahasa Indonesia. In L. L.-S. Cheng & H. Demirdache (eds). *More Papers on Wh-movement*. MITWPL: Cambridge, MA. 183–218.
- Safir, Ken (1984). Multiple Variable Binding. *Linguistic Inquiry* 15(4). 603–638.
- Salzmann, Martin (2017). *Reconstruction and Resumption in Indirect A'-Dependencies: On the Syntax of Prolepsis and Relativization in (Swiss) German and Beyond*. de Gruyter: Berlin.
- Sauerland, Uli (2003). Intermediate Adjunction with A-Movement. *Linguistic Inquiry* 34(2). 308–314.
- Schachter, Paul (1969). Natural Assimilation Rules in Akan. *International Journal of American Linguistics* 35(4). 342–355.
- Schachter, Paul (1973). Focus and Relativization. *Language* 49(1). 19–46.
- Schachter, Paul & Victoria Fromkin (1968). *A Phonology of Akan: Akuapem, Asante, Fante*. University of California, Los Angeles: Los Angeles, CA.
- Schneider-Zioga, Patricia (2007). Anti-Agreement, Anti-Locality and Minimality: The Syntax of Dislocated Subjects. *Natural Language and Linguistic Theory* 25(2). 403–446.
- Schwarz, Anne & Ines Fiedler (2007). Narrative Focus Strategies in Gur and Kwa. In E. O. Aboh, K. Hartmann & M. Zimmermann (eds). *Focus Strategies in African Languages: The Interaction of Focus and Grammar in Niger-Congo and Afro-Asiatic*. de Gruyter: Berlin. 267–286.

- Selkirk, Elisabeth (1986). On Derived Domains in Sentence Phonology. *Phonology Yearbook* 3. 371–405.
- Selkirk, Elisabeth (2011). The Syntax-Phonology Interface. In J. Goldsmith, J. Riggle & A. Yu (eds). *The Handbook of Phonological Theory*. Blackwell: Oxford. 435–485.
- Sells, Peter (1984). *Syntax and Semantics of Resumptive Pronouns*. PhD thesis, University of Massachusetts Amherst.
- Shlonsky, Ur (1992). Resumptive Pronouns as a Last Resort. *Linguistic Inquiry* 23(3). 443–468.
- Sichel, Ivy (2014). Resumptives Pronouns and Competition. *Linguistic Inquiry* 45(4). 655–693.
- Stump, Gregory (2016). *Inflectional Paradigms: Content and Form at the Syntax-Morphology Interface*. Cambridge University Press: Cambridge.
- Thiersch, Craig (1978). *Topics in German Syntax*. PhD thesis, MIT.
- Thompson, Ellen (1995). Temporal Ambiguity of Clausal Adverbs and the Syntax of Simultaneity. In J. Beckman (ed.). *Proceedings of NELS 25*. GLSA: Amherst, MA. 473–487.
- Thoms, Gary (2011). From economy to locality: *do*-support as head movement. Ms. Strathclyde University.
- Torrego, Esther (1984). On inversion in Spanish and Some of Its Effects. *Linguistic Inquiry* 15(1). 103–129.
- Trommer, Jochen (2011). Phonological Aspects of Western Nilotic Mutation Morphology. Habilitation thesis, Universität Leipzig.
- Truckenbrodt, Hubert (1999). On the Relation Between Syntactic Phrases and Phonological Phrases. *Linguistic Inquiry* 30(2). 219–255.
- van Urk, Coppe (2015). *A Uniform Syntax for Phrasal Movement: A Case Study of Dinka Bor*. PhD thesis, MIT.
- van Urk, Coppe (to appear). Pronoun Copying in Dinka and the Copy Theory of Movement. *Natural Language and Linguistic Theory*
- van Urk, Coppe & Norvin Richards (2015). Two Components of Long-Distance Extraction: Successive Cyclicity in Dinka. *Linguistic Inquiry* 46(1). 113–155.
- Vergnaud, Jean Roger (1974). *French Relative Clauses*. PhD thesis, MIT.
- Vicente, Luis (2009). An Alternative to Remnant Movement for Partial Predicate Fronting. *Syntax* 12(2). 158–191.
- Wiland, Bartosz (2010). Overt Evidence from Left-Branch Extraction in Polish for Punctuated Paths. *Linguistic Inquiry* 41(2). 335–347.
- Willis, David (2000). On the Distribution of Resumptive Pronouns and Wh-Trace in Welsh. *Journal of Linguistics* 36(3). 531–573.
- Yip, Moira (2002). *Tone*. Cambridge University Press: Cambridge.
- Zaenen, Annie (1983). On Syntactic Binding. *Linguistic Inquiry* 14(3). 469–504.
- Zaenen, Annie, Elisabeth Engdahl & Joan M. Maling (1981). Resumptive Pronouns Can Be Syntactically Bound. *Linguistic Inquiry* 12(4). 679–682.
- Zentz, Jason (2014). Morphological Evidence for a Movement Analysis of Adverbial Clauses. In C. Abrego-Collier, A. Kang, M. Martinović & C. Nguyen (eds). *Proceedings of the 47th Annual*

Meeting of the Chicago Linguistics Society. Chicago Linguistics Society: Chicago, IL. 373–385.
Zimmermann, Eva (2017). *Morphological Length and Prosodically Defective Morphemes*. Oxford
University Press: Oxford.