

Movement to complement in Kikuyu and the syntax of focus association*

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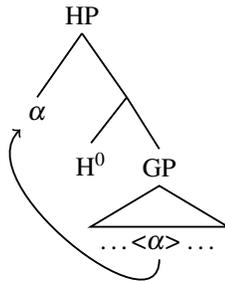
1 Introduction

1.1 Overview

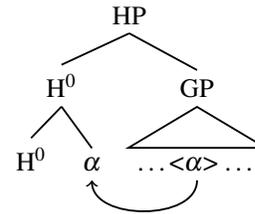
A standard tenet in syntactic theory is that phrasal movement (Internal Merge) results in the creation of a specifier of a given head H^0 . This is built into Chomsky’s (1995) Extension Condition, which requires that both External and Internal Merge extend the syntactic structure at its root. This condition invalidates instances of Merge that do not create specifiers (e.g. Travis (1984)-style head movement). However, it has also been proposed that the Extension Condition is too strong; for example, Richards (1997, 2001) demonstrates that multiple specifiers of H^0 Internally Merge by ‘tucking in,’ such that the second specifier is Merged below the first.¹ Richards proposes that the Extension Condition may be restated as a more general notion of *featural cyclicity*, which simply requires that strong (movement-triggering) features of H^0 are eliminated as soon as H^0 is Merged.

Relaxing the Extension Condition in this way also allows for *non-specifier-creating movement* as an architectural possibility. A small but diverse body of literature in fact argues that phrasal movement may in certain cases create a *complement* of H^0 , rather than a specifier (McCloskey 1984, Wagner 2006, Sportiche 2005, Donati & Cecchetto 2011, Pesetsky 2007, 2013). Specifier-forming and complement-forming movement are contrasted below in (1) (from Pesetsky 2007); in (1b), we see that movement to complement position—called ‘Undermerge,’ following Pesetsky—results in a sisterhood configuration between the probe H^0 and the constituent targeted for movement.

(1) a. *Movement to specifier*



b. *Movement to complement*



This paper provides novel support for the existence of Undermerge from association with focus in Kikuyu, a Northeast Bantu language spoken primarily in Kenya. In particular, I examine the behaviour of focus-driven \bar{A} -

*Many thanks to Eva Kubai for sharing her language with me; *nĩ wega mũno!* For helpful comments and discussion, I thank Adam Albright, Athulya Aravind, Kenyon Branan, Seth Cable, Michael Y. Erlewine, Danny Fox, Sabine Iatridou, Claire Halpert, Hadas Kotek, Daniel Margulis, David Pesetsky, Norvin Richards, Florian Schwarz, Abdul-Razak Sulemana, Martin Walkow, and Jason Zentz. All errors are mine.

¹ Similarly, there has been a wealth of literature on countercyclic operations in the syntax—for example, Late Merge (e.g. Lebeaux 1988, Takahashi & Hulsey 2009, Stanton 2016).

movement (wh-movement, focus fronting)² and argue that the landing site of this movement is the complement of a focus head located in the clausal left periphery. Moreover, the existence of this kind of movement in Kikuyu brings forth insights concerning the syntax of focus association more generally—in particular, that focus association requires a sisterhood configuration between a focus operator and a focused (henceforth *F-marked*) element, so that the focus operator may semantically compose with the constituent it immediately *c-commands* (e.g. Wagner 2006, Cable 2007, 2010, Erlewine & Kotek to appear). While focus association in Kikuyu involves Undermerge of the focused constituent to the focus operator, other languages Externally Merge the operator over the focused element. Compare, for example, Kikuyu to Tlingit:

- (2) a. *Kikuyu: Undermerge of F-marked constituent to focus operator*
nĩ kũ Njeri a-kũ-rug-a
 FOC what Njeri 1SM-FUT-cook-FV
 ‘What will Njeri cook?’
- b. *Tlingit: Focus operator Merges over F-marked constituent*
daa sá i éesh al’ón
 what Q your father he.hunts.it
 ‘What is your father hunting?’ (Cable 2010)

In (2), focus association in both languages is achieved through the aforementioned sisterhood relationship. For Tlingit, however, a central aspect of Cable’s (2007, 2010) system is that the focus operator *sá* (glossed as ‘Q’) *Externally Merges* over an F-marked element and pied-pipes the constituent to the clausal left periphery. By contrast, in Kikuyu, the focus operator *nĩ* is base-generated in the CP domain and triggers Internal Merge (movement) of the F-marked element to its complement position. Nonetheless, we arrive at the same structural configuration in both cases; thus, Tlingit and Kikuyu thus instantiate two distinct, yet parallel ways to derive this configuration.

Finally, I show that the size and category of the constituent composing with the focus operator is subject to the same kinds of syntactic restrictions across languages. While the examples in (2) show an F-marked element associating directly with a focus operator, Cable’s (2007, 2010) system of pied-piping is precipitated on the focus operator being able to Merge over an F-containing constituent (that is, an XP that *dominates* an F-marked element but is not itself F-marked). In Kikuyu, we find similar effects, potentially undermining this view of pied-piping, since the constituent, which is not F-marked but merely *contains* an F-marked element, may undergo movement to Foc^0 . To resolve this, I posit that Merging an F-containing constituent and a focus operator is subject to *selectional restrictions* on what the focus operator may take as complement. The selectional requirements of a given head may be either satisfied by Externally Merging the head to an F-containing constituent or by Internally Merging the constituent to that head. That movement to complement is fundamentally selection-driven supports similar ideas from McCloskey (1984) and Pesetsky (2013) and additionally advocates for an Agree-driven approach to c-selection (Rizzi 2008, Donati & Cecchetto 2011, Müller 2015).

1.2 Roadmap

This paper is organized as follows. In §2, I present an overview of the clausal left periphery in Kikuyu, as well as focus-driven movement operations targeting the left periphery. I show that these operations are triggered by a [FOC] feature on Foc^0 in the extended CP domain, and that this movement-triggering morpheme is the focus operator *nĩ*. In §3, I present various syntactic arguments that focus-driven movement specifically *Undermerges* to Foc^0 ; this creates a sisterhood configuration between Foc^0 and the moving element, allowing *nĩ*, a focus-sensitive operator, to take its sister as its semantic argument. §4 points out various syntactic parallels between Kikuyu and certain analyses of association with focus in English (Wagner 2006, Erlewine & Kotek 2014, to appear), as well as parallels between Kikuyu and Tlingit. More broadly, this section proposes that a syntactic prerequisite for association with focus is complementation between the focus operator and a constituent containing an F-marked element. §5

²As will be explained later, this assumes that wh-words are like foci in that they denote a set of focus alternatives, following e.g. Hamblin (1973) and Beck (2006).

explores this idea further, and suggests that complement-forming movement is driven by selectional considerations, just as External Merge takes place by selection. This is again based on similarities between the Kikuyu focus system and other systems cross-linguistically: just as there are category-related restrictions on what can move to *nĩ* in Kikuyu, there are restrictions where focus operators are able to be base-generated. Some challenges that this approach presents for Cable’s (2007, 2010) view of pied-piping will also be discussed in this section.

2 The Kikuyu left periphery

2.1 The distribution of the morpheme *nĩ*

Kikuyu is a Northeast Bantu language spoken primarily in Kenya (E51). Like some other Bantu languages (Abels & Muriungi 2008, Zentz 2015), Kikuyu exhibits both *full* and *partial* wh-movement, meaning that matrix wh-questions may contain a wh-phrase at the left periphery of the matrix clause or at the left periphery of any embedded clause above its base-generated position, (3a-b) (e.g. Clements 1984, Schwarz 2003, 2007). Additionally, wh-phrases may remain in situ, (3c). In constructions involving overt movement, the extracted wh-phrase appears with the morpheme *nĩ*. However, in wh-in situ constructions, *nĩ* is obligatorily absent.

(3) *Full and partial wh-movement and wh-in situ*

- a. **nĩ kũĩ** Kamau a-ug-ir-e [CP (atĩ) Njeri nĩ-a-kũ-gũr-a ___]
 FOC what Kamau 1SM-say-PST-FV (that) Njeri FOC-1SM-FUT-buy-FV
 ‘What did Kamau say that Njeri will buy ___?’
- b. Kamau a-ug-ir-e [CP (atĩ) **nĩ kũĩ** Njeri a-kũ-gũr-a ___]
 Kamau 1SM-say-PST-FV (that) FOC what Njeri 1SM-FUT-buy-FV
 ‘What did Kamau say that Njeri will buy ___?’
- c. Kamau a-ug-ir-e [CP (atĩ) Njeri a-kũ-gũr-a **kũĩ**]
 Kamau 1SM-say-PST-FV (that) Njeri 1SM-FUT-buy-FV what
 ‘What did Kamau say that Njeri will buy ___?’

Focus fronting constructions look structurally identical to wh-questions. As shown in (4), extracted foci surface right-adjacent to *nĩ* in matrix and embedded clauses, while in situ foci occur without *nĩ*.³

(4) *Full and partial focus fronting, and in situ focused element*

- a. **nĩ thamaki** Mwangi a-r-ecir-i-a [CP (atĩ) Njeri nĩ-a-rug-ir-e ___]
 FOC fish Mwangi 1SM-PROG-think-TR-FV (that) Njeri FOC-1SM-cook-PST-FV
 ‘It’s fish that Mwangi thinks that Njeri cooked ___.’
- b. Mwangi a-r-ecir-i-a [CP (atĩ) **nĩ thamaki** Njeri a-rug-ir-e ___]
 Mwangi 1SM-PROG-think-TR-FV (that) FOC fish Njeri 1SM-cook-PST-FV
 ‘It’s fish that Mwangi thinks that Njeri cooked ___.’
- c. Mwangi a-r-ecir-i-a [CP (atĩ) Njeri a-rug-ir-e **thamaki**]
 Mwangi 1SM-PROG-think-TR-FV (that) Njeri 1SM-cook-PST-FV fish
 ‘Mwangi thinks that Njeri cooked FISH.’

The morpheme *nĩ* only occurs with focus-related instances of \bar{A} -movement; other types of \bar{A} -extraction such as relativization, topicalization, and tough movement are not formed using *nĩ*. That wh-movement and focus fronting form their own subclass of \bar{A} -extractions is unsurprising, if wh-phrases are like foci in that they both project focus alternatives (i.e. denote alternative sets), following Hamblin (1973), Beck (2006), and others; concrete evidence for this assumption will be provided throughout the paper. As far as I am aware, wh-movement and focus fronting

³While the example in (4c) is grammatical, it is less preferred than the equivalent constructions involving focus-fronting for encoding focus.

behave identically in Kikuyu. Throughout this paper, I will often refer to wh-phrases and foci as *F-marked* and will refer to wh-movement and focus fronting as *focus-related movement*.

In the absence of an F-marked element, *nĩ* may surface as a prefix on the verb complex. In yes/no questions, *nĩ* is obligatory, as illustrated in (5a).⁴ In declarative constructions, *nĩ* may be used to encode verum focus, as given in (5b):

- (5) *nĩ* is obligatory in y/n questions and verum focus contexts
- a. Kamau ***(nĩ-)**a-gũr-ir-e ngari
 Kamau *(FOC-)ISM-buy-PST-FV car
 ‘Did Mwangi buy a car?’
- b. Context: *I ask you whether Kamau bought a car, and you say:*
 ii, Kamau ***(nĩ-)**a-gũr-ir-e ngari
 yes, Kamau *(FOC-)ISM-buy-PST-FV car
 ‘Yes, Kamau bought / did buy a car.’

In neutral declarative contexts, *nĩ* appears to be optional (though preferred in elicited sentences) in monoclausal matrix clauses but obligatory when embedded under various attitude and speech-report predicates. An example illustrating this fact is presented below in (6) for completeness; however, I will leave analyzing such constructions for future research. Instead, this paper will mostly concentrate on the focus-related usages of *nĩ*.

- (6) *nĩ* is obligatory in certain embedded clauses
- Njeri er-ir-e Wambũi [_{CP} (atĩ) Kamau ***(nĩ-)**a-gũr-ir-e ngari]
 Njeri ISM-tell-PST-FV Wambũi (that) Kamau *(FOC-)ISM-buy-PST-FV car
 ‘Njeri told Wambũi that Kamau bought a car.’

So far, I have shown that *nĩ* is implicated in focus-related constructions, which include wh-movement, focus fronting, and verum focus. This suggests that *nĩ* functions as a focus particle. In particular, I will show later in this paper that *nĩ* has the semantics of a standard *focus operator*.

There is some disagreement in the literature as to whether *nĩ* is uniformly base-generated in the clausal left periphery (e.g. Clements 1984, Schwarz 2003, 2007) or base-generated more locally to its associate (e.g. Schardl 2014). Under the latter view, *nĩ* is base-generated in the left periphery only when it surfaces on the verb; in wh-movement and focus fronting contexts, it is generated with (and moves along with) the moving XP. In this paper, I follow Clements (1984) and others in assuming a uniformly left-peripheral treatment of *nĩ*. Thus, in extraction contexts, the F-marked element is generated away from *nĩ* but associates with it through movement.⁵

This treatment captures a wide range of facts about Kikuyu. First, it explains why there is only one *nĩ* per clause. For example, as shown in (7), *nĩ* may not occur both on the verb complex as an assertion marker and on a fronted XP as a focus marker. Rather, *nĩ* obligatorily associates with an extracted element.

- (7) *Only one nĩ per clause*
- nĩ kũĩ** Njeri ***(nĩ-)**a-kũ-rug-a
 FOC what Njeri *(FOC-)ISM-FUT-cook-FV
 ‘What will Njeri cook?’

This approach also captures its absence in reduced embedded clauses, as shown in (8). The embedded clause in (8a) is an gerundive control clause; the clause in (8b) is a defective CP, as discussed by Yuan (2016).⁶ Partial movement

⁴While my consultant judges *nĩ* to be obligatory in yes/no questions, the data in Schwarz (2003, 2007) suggests that *nĩ* is optional in yes/no questions. I will leave this contrast for future work, and assume for now that there is some interspeaker or dialectal variation.

⁵It has also been argued that what I am taking to be focus-related movement is actually derived by clefting (Bergvall 1987), since the Kikuyu copula often also appears as *nĩ*. However, I refer to Schwarz (2003, 2007) for arguments that *nĩ* is synchronically a focus marker, as well as Zentz (2016) for a distinct set of facts in Shona, in which wh-extraction is argued by Zentz to be clefting.

⁶As I show in my previous work on Kikuyu (Yuan 2016), these clauses are larger than TPs but smaller than full CPs—they permit

to the edge of the embedded clause is also impossible in these constructions, as shown in (9); the F-marked element may instead remain in situ or move into the matrix left-periphery. This is unsurprising if focus-related movement correlates with the presence of *nĩ* in the clausal left periphery, as I will argue below.

(8) *No nĩ in structurally reduced embedded clauses*

- a. Mwangi *nĩ*-on-ir-e Kamau [(**nĩ*-)a-kũ-haat-a]
 Mwangi FOC-1SM.see-PST-FV Kamau (*FOC-)1SM-SIM-sweep-FV
 ‘Mwangi saw Kamau sweeping.’
- b. *kũ*-haan-a [ta Mwangi (**nĩ*-)a-ra-rug-a]
 15SM-seem-FV like Mwangi (*FOC-)1SM-PROG-cook-FV
 ‘It seems like Mwangi is cooking.’

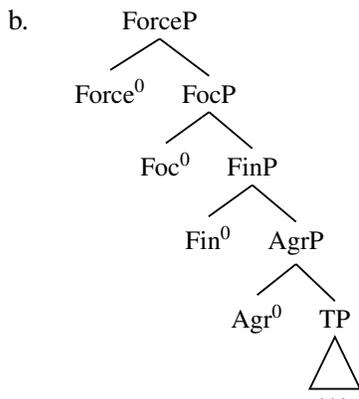
(9) *No partial movement in structurally reduced embedded clauses*

- a. (*nĩ* *kĩĩ*) Mwangi on-ir-e Kamau [(**nĩ* *kĩĩ*) a-kũ-haat-a (*kĩĩ*)]
 (FOC what) Mwangi 1SM.see-PST-FV Kamau (*FOC what) 1SM-SIM-sweep-FV (what)
 ‘What did Mwangi see Kamau sweeping?’
- b. (*nĩ* *kĩĩ*) *kũ*-haan-a [ta (**nĩ* *kĩĩ*) Mwangi a-ra-rug-a (*kĩĩ*)]
 (FOC what) 15SM-seem-FV like (*FOC what) Mwangi 1SM-PROG-cook-FV (what)
 ‘What does it seem like Mwangi is cooking?’

In constructions in which partial movement *is* possible, we find that *nĩ* surfaces to the right of the complementizer, repeated in (10a). This suggests an articulated CP, such that the CP domain is split into several subprojections (Rizzi 1997). The left-peripheral syntax that I assume in this paper is schematized in (10b). The complementizer *atĩ* ‘that’ is hosted in Force⁰, while *nĩ* is base-generated in Foc⁰. I moreover assume that the complementizer *ta* ‘like’ in the reduced clauses in (9) occupies Fin⁰, that subject agreement is located in Agr⁰, and that subjects are located in Spec-TP (Carstens & Diercks 2013, Halpert 2012, 2015). The cases of focus-related movement discussed in this paper target the FocP domain.

(10) *The left periphery in Kikuyu*

- a. Kamau a-ug-ir-e [_{CP} (atĩ) *nĩ* *kĩĩ* Njeri a-kũ-gũr-a ____]
 Kamau 1SM-say-PST-FV (that) FOC what Njeri 1SM-FUT-buy-FV
 ‘What did Kamau say that Njeri will buy ____?’



2.2 Focus-related movement is Agree-driven

As noted above, the possibility of focus-related movement to the left periphery of a given clause seems to correlate with the availability of *nĩ* in that clause. To account for this, I propose that this movement is Agree-driven

hyperraising and contain a low complementizer *ta*.

(Chomsky 2000, 2001), meaning that a probe on Foc^0 searches for an appropriate goal in its c-command domain and triggers movement of that goal to the FocP domain. What constitutes an ‘appropriate goal’ will be refined later in this paper; for now, let us assume that Foc^0 seeks an F-marked element bearing a [FOC] feature.

This approach is also corroborated by certain properties of *wh*-subjects. As claimed by Schwarz (2003), *wh*-subjects obligatorily associate with *nĩ*, meaning that *wh*-subjects may not remain in situ. This is shown by the ungrammaticality of (11b). Note that, although local subject extraction is string-vacuous, evidence that movement has taken place comes from the presence of anti-agreement on the verb, as shown in (11a).⁷

(11) *Obligatoriness of local subject extraction*

- a. **n-ũũ** **ũ-kũ-gũr-a** ngari
FOC-who AA.SM-FUT-buy-FV car
‘Who will buy the car?’
- b. ***ũũ** **a-kũ-gũr-a** ngari
who 1SM-FUT-buy-FV car
Intended: ‘Who will buy the car?’

However, there are in fact a few environments in which *wh*-subjects may remain in situ, not mentioned by Schwarz. As shown below, ‘subjunctive’ clauses (as indicated by the subjunctive suffix *-e*; see Nurse 2008 for discussion) allow in situ *wh*-subjects. Crucially, these clauses also independently forbid *nĩ*.

(12) *Wh-subjects in situ in subjunctive clauses*

- a. Mwangi (***nĩ-**)a-ka-gũr-e ngari
Mwangi (*FOC-)1SM-DEON-buy-FV.SUBJ car
‘Mwangi should buy the car.’
- b. **ũũ** **a-ka-gũr-e** ngari
who 1SM-DEON-buy-FV.SUBJ car
‘Who should buy the car?’

While it is not clear why subjunctive clauses do not permit *nĩ* or why *wh*-subjects are otherwise obligatorily extracted, this correlation between the availability of *nĩ* and the possibility of *wh*-subject extraction nonetheless provides further support that movement is triggered by a probe on Foc^0 , realized as *nĩ*. In §3.3, I will present a similar pattern from negation.

The Agree-based approach also captures why (in non-subjunctive contexts) *nĩ* may not surface in the clausal left periphery (affixed to the verb complex) in *wh*-in situ constructions, as shown in (13). Assuming that the movement operation is obligatory when *nĩ* is present (for instance, if *nĩ* spells out a [FOC,EPP] feature bundle), then the construction in (13a) is not possible. However, an F-marked element may be left in situ if the features on Foc^0 are satisfied by other means. This is the case of multiple *wh*-questions, in which the lower *wh*-phrase may remain in situ since the higher *wh*-phrase associates with *nĩ*, (13b).

(13) *Co-occurrence of nĩ and wh-in situ in multiple wh-questions*

- a. Mwangi (***nĩ-**)a-rug-ir-e **kũĩ**
Mwangi (*FOC-)1SM-cook-PST-FV what
‘What did Mwangi cook?’
- b. **n-ũũ** **ũ-rug-ir-e** **kũĩ**
FOC-who AA.SM-cook-PST-FV what
‘Who cooked what?’

⁷As first analyzed by Ouhalla (1993), anti-agreement is the absence of regular verbal agreement, which takes place in various \bar{A} -extraction contexts. In the Bantu languages, anti-agreement generally only occurs with class 1 (i.e. singular human) subjects. See Schneider-Zioga (2002), Carstens & Diercks (2013), Henderson (2013) and others for details.

In multiple wh-questions, the *highest* [FOC]-bearing element must undergo movement; in other words, Kikuyu exhibits Superiority effects. This is shown below throughout (14)-(16). Note that, multiple vP-level adjuncts, as in (16), may surface in either order, suggesting that they are equidistant to *nĩ* in Foc^0 .

- (14) *subject > VP-level adjunct*
- a. **n-ũũ** ũ-rug-ir-e thamaki **rĩ**
 FOC-who AA.SM-cook-PST-FV fish when
 ‘Who cooked fish when?’
- b. *[**nĩ** **rĩ**] [**ũũ**] a-rug-ir-e thamaki ____
 FOC when who 1SM-cook-PST-FV fish
Intended: ‘When did who cook fish?’
- (15) *VP-level adjunct > object*
- a. **nĩ** **rĩ** Mwangi a-rug-ir-e **kĩĩ**
 FOC when Mwangi 1SM-cook-PST-FV what
 ‘When will Mwangi cook what?’
- b. ***nĩ** **kĩĩ** Mwangi a-rug-ir-e **rĩ**
 FOC what Mwangi 1SM-cook-PST-FV when
Intended: ‘What will Mwangi cook when?’
- (16) *VP-level adjunct ~ VP-level adjunct*
- a. **nĩ** **kũũ** Mwangi a-kũ-rug-a thamaki **rĩ**
 FOC where Mwangi 1SM-FUT-cook-FV fish when
 ‘Where will Mwangi cook the fish when?’
- b. **nĩ** **rĩ** Mwangi a-kũ-rug-a thamaki **kũũ**
 FOC when Mwangi 1SM-FUT-cook-FV fish where
 ‘When will Mwangi cook fish where?’

Note that I have said nothing so far about how in situ wh-questions are interpreted or licensed. The existence of such constructions suggests that the presence of *nĩ* is not necessary in forming wh- and focused constructions; these in situ elements must instead be interpreted with some alternative mechanism. Identifying this mechanism, however, falls somewhat outside of the purview of this paper, so will be left for future work. This paper will instead concentrate on *overt* focus-related movement.

Finally, the examples below demonstrate that focus-related movement is \bar{A} -movement. The moved constituents obligatorily reconstruct into their base positions. This results in the Principle C violation in (17b), as *Mwangi* is bound by the null subject *pro*.

- (17) *Movement reconstructs: Evidence from Principle C*
- a. **nĩ** [_{DP} mwena ũrĩkũ wa ũthiũ wa-ke_i] **Mwangi_i** end-et-e
 FOC side 1.which 1.of face 1.of-3SG Mwangi 1SM.like-HAB-FV
 ‘Which side of his_i face does Mwangi_i like?’ (*No Principle C violation*)
- b. ***nĩ** [_{DP} mwena ũrĩkũ wa ũthiũ wa **Mwangi_i**] (*pro_i*) end-et-e
 FOC side 1.which 1.of face 1.of Mwangi 1SM.like-HAB-FV
 *‘Which side of Mwangi_i’s face does he_i like?’ (*Principle C violation*)

To sum up, in this section I presented the basics of focus-driven movement in Kikuyu, a subtype of \bar{A} -movement involving the morpheme *nĩ*. Kikuyu exhibits both full and partial movement as well as wh-in situ; *nĩ* is present in the former cases but obligatorily absent in the latter case. I also established that *nĩ* is base-generated in Foc^0 in the clausal left periphery, and that focus-related movement targets the FocP domain. Foc^0 bears an probe that triggers obligatory movement of the closest eligible goal in its c-command domain, accounting for superiority effects in multiple wh-questions.

3 Movement to complement in Kikuyu (and cross-linguistically)

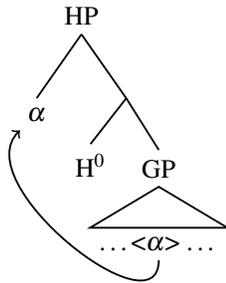
In this section, I argue that focus-related movement in Kikuyu does not create a specifier of FocP, contrary to what is typically assumed for phrasal movement. Rather, this movement forms a *complement* to the movement-triggering head Foc⁰. I will refer to this type of movement as *Undermerge*, following Pesetsky (2007, 2013). Undermerge results in a sisterhood configuration between the head (which hosts the movement-triggering probe) and the moving constituent. In Kikuyu, Undermerge to Foc⁰ allows the focus operator in Foc⁰, *nĩ*, to immediately c-command the moving element.

In this section, I provide syntactic evidence for Undermerge to Foc⁰. In §3.1, I discuss some previous literature on movement to complement position. In §3.2, I analyze Kikuyu \bar{A} -movement as Undermerge, and present arguments from morpheme order for this view. §3.3 extends this account to capture interactions between phrasal Undermerge and *classic head movement*, which I show is predicted by the current analysis. However, §3.4 details some remaining puzzles stemming from this approach.

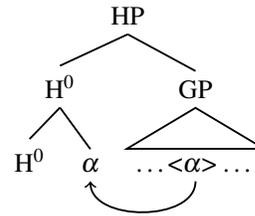
3.1 Undermerge cross-linguistically

The notion of *Undermerge* asserts that phrasal movement may target the *complement* position of a probing head H⁰ rather than create a specifier to H⁰ ('Overmerge'). The schemata for Overmerge and Undermerge are repeated in (18) below:

- (18) a. *Movement to specifier (Overmerge)*



- b. *Movement to complement (Undermerge)*



The possibility of complement-forming movement has been proposed in various parts of the literature, often to account for specific phenomena, though with little generality (e.g. McCloskey 1984, Sportiche 2005, Takano 2007, Donati & Cecchetto 2011, Pesetsky 2007, 2013). The contribution of this paper is that Undermerge is also a productive way of associating with focus operators, building on Wagner (2006) and others; in Kikuyu, this is achieved by moving an F-marked element to the focus operator *nĩ*.⁸

A preliminary illustration of Undermerge comes from Irish, as detailed by McCloskey (1984). McCloskey shows that Irish has a set of constructions in which the nominal complement of a matrix preposition P⁰ seems to have originated lower in the structure; based on various diagnostics, McCloskey argues that these nominals are base-generated in the subject position of an embedded non-finite clause, but undergo A-movement to the complement of matrix P⁰.

First, (19) establishes that P⁰'s complement may be occupied by an expletive pronoun. This suggests that the complement of P⁰ is a non-thematic position and is therefore a position that phrases could in principle undergo A-raising into.

⁸A proper discussion of association with focus will be provided throughout §4; in this section, I provide syntactic arguments for Undermerge.

(19) *Irish: Complement of P⁰ can be expletive*

- a. Ná bí ag gearán thiofadh leis [a bheith ag cur]
 NEG.IMP be.IMP complain.PROG come.COND with.it be.INF rain.PROG
 ‘Don’t complain. It could be raining.’
- b. Thiofadh leis a bheith fíor [go raibh Ciarán i láthair]
 come.COND with.it be.IND true COMP was Ciarán present
 ‘It could be true that Ciaran was there.’

(McCloskey 1984)

McCloskey also demonstrates that the complement of P⁰ (when not an expletive) is able to be *interpreted* in a lower position, which he takes to be the true base-generated position of this argument. In (20), it is able to be interpreted as part of a larger idiom chunk with material in the embedded clause. In both examples in (21), the complement of P⁰ reconstructs for scope, so that it may be interpreted below the matrix predicate.⁹

(20) *Irish: Complement of P⁰ interpretable as part of embedded idiomatic phrase*

- a. Ta ainm X i mbéal na ndaoine
 is name X in mouth the people.GEN
 ‘X’s name is in the mouth of the people.’
 = ‘X is very famous.’
- b. B’éigean do-n-a [ainm a bheith i mbéal na ndaoine]
 COP.PST to-his name be.INF in mouth the people.GEN
 ‘His name must have been in the mouth of the people.’
 = ‘He must have been very famous.’

(McCloskey 1984)

(21) *Irish: Complement of P⁰ reconstructs*

- a. Thiofadh do dhuine amháin ar a laghad [pas a fháil]
 come.COND to person one at least a-pass get.INF
 ‘At least one person could pass.’
 POSSIBLE > AT LEAST ONE
- b. Ba chóir do dhuine amháin ar a laghad [pas a fháil]
 COP.COND proper to person one at least a-pass get.INF
 ‘At least one person should pass.’
 LIKELY > AT LEAST ONE

(McCloskey 1984)

Based on this, McCloskey argues that the subject of an embedded non-finite clause may undergo A-movement to the complement of P⁰, akin to the process that generates ECM constructions. He moreover proposes that raising to complement of P⁰ takes place in order to satisfy the selectional requirements of P⁰; P⁰ requires a nominal complement.

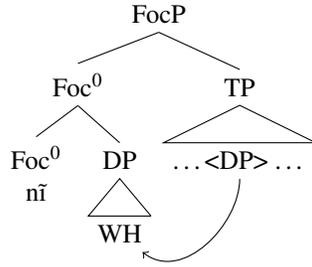
I argue that Kikuyu focus-related movement is derived in a parallel fashion, except this kind of movement is \bar{A} -movement rather than A-movement, as shown in §2. Nonetheless, as I will discuss in §5, this movement also takes place to satisfy the selectional requirements of the movement-triggering head, Foc⁰.

3.2 Undermerge in Kikuyu

As shown throughout §2, the morpheme *nĩ* in Kikuyu surfaces on left-peripheral F-marked elements and on the verb complex in polar questions and verum focus contexts. Moreover, the F-marked element undergoes Agree-driven focus-related movement to the FocP domain. In this section, I argue that this movement is *Undermerge*, landing in the complement position of Foc⁰ rather than its specifier. The proposed structure is given in (22):

⁹In these examples, both wide and narrow scope readings are available; however, as McCloskey points out, we are interested in the narrow scope (reconstructed) reading, so only that reading is indicated in the examples below.

(22) *Movement to Foc⁰ in Kikuyu*



The Undermerge approach straightforwardly captures the morpheme order; as shown throughout this paper, the extracted element *always immediately follows* the focus morpheme *nĩ*, (23). While we do find extracted DPs that linearly precede *nĩ*, these are interpreted as topics rather than as foci (and (23a) shows that topics and true foci may co-occur). The head-complement order of *nĩ* and the F-marked element in Kikuyu follows from its left-headedness; in §4, I will demonstrate that in right-headed languages, the F-marked element surfaces to the *left* of the focus morpheme, as expected under the current approach.

(23) *Obligatory nĩ-DP order*

- a. Kamau **nĩ** **Mwangi** end-et-e
Kamau FOC Mwangi 1SM.like-HAB-FV
'Kamau, it's Mwangi he likes.'
- b. **nĩ** **kĩĩ** Njeri a-kũ-rug-a
FOC what Njeri 1SM-FUT-cook-FV
'What will Njeri cook?'

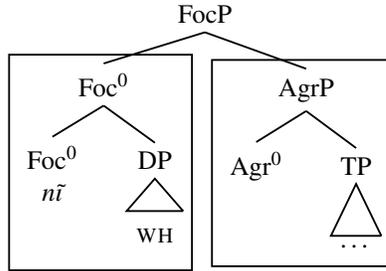
As repeated in (24), while *nĩ* may surface as a prefix on the verb complex, this is only possible in the absence of an F-marked element; *nĩ* must surface attached to a left-peripheral F-marked element if one is present.

(24) *nĩ must surface with F-marked element*

- a. Njeri (**nĩ**-)a-kũ-rug-a **thamaki**
Njeri (FOC-)1SM-FUT-cook-FV fish
'Njeri will cook fish.'
- b. **nĩ** **kĩĩ** Njeri (***nĩ**-)a-kũ-rug-a
FOC what Njeri (*FOC-)1SM-FUT-cook-FV
'What will Njeri cook?'

The Undermerge approach derives this distribution of *nĩ* more straightforwardly than competing approaches. For example, Clements (1984) and Bergvall (1987) account for these data by taking *nĩ* to be generated in the clausal left periphery and *lowering* onto the verb in the absence of an extracted phrase. I propose instead that morphological lowering of this sort is unnecessary, if we assume, with Bobaljik (1994), Harley (2013), Harizanov & Gribanova (2017), and others, that affixation is fed by adjacency between terminal nodes (heads). In (24b), Undermerge of an extracted element *breaks* the adjacency between *nĩ* and the rest of the verb complex, since it creates a new adjacency relationship with *nĩ*. As a result, *nĩ* is spelled out with the Undermerged phrase, while the verb complex is realized separately. This is schematized in (25). The present analysis thus derives this alternation from standard constraints on word formation without recourse to additional morphological processes.

(25) *Phrasal Undermerge blocks Merger*



(separate phonological words)

Conversely, Schwarz (2003, 2007) proposes to derive the alternation below by raising a nominal or the entire clause to Spec-FocP. However, to derive the *nĩ*-XP morpheme order, this account would have to appeal to a postsyntactic morpheme reordering operation such as Local Dislocation (Embick & Noyer 2001). Local Dislocation swaps the adjacency relationship between two elements for one of affixation. This operation is very local, targeting morphosyntactically simplex elements such as heads or minimal words (apparent exceptions are derived by successive applications of Local Dislocation—see Embick & Noyer (2001) for discussion). Crucially, as (26) shows, the extracted constituent surfacing to the right of *nĩ* may be of *any* structural complexity and may include both heads and phrases. In the examples below, the constituent may include coordinated elements and islands.

(26) *Extracted constituent may be structurally complex*

- a. *nĩ* [_{DP} **mũndũ** [_{CP} **ũrĩa** **Mwangi a-ra-rug-ĩ-ir-e** **irio**]]
 FOC man 1AGR.REL Mwangi 1SM-PROG-cook-APPL-PST-FV food
 ũ-gũr-ir-e ngari
 AA.SM-buy-PST-FV car
 ‘It’s the man that Mwangi cooked for that bought the car.’
- b. *nĩ* [_{DP} **mũndũ** **ũrĩkũ** **na ngui** **ĩrĩkũ**] ma-ra-thak-a hamwe
 FOC man 1AGR.which and dog 9AGR.which 2SM-PROG-play-FV together
 ‘Which man and which dog are playing together?’

An account that appeals to Local Dislocation thus cannot easily derive the *nĩ*-DP order. The Undermerge analysis, in contrast, faces no issues from structurally complex extracted phrases, since no morpheme reordering operation is necessary in the first place.

3.3 Head movement and featural cyclicity

As noted in §1, the Extension Condition requires that all instances of Merge extend the syntactic structure at its root. This condition is clearly problematic for Undermerge, since Undermerge involves the creation of complements of heads, rather than specifiers—thus violating the Extension Condition.

However, we also find other movement phenomena that do not adhere to this condition, e.g. tucking in (Richards 1997, 2001). As shown by the Bulgarian example in (27), languages with multiple wh-movement often preserve the base order of the moving elements, so that the lower wh-phrase surfaces below the higher one. Given the local nature of Agree (‘Attract Closest’), the higher wh-phrase is assumed to be targeted by the probe first. Therefore, the order of wh-phrases must be derived by *tucking in* the wh-object underneath the wh-subject. This too violates the Extension Condition, since tucking in does not extend the tree.

(27) *Bulgarian: Tucking in violates the Extension Condition*

- a. **Koj kakvo** vižda
 who what sees
 ‘Who sees what?’

- b. ***Kakvo koj** vižda
 what who sees
 Intended: ‘What does who see?’

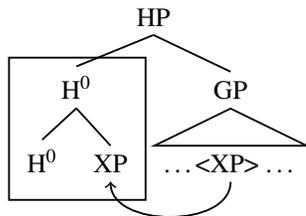
(Rudin 1988)

As Richards (1997, 2001) points out, tucking in of the object in (27) is expected, if languages obey not only some notion of Attract Closest but also *Shortest Move*, which requires the distance of a given wh-movement chain to be as short as possible. In lieu of the Extension Condition, Richards proposes a weaker notion of *featural cyclicity*, which requires that heads check their features as soon as they are Merged. Unlike the Extension Condition, featural cyclicity does not require that all subsequent instances of Merge extend the tree, since it is a requirement on *Agree* rather than on Merge. While Undermerge is clearly incompatible with the Extension Condition, it *is* compatible with featural cyclicity: the Undermerge-triggering head probes as soon as it is Merged.

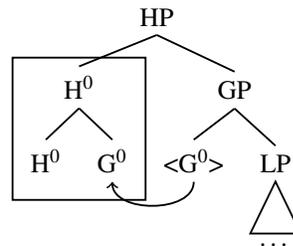
Eliminating the Extension Condition also makes vacuous the architectural problem posed by *classic head movement* (Travis 1984, Baker 1988, Keine & Bhatt 2016), in which a lower head forms an adjunction structure with a higher head. As classic head movement does not extend the tree, much post-Minimalist literature has argued for its elimination, for example by relegating it to the PF component (e.g. Chomsky 2001, Schoorlemmer & Temmerman 2012) or by reanalyzing it as phrasal movement followed by morphological merger (e.g. Matushansky 2006).

However, I show that the Undermerge analysis provides novel evidence *in favour of* the existence of classic head movement—which, in turn, provides novel evidence for Undermerge itself. As pointed out by Pesetsky (2007, 2013), phrasal Undermerge and classic head movement are basically structurally identical, the difference being whether the moving element is an XP or an X^0 , (28). Thus, head movement may be reconceptualized as *head-head Undermerge*.

(28) a. *Phrasal Undermerge*



b. *Head-head Undermerge*



Given this parity between phrasal Undermerge and head movement, the two are expected to interact if they target the same syntactic position. I show that this is precisely the case in Kikuyu, based on the behaviour of negation in focus-extraction contexts.

Like many other Bantu languages, Kikuyu has multiple negation morphemes (Mugane 1997, Nurse 2008); in Kikuyu, they are *nd*, *ti*, and *ta*.¹⁰ The first two, *nd* and *ti*, are phonologically-conditioned allomorphs, whose realizations are determined by whether the adjacent agreement morpheme is vowel- or consonant-initial, (29). Note that the order of negation relative to subject agreement differs in the two examples; I assume this is an idiosyncratic property of the language and does not reflect syntactic position.

(29) *nd/ti are phonologically-conditioned allomorphs*

- a. mwana **nd**-a-gũ-thom-a ibuku
 child NEG1-1SM-FUT-read-FV book
 ‘The child will not read the book.’

¹⁰The distribution of these morphemes differs across Bantu languages. As Muriungi (2005) shows, for example, the choice of negation in closely-related language Kiitharaka is determined by tense, though the forms are the same—*ti* and *ta*. However, in Kikuyu the relevant factors appear to be largely morphosyntactic.

- b. andū ma-**ti**-gū-thom-a ibuku
 people 2SM-NEG2-FUT-read-FV book
 ‘The people will not read the book.’

In contrast, the morpheme *ta* is phonologically-insensitive and always appears in the word as following the agreement morpheme, (30). As shorthand until I have fully presented the analysis, I will refer to *nd* and *ti* as NEG1 *ta* as NEG2.

(30) *ta* is phonologically insensitive

- a. kū-haan-a [ta Mwangi a-**ta**-ra-rug-a]
 15SM-seem-FV like Mwangi 1SM-NEG2-PROG-cook-FV
 ‘It seems like Mwangi is not cooking.’
- b. kū-haan-a [ta andū ma-**ta**-ra-rug-a]
 15SM-seem-FV like people 2SM-NEG2-PROG-cook-FV
 ‘It seems like the people are not cooking.’

We are concerned with what governs the morphosyntactic distribution of NEG1 and NEG2. In declarative contexts and polar questions, NEG1 is found in full matrix and embedded clauses, as shown in (31), while NEG2 is found in embedded reduced clauses, (32) (the same clauses that, as noted in §2, disallow *nĩ* and partial \bar{A} -movement).

(31) *Distribution of NEG1*

- a. mwana **nd**-a-gū-thom-a ibuku
 child NEG1-1SM-FUT-read-FV book
 ‘The child will not read the book.’
- b. Kamau a-r-ecir-i-a [(atĩ) Mwangi **nd**-a-kū-gūr-a ngari]
 Kamau 1SM-PROG-think-TR-FV (that) Mwangi NEG1-1SM-FUT-buy-FV car
 ‘Kamau thinks that Mwangi won’t buy the car.’
- c. Mwangi **nd**-a-rug-ag-a
 Mwangi NEG1-1SM-cook-HAB-FV
 ‘Doesn’t Mwangi cook?’

(32) *Distribution of NEG2*

- a. Mwangi nĩ-on-ir-e Kamau [a-**ta**-kū-haat-a]
 Mwangi FOC-1SM.see-PST-FV Kamau 1SM-NEG2-SIM-sweep-FV
 ‘Mwangi saw Kamau not sweeping.’
- b. kū-haan-a [ta Mwangi a-**ta**-ra-rug-a]
 15SM-seem-FV like Mwangi 1SM-NEG2-PROG-cook-FV
 ‘It seems like Mwangi is not cooking.’

Both negations are structurally fairly high. The examples in (33) show that they both scope over subjects (taken to be Spec-TP); disjoined subjects may be interpreted conjunctively under both negation types.¹¹

(33) *Both types of negation scope over subjects*

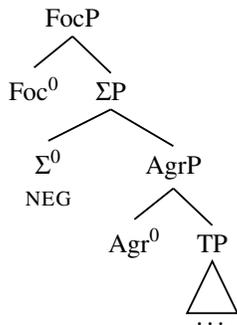
- a. Kamau **kana** Njeri m-on-ir-e Mwangi
 Kamau or Njeri 2SM-see-PST-FV Mwangi
 ‘Kamau or Njeri (one or the other) saw Mwangi.’

¹¹This diagnostic comes from (Bruening 2002), who shows a similar pattern under negation in Passamaquoddy.

- b. Kamau **kana** Njeri ma-**ti**-n-on-a Mwangi
 Kamau or Njeri 2SM-NEG1-PST-see-FV Mwangi
 ‘Neither Kamau nor Njeri saw Mwangi.’ (NEG > OR)
- c. kū-haan-a [ta Kamau **kana** Njeri ma-**ta**-n-on-a Mwangi]
 15SM-seem-FV like Kamau or Njeri 2SM-NEG2-PST-see-FV Mwangi
 ‘It seems like neither Kamau nor Njeri saw Mwangi.’ (NEG > OR)

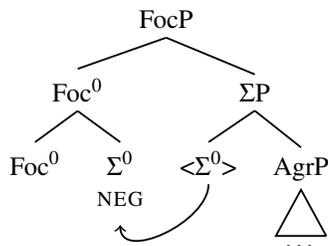
I assume with Laka (1990) that negation is generated in a polarity head Σ^0 in the TP domain; based on (33), I moreover take subjects and subject-verb agreement to be lower than negation, resulting in the partial structure given below:¹²

(34) *Structural position of negation*

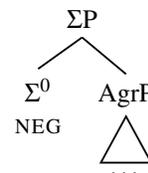


Following Mugane (1997) that NEG1 *nd/ti* is a portmanteau consisting of *nĩ* and negation, I propose that the NEG1 portmanteau is created through Σ^0 -to-Foc⁰ head movement. Conversely, head movement is impossible in embedded reduced clauses, as these clauses lack FocP altogether; as a result, negation is realized as NEG2, *ta*—its default form.¹³ This is illustrated below in (35). Note that the spirit of this proposal is similar to that of French V⁰-to-T⁰ movement in finite clauses and its unavailability in non-finite contexts (e.g. Pollock 1989).

(35) a. *Full declarative clause; head-head Undermerge possible*



b. *Reduced declarative clause; head-head Undermerge impossible*



Thus, Kikuyu instantiates two distinct types of head-head processes, following recent work by e.g. Harizanov & Gribanova (2017). There is the postsyntactic process that creates complex words through affixation, which does *not* involve syntactic head movement; this was discussed earlier in §3.2 regarding the affixation of *nĩ* to the following constituent. Conversely, the behaviour of negation is a case of true head movement, which takes place in the syntax proper and results in the morphosyntactic reordering of affixes.

¹²The structure given does not exactly correspond to the order of morphemes. As shown in several examples, there is much idiosyncrasy in how certain morphemes are linearized (for instance, the placement of tense and aspect morphemes). Recall moreover that at least some arbitrariness is independently needed in this analysis to account for the positioning of NEG1, which surfaces either as word-initial *nd* or in second position word-internally as *ti*. The choice to place Σ^0 above Agr⁰ is mainly expository, as it allows head movement to be local and satisfy the Head Movement Constraint (Travis 1984). However, the data are compatible with a different structure in which Σ^0 is lower, if we assume that head movement need not be local, as in (Harizanov & Gribanova 2017).

¹³Thus, in what follows, I will gloss NEG1 as ‘FOC.NEG’ and NEG2 as ‘NEG.’

The proposal that syntactic head movement creates the adjunction structure given above is evidenced by what happens in negative focus-movement constructions in Kikuyu. As illustrated below, overt focus-related movement requires that negation be realized as NEG2 *ta*, (36a); however, in situ F-marked elements co-occur with NEG1 *nd/ti*, (36b).

- (36) NEG2 vs. NEG1 *affects position of focused element*
- a. **nĩ kũ** Mwangi a-**ta**-kũ-rug-a
 FOC what Mwangi 1SM-NEG-FUT-cook-FV
 ‘What won’t Mwangi cook?’
- b. Mwangi **nd**-a-kũ-rug-a **kiĩ**
 Mwangi FOC.NEG-1SM-FUT-cook-FV what
 ‘What won’t Mwangi cook?’

The pattern shown in (36) is the interaction between phrasal Undermerge and classic head movement, as alluded above: analyzing head movement as head-head Undermerge (adjunction to a head) allows us a way of understanding the alternation in (36).¹⁴ If the portmanteau *nd/ti* signals the presence of head movement to Foc^0 while *ta* signals its absence, then the data in (36) may be understood as *blocking effects*. In (36a), phrasal Undermerge of the wh-phrase to Foc^0 *blocks* head movement to the same position; in (36b), Σ^0 -to- Foc^0 head movement of negation blocks wh-movement. Importantly, this interaction is predicted *only* by an analysis that takes phrasal Undermerge and head movement to have the same syntactic structure, as argued for here.

Some corroborating evidence for this approach comes from the behaviour of wh-subjects. Recall from §2.2, repeated below as (37a), that, while wh-subjects must generally obligatorily move, they may exceptionally remain in situ when *nĩ* is independently unavailable, e.g. in subjunctive contexts. Interestingly, wh-subjects may stay in situ when negation moves to Foc^0 , (37b). Whereas *nĩ* is absent in (37a) because subjunctive clauses simply disallow *nĩ*, in (37b) it is unavailable for wh-movement because its complement position is occupied by negation.

- (37) *Wh-subjects in situ with NEG1*
- a. **ũũ** a-ka-gũr-e ngari
 who 1SM-DEON-buy-FV.SUBJ car
 ‘Who should buy the car?’
- b. **ũũ nd**-a-ra-rug-a irio
 who FOC.NEG-1SM-PROG-cook-FV food
 ‘Who isn’t cooking food?’

The data above moreover may not be analyzed as an idiosyncratic property of negation, e.g. one that simply requires NEG2 *ta* to surface with overtly extracted phrases and NEG1 *nd/ti* to surface when they stay in situ. As shown below, in reduced embedded clauses, in which *both* partial movement and head movement to Foc^0 are impossible, in situ wh-phrases co-occur with NEG2.

- (38) *Wh-in situ with NEG2 in reduced clauses*
- kũ-haan-a [ta Mwangi a-**ta**-ra-rug-a **kiĩ**]
 15SM-seem-FV like Mwangi 1SM-NEG-PROG-cook-FV what
 ‘What does it seem like Mwangi is not cooking?’

The behaviour of negation thus provides independent evidence both for the complement-forming nature of phrasal movement and for the existence of classic head movement. This level of interaction is unexpected under analyses

¹⁴A similar effect is discussed by Harizanov (2016) in Bulgarian participle fronting, which he analyzes as long head movement; participle fronting is only possible if Spec-TP is otherwise empty. Harizanov argues that this effect occurs because participle fronting is head movement to Spec-TP (within his system, heads are both minimal and maximal, so head movement may target specifiers). The spirit of the current analysis is similar, except the position under competition is the complement of Foc^0 , rather than a specifier.

that do not take head movement and phrasal movement to occupy the same position, but follow straightforwardly from an Undermerge account.

3.4 Some outstanding issues

Before moving on, there are outstanding issues with this treatment of negation that I would like to point out, though I leave resolving these issues for future work. First, this analysis raises a locality problem. Above, I suggested that focus-related phrasal movement may block head movement of Σ^0 , as in (37a), even though Σ^0 is always more local to Foc^0 . This is especially puzzling, given that in §2.2 I showed that multiple wh-questions obey Superiority; why is Superiority violated if the higher goal is a head?

The second issue concerns the verum focus examples introduced in §2, repeated below in (39). As this example shows, verum focus in declarative contexts is encoded by obligatorily attaching *nĩ* to the verb complex.

- (39) *Verum focus requires nĩ*
 Context: *I ask you whether Kamau bought a car, and you say:*
 ii, Kamau **nĩ**-a-gũr-ir-e ngari
 yes, Kamau FOC-1SM-buy-PST-FV car
 ‘Yes, Kamau bought / did buy a car.’

In Laka (1990), Σ^0 hosts both negation and positive polarity, the latter being used in verum focus contexts. Under this approach, while negative polarity in Kikuyu is spelled out as *ta* (or *nd/ti* after head movement to Foc^0), the positive polarity morpheme is always null. Presumably, this null Σ^0 also undergoes head movement to Foc^0 in verum focus contexts, as in (39).

However, verum focus constructions in Kikuyu do not behave exactly like negative sentences. While negation may move to Foc^0 , forcing a wh-phrase to stay in situ, repeated as (40), this does not seem to be possible for the null positive polarity morpheme. Verb-initial *nĩ* may never co-occur with wh-in situ, even in a verum focus context, (41):

- (40) NEG1 *and wh-in situ*
 Mwangi **nd**-a-kũ-rug-a **kĩĩ**
 Mwangi FOC.NEG-1SM-FUT-cook-FV what
 ‘What won’t Mwangi cook?’
- (41) *Wh-in situ impossible with verum focus*
 A conversation between Wambũi and Njeri:
 N: nji-gw-ir-e Kamau nĩ-a-cind-ir-e million ĩmwe gũũthi-nĩ
 1SG.SM-hear-PST-FV Kamau FOC-1SM-win-PST-FV million one game-in
 ‘I heard that Kamau won a million dollars in the lottery!’
 W: nĩ-a-cind-ir-e gũũthi, no nd-a-na-cind-a million ĩmwe
 FOC-1SM-win-PST-FV game, but FOC.NEG-1SM-PST-win-FV million one
 ‘He did win the lottery, but not a million dollars.’
 N: (***nĩ**-)a-cind-ir-e **mbe**ca **ci**gana
 (***FOC**-)1SM-win-PST-FV money 8AGR.how.much
 ‘Then how much DID he win?’

When asked how to express wh-questions with verum focus, the consultant offered both the last line in (41), in which the wh-phrase remains in situ (with no *nĩ*), and the equivalent in (42), in which the wh-phrase moves to associate with *nĩ*. The same pattern is shown in (43) for verum focus inside reduced embedded clauses, in which we know *nĩ* is independently unavailable; in these cases, there is simply no morphological indication of verum focus at all, since *nĩ* cannot surface in such clauses. It is possible that, in all of these examples, verum focus is encoded prosodically, though future research will determine whether that is the case.

(42) *No morphological encoding of verum focus with wh-movement*

nĩ mbeca cigana (*nĩ-)a-cind-ir-e
 FOC money 8AGR.how.much (*FOC-)ISM-win-PST-FV
 ‘Then how much DID he win?’

(43) *No morphological encoding of verum focus in reduced clauses*

Context: *Njeri told her daughter Wambũi to clean the house while Njeri goes grocery shopping. Njeri doesn’t expect Wambũi to actually do anything. However, once Njeri gets home, the house is spotless. She says:*

haiya, kũ-haan-a [ta Wambũi (*nĩ-)a-thamb-ir-i-e nyumba]
 EXCL 15SM-seem-FV like Wambũi (*FOC-)ISM-clean-PST-TR-FV house
 ‘It seems Njeri DID clean the house!’

While I do not have a solution for these outstanding puzzles at the moment, I believe that the negation patterns shown throughout §3.3 nonetheless provide novel evidence for Undermerge.

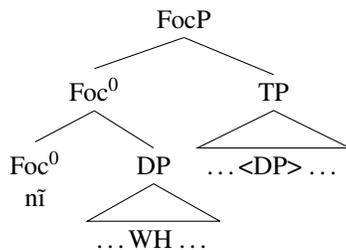
3.5 Summary

In this section, I argued that Kikuyu wh-movement and focus fronting take place by Undermerge, such that the argument moves to the complement of Foc^0 , the movement-triggering head. I showed that similar kinds of complement-forming movement have been proposed in previous literature, e.g. by McCloskey (1984) for Irish. In Kikuyu, morphosyntactic evidence for Undermerge to Foc^0 comes from morpheme order as well as interactions between phrasal Undermerge and head movement of negation.

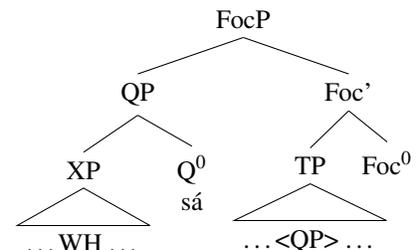
4 Association with focus

In this section, I argue that focus-related Undermerge in Kikuyu is not a language-specific quirk, but is a very typical instantiation of *association with focus*. Broadly, focus association refers to the process by which an F-marked element comes to be interpreted by a focus sensitive operator, which computes the focus alternatives of the F-marked element. The main proposal of this section is that focus association requires *complementation* between an F-marked element and the focus operator. This may involve either Undermerge to the focus operator, as in Kikuyu, or by Externally Merging the focus operator above the F-marked element, as in Tlingit (Cable 2007, 2010). These parallel ways of achieving the structure needed for focus association are schematized in (44). Note that the structure in (44b) contains a step of \bar{A} -movement of the constituent composed of the focus operator and the F-marked element; while Cable (2007, 2010) shows this to take place in Tlingit, this is not necessary, strictly speaking. The crucial takeaway is that the trees in (44a) and (44b) are *structurally identical*.

(44) a. *Complementation by Internal Merge of F-marked element (Kikuyu)*



b. *Complementation by External Merge of focus operator (Tlingit)*



I moreover argue that Undermerge to Foc^0 in Kikuyu is the *overt* counterpart to what has been described as focus association by covert movement in previous literature (e.g. Drubig 1994, Krifka 2006, Wagner 2006, Erlewine & Kotek 2014, to appear); moreover, some of these authors specifically assume movement-to-complement. Thus, Kikuyu provides novel evidence for this movement-based approach to focus association, since this movement in

Kikuyu takes place overtly. Thus, this section ultimately argues for a unification of various phenomena that have not previously been explicitly connected as they are here. Kikuyu Undermerge to Foc^0 is focus association by overt movement, paralleling similar movement processes that take place covertly cross-linguistically. Focus association by movement, in turn, is the movement counterpart to Cable’s (2007, 2010) Q-based analysis of Tlingit.

This section is structured as follows. In §4.1, I provide a brief overview of association with focus. §4.2 presents arguments from the previous literature that association with focus may take place by Undermerge. In §4.3, I discuss the Q-based system of wh-movement of Cable (2007, 2010) and demonstrate that Kikuyu focus association to $n\tilde{i}$ shares similarities with the distribution of the Q particle in Tlingit. The relevant difference between these two languages is that Tlingit derives focus association by *Externally Merging* the focus operator—the Q-particle—above an F-marked element; however, Kikuyu and Tlingit otherwise have identical LFs. Finally, §4.4 provides additional evidence that Kikuyu $n\tilde{i}$ is a focus sensitive operator and refine some aspects of the analysis thus far.

4.1 Association with focus

An influential approach to association with focus comes from Rooth (1985, 1992), in which an F-marked element is base-generated in the syntactic structure and is interpreted in its pronounced position by a c-commanding focus operator. I will refer to this as the *in situ* approach to focus association. In contrast, a competing proposal takes focus association to involve *covert movement* of the F-marked element to the higher focus operator (e.g. Drubig 1994, Krifka 2006, Wagner 2006, Erlewine & Kotek 2014, to appear). While it is beyond the scope of this paper to fully evaluate the merits of this movement-based proposal compared to the *in situ* one, the Kikuyu data provide clear support for the movement analysis, since focus association in Kikuyu takes place by overt movement.

I start by providing a (somewhat simplified) overview of Rooth’s (1985, 1992) theory of focus association, as the fundamentals of this theory also hold for the movement-based approach. In this theory, a given syntactic node has both an ordinary semantic value and a focus semantic value—its focus semantic value is the set of alternatives to that element. For example, while the ordinary semantic value of an individual *John* is simply John, as in (45a), its focus semantic value is a set of alternatives to John—a set of individuals, (45b):

- (45) *Ordinary and focus semantic values*
- a. $\llbracket \text{John} \rrbracket^o = \text{John}$
 - b. $\llbracket \text{John} \rrbracket^f = \{ \text{John, Bill, Carol, } \dots \}$

The function of a focus operator is to compute the focus alternatives of the F-marked element. The focus semantic value of the F-marked element is interpreted at LF *in situ* (in its pronounced position), even if it is not structurally adjacent to the focus operator. This is because the focus alternatives are passed up the syntactic structure via pointwise semantic composition between sister nodes; as a result, all nodes that dominate the F-marked element also end up with focus semantic values. This is illustrated in (46) with the sentence *I only wear RED_F shirts*, where *red* associates with the focus operator *only* (from Erlewine & Kotek to appear).

- (46) *Focus alternatives are passed up the syntactic structure*
 I only wear RED shirts. = only $[_{VP} \text{ I wear } [\text{red}]^f \text{ shirts}]$.
- a. $\llbracket \text{red} \rrbracket^f = \{ \text{red, green, blue, } \dots \}$
 - b. $\llbracket \text{VP} \rrbracket^f = \{ \text{I wear red shirts, I wear green shirts, I wear blue shirts, } \dots \}$ (Erlewine & Kotek to appear)

In (46c), we arrive at a set of propositions at the VP level. The set of propositions then composes with a focus operator (exemplified here using *only*) adjoined to VP. *Only* presupposes that its prejacent (here, *I wear red shirts*) is true, and asserts that all of its alternatives are false. This is illustrated in (47).

- (47) *Composition with focus operator*
- a. only $[_{VP} \text{ I wear } [\text{red}]^f \text{ shirts}]$.
 - b. Presupposition: I wear red shirts.

- c. Assertion: I do not wear green shirts, I do not wear blue shirts, ... (Erlewine & Kotek to appear)

This treatment of focus association is extended to wh-in situ constructions by Beck (2006). While most lexical items have both an ordinary semantic value and a focus semantic value, as noted above, Beck proposes that in situ wh-words only have a focus semantic value; its ordinary semantic value is thus undefined, as exemplified in (48).¹⁵ For Beck, the relevant operator that computes the wh-element is interrogative C^0 .¹⁶

- (48) *Focus and ordinary semantic values of wh-word*
 a. $\llbracket \text{what} \rrbracket^f = \{ x: x \text{ is human} \}$
 b. $\llbracket \text{what} \rrbracket^o = \text{undefined}$

Beck proposes that in situ wh-elements are sensitive to *focus intervention effects*, which arise when a wh-word fails to be interpreted by a higher interrogative C^0 to form a wh-question, due to the presence of an additional intervening focus-sensitive operator. These effects occur because focus operators are *unselective*, meaning that they compute whatever focus alternatives are found within their scope. This illicit intervention configuration is given in (49) (where interrogative C^0 is Op_1 and the intervener is Op_2):

- (49) *Focus intervention configuration*
 *[Op_1 ... [Op_2 ... [XP_F]]]

Evidence for this approach comes from the fact that focus intervention effects may be obviated if the wh-phrase is moved to a position higher than the intervener.¹⁷ In the Korean data below, a wh-word may not stay in situ if c-commanded by a focus intervener (e.g. ‘only’), compare (50a-b). However, scrambling the wh-word alleviates this effect, as shown in (50c).

- (50) *Korean: scrambling obviates intervention effect*
- a. Minsu-nun **nuku-lûl** po-ass-ni
 Minsu-TOP who-ACC see-PST-Q
 ‘Who did Minsu see?’
- b. *Minsu-man **nuku-lûl** po-ass-ni
 Minsu-only who-ACC see-PST-Q
 Intended: ‘Who did only Minsu see?’
- c. **nuku-lûl** Minsu-man po-ass-ni
 who-ACC Minsu-only see-PST-Q
 ‘Who did only Minsu see?’ (Beck 2006)

To summarize, in situ theories of association with focus have been put forth for both focus and wh-in situ, which both denote alternative sets. Moreover, the computation of focus alternatives may be disrupted by focus intervention effects. In what follows, however, I will present evidence from Wagner (2006) and Erlewine & Kotek (2014) against purely in situ approaches to focus association.

4.2 Focus association by covert movement

The in situ approach to focus association makes the strong prediction that everything c-commanded by the focus operator in the surface syntax is also under the scope of the focus operator at LF. However, Wagner (2006) and Erlewine & Kotek (2014) among others (see above for references) show that only a *subpart* of the structure c-

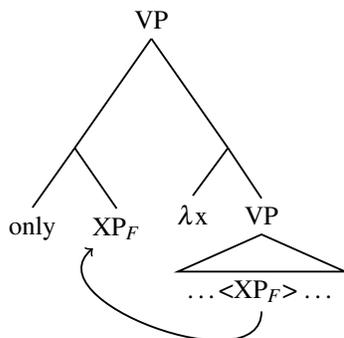
¹⁵That wh-words denote alternative sets—and that wh-questions denote sets of propositions—comes from Hamblin (1973).

¹⁶Here, I leave the semantic function of interrogative C^0 deliberately vague, since later I will discuss the approach in Cable (2007, 2010), which differs from the one advanced by Beck.

¹⁷As will be discussed later, Cable (2007, 2010) and Kotek (2014) update this idea so that the generalizations also hold under a Q-based theory of wh-questions, in which the higher operator is a Q particle rather than interrogative C^0 .

commanded by the focus operator in the surface syntax is actually within the operator’s scope at LF. The rest of the structure, which does not move, is not directly computed by the focus operator. This approach thus takes focus operators to be *two-place predicates* (whereas the in situ approach assumes one-place predicates); a focus operator is first saturated by the moving constituent, and then saturated by the stranded material. This is schematized in (51), again with *only* as the focus-sensitive operator.

(51) *Structure for focus association by movement*



Below, I provide two separate arguments for focus association by covert movement. As noted above, Kikuyu will provide additional evidence for this approach, since in Kikuyu the F-marked element moves overtly.

4.2.1 Evidence from NPI licensing

The first argument comes from Wagner (2006), based on the distribution of NPIs within the scope of focus operators like ‘only.’ NPIs like ‘any’ are licensed in Strawson downward-entailing environments (von Stechow 1999); this explains why adnominal usages of ‘only’ license NPIs in their second argument (the proposition) but not in their first argument (the DP to which ‘only’ adjoins), as shown in (52). The DP-internal material c-commanded by ‘only’ is not a Strawson downward-entailing environment, so the NPI ‘any’ is not licensable inside the DP. In the following data, the F-marked element will be in SMALL CAPS, the F-containing constituent containing the F-marked element will be underlined, and the NPI will be **bolded**.

(52) *Adnominal ‘only’ may license NPI in second argument*

- a. Only an inhabitant of TWIN EARTH ever met **any** aliens.
- b. *Only ANY INHABITANT OF TWIN EARTH met Particle Man. (Wagner 2006)

Wagner (2006) observes that VP-level ‘only’ shows a parallel pattern—NPIs may, in certain circumstances, be licensed VP-internally, as illustrated in (53). This is unexpected under Rooth’s (1985, 1992) theory of focus association, which predicts no VP-internal NPI-licensing at all since it assumes that the entire VP is within the scope of the focus operator. Wagner instead proposes that ‘only’ is a two-place predicate in *both* its adnominal and adverbial usages; in adverbial-‘only’ constructions, a constituent containing the F-marked element undergoes covert movement to the complement of ‘only.’

(53) *Adverbial ‘only’ may license NPI VP-internally*

- a. John only gave **any** kale to HIS friends.
[only HIS friends] [λx . John gave any kale to x]
- b. John only gave KALE to **any** of his friends.
[only KALE] [λx . John gave x to any of his friends]

In the prepositional ditransitive constructions above, NPI ‘any’ may surface within the direct object, as in (53a), or within the prepositional indirect object, as in (53b). In the surface syntax, both arguments appear to be c-commanded by ‘only,’ so the availability of the NPI in either DP is surprising under Rooth’s approach. Under the

covert movement analysis, however, (53a) is derived by covertly moving the F-containing indirect object ('to HIS friends') to the complement of 'only,' and in (53b) the F-marked direct object 'KALE' moves; in both examples, the NPI is licensed within the stranded structure.

A wider range of NPI data reveal that focus association follows standard constraints on movement. For example, it is well-known that, in double object constructions, the DO cannot covertly move across the IO (as in QR); see Bruening (2001) for discussion. This constraint accounts for the contrast in (54), in which double object constructions with VP-'only' disallow NPIs inside the IO but allow them inside the DO. Wagner proposes that the constraint on moving a DO past an IO in double object constructions forces the entire VP to associate with 'only' in (54a); this bleeds NPI-licensing within the IO. In (54b), however, only the IO associates with the focus operator 'only,' stranding the DO and allowing an NPI to be licensed within the DO.

(54) *Adverbial 'only' can only license DO-NPI in DOC*

a. *She only gave **any** student SUMMER funding.

b. She only gave HER student **any** funding.

[only HER student] [λx . She gave x any funding].

(Wagner 2006)

Finally, NPIs may not occur within an island if the focus operator 'only' is generated outside of the island, though island-external instances of *any* are licensed, as shown in (55). For Wagner, this means that the entire island pied-pipes the island-internal F-marked element *Bill* to 'only' (cf. Drubig 1994). The idea that the island undergoes covert movement will be relevant later.

(55) *Islands may covertly move to 'only'*

a. *Mary only gave a book to John [island because **BILL** gave **any** book to him].

b. She only gave **anything** to **anyone** [island because **YOU** did].

(Wagner 2006)

4.2.2 Evidence from focus intervention effects

The second argument for focus association by covert movement comes from Erlewine & Kotek (2014)¹⁸ on focus intervention effects. While Beck's (2006) system deals with wh-questions, Kotek & Erlewine discuss non-wh F-marked elements. Thus, focus intervention effects surface when an F-marked element is c-commanded by two focus operators; the configuration is repeated in (56) below.

(56) *Intervention effect configuration*

*[Op₁ ... [Op₂ ... [XP_F]]]

Given this pattern, let us consider the data below. The examples in (57) first show that clefting a constituent containing an F-marked element may obviate focus intervention effects if the intervening operator is stranded below the cleft ('no' in the examples below, bolded). This is analogous to the Korean scrambling data from (50). Conversely, pied-piping along the intervener, as in (57c), results in ungrammaticality, because this preserves the intervention configuration in (55).

(57) *Pied-piping focus intervener yields ungrammaticality*

a. It's [a book from THIS library] that John read ___.

b. It's [THIS library] that John read **no** book from ___.

c. *It's [**no** book from THIS library] that John read ___.

(Erlewine & Kotek 2014)

Crucially, this contrast holds outside of clefted constructions, as in (58), even though there is no *overt* movement these examples. This is not predicted under the in situ approach to focus association, since the intervener is expected to c-command the F-marked element in both (58b) and (58c). Kotek & Erlewine argue that the obviation

¹⁸See also Erlewine & Kotek (to appear) for additional evidence, not discussed here for space.

of focus intervention effects in (58b), though not (58c), reflects *covert movement* of the DP to ‘only.’¹⁹ In (58b), the DP ends up in a position higher than sentential negation, so the construction is well-formed. Conversely, in (58c), the focus intervener is DP-internal, so it gets pied-piped along with the rest of the DP, thus preserving the intervention configuration of (56).

(58) *Covert pied-piping of focus intervener yields ungrammaticality*

- a. I *only* read a book from THIS library.
- b. I *only* **didn’t** read a book from THIS library.
- c. *I *only* read **no** books from THIS library.

Finally, like Wagner (2006), Kotek & Erlewine observe that foci contained within islands must associate with the focus operator by pied-piping the entire island to the operator.²⁰ This accounts for the ungrammaticality of (59); the intervener within the complex DP pied-pipes along with the rest of the DP to associate with *only*.

(59) *Covert pied-piping of island-internal intervener is ungrammatical*

*I *only* read [**no** book [_{island} that Mary read _____ at SCHOOL]].

To sum up, Wagner (2006) and Kotek & Erlewine (2014) demonstrate that focus association takes place by movement of an F-marked element (or a constituent containing an F-marked element) to the focus operator. This creates a sisterhood relationship between the operator and the moved constituent. Crucially, this is exactly what we find in Kikuyu, as shown throughout §3. Thus, Kikuyu provides novel evidence for this approach to focus association, since in Kikuyu this movement is *visible*. Moreover, as I will discuss in §4.4, Kikuyu exhibits certain restrictions in the types of constituents that may undergo overt Undermerge to Foc^0 , that mirror the types of restrictions detailed above.

However, I will first introduce Cable’s Q-based theory of wh-questions and show that this system is essentially an External Merge counterpart to the movement-based approach to focus association advanced here.

4.3 Q theory

Finally, I contend that, as a mirror of focus association by Undermerge, focus association may also be achieved by *Externally Merging* a focus head above an F-marked element. Specifically, I argue that these options are complementary, though essentially equivalent, ways of deriving focus association. Both derivations yield a sisterhood relationship between a focus operator and the F-marked element.

4.3.1 The syntax/semantics of Q

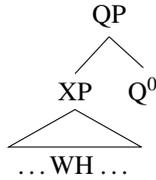
Focus association by External Merge is exemplified by Tlingit, according to the theory of wh-questions proposed by Cable (2007, 2010). Cable argues that wh-questions involve a wh-element distinct from interrogative C^0 , whose role is to mediate the semantic relationship between C^0 (the wh-operator) and the wh-word; this is the Q(uestion)-particle. In Tlingit (Na-Dene), the Q-particle is overtly realized,²¹ while it is null in languages like English. Thus, wh-movement takes place in two steps, as follows:

¹⁹It is worth noting that, while Erlewine & Kotek (2014) do not explicitly argue that covert movement targets the *complement* position of the focus operator, this is proposed in later work (Erlewine & Kotek to appear).

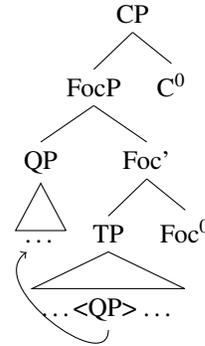
²⁰See also Erlewine & Kotek (to appear).

²¹Cable also cites Japanese and Sinhala as having overt Q-particles, following the analyses by Hagstrom (1998) and Kishimoto (2005), and extends his theory to these languages as well. However, this extension is omitted from the present paper due to space considerations.

(60) a. *Q projects over XP*



b. *QP moves to left periphery*



As shown above, the wh-word is dominated by a QP layer; wh-movement is really QP movement. Cable assumes an articulated CP, so that QP specifically targets Spec-FocP; there, it is c-commanded by the higher wh-operator, the interrogative C^0 (actually $Force_Q^0$, though I will henceforth refer to this head as ‘ C_Q ’). Apparent pied-piping is also reconceptualized as QP movement, as QP may dominate a constituent containing the wh-word, rather than immediately dominating the wh-word. Evidence for this approach comes from Tlingit, which allows a large amount of wh-containing material to be fronted along with the Q-particle *sá*, as in (61).

(61) *Tlingit: QP may dominate complex wh-containing constituents*

a. [[**daa**] **sá**] i éesh al’óon
 what Q your father he.hunts.it
 ‘What is your father hunting?’

b. [[**aadóo** yaagú] **sá**] ysiteen?
 who boat Q you.saw.it
 ‘Whose boat did you see?’

c. [[**wáa** kwligeysi *rel*] xáat *NP*] **sá** i tuwáa sigóo
 how it.is.big.REL fish Q your spirit it.is.glad
 ‘How big a fish do you want?’ (lit. ‘A fish that is how big do you want?’) (Cable 2010)

In (61a), Q Merges directly above the wh-word; in (61b), it Merges over the complex DP; finally, in (61c), it Merges over the entire relative clause DP. I will revisit this fact below, though I would like to flag, for now, the parallel between (61c) and the island data shown above.

In Cable’s system, the Q-particle is a focus-sensitive operator, loosely following Rooth (1985, 1992) and Beck (2006) as outlined above. Abstracting away from the details, Cable takes Q to be a variable over choice functions,²² to be existentially bound by the interrogative C_Q . As defended at length in Cable (2007, 2010), this system yields a set of propositions as the denotation of a wh-question.

The exact semantics of Cable’s system will not be important in this paper (and, in fact, Cable’s system has been modified in later work by e.g. Kotek (2014) and others). The takeaway of this discussion is that wh-questions are mediated by a Q-particle, a focus operator that composes with the focus semantic value of its complement.

4.3.2 Focus association as complementation

As already foreshadowed at various points in the paper, the LF structure illustrated in (60) is essentially the same as the structure resulting from moving a F-marked (or F-containing) element to the complement of a focus operator, although this parallel is not noted by Cable. Further evidence for this parallel comes from the detection of focus intervention effects within pied-piped constituents, following Sauerland & Heck (2003). As illustrated for German

²²A choice function takes a non-empty set as its argument and returns a member of that set. For example: $f(\{\text{Dave, John, Larry}\}) = \text{Larry}$. The semantics for Q provided by Cable follow previous work by Hagstrom (1998), Yatsushiro (2001).

in (62), intervention effects surface if there is a focus operator between the hypothesized position of the Q (null in German) and the wh-word:

(62) *German: Focus intervention between Q and wh-word*

- a. Fritz möchte wissen [**ein** wie schnelles Motorrad] du fahren darfst
 Fritz wants to.know a how fast motorbike you drive may
 ‘Fritz would like to know how fast a motorbike you are allowed to drive.’
- b. *Fritz möchte wissen [**kein** wie schnelles Motorrad] du fahren darfst
 Fritz wants to.know no how fast motorbike you drive may
Intended: ‘Fritz would like to know how fast no motorbike you are allowed to drive.’ (Sauerland & Heck 2003)

Recall that analogous facts were presented in §4.2 from Erlewine & Kotek (2014), which illustrated the ill-formedness of pied-piping a focus intervener with an F-marked element to the complement of a focus operator. This is the same effect as shown in (62), though this example is derived in Cable’s system by Externally Merging Q above the intervener-containing constituent. Both derivations yield the focus intervention configuration from §4.1, repeated again as (63); in this schema, the Q-particle is Op_1 while the focus intervener is Op_2 , pied-piped along to the clausal left periphery.

(63) *Focus intervention configuration*

*[Op_1 ... [Op_2 ... [XP_F]]]

To sum up, Cable (2007, 2010) proposes a theory of wh-question formation in which a focus operator, the Q-particle, mediates the relationship between a wh-word and interrogative C^0 by interacting with them both in turn. I pointed out certain parallels between Cable’s system, as exemplified by Tlingit, and the data discussed in §4.2, and argued that these parallels exist because they reflect equivalent ways of deriving focus association.

4.4 Kikuyu *nĩ* as Q

In this section, I extend the parallel established above to Kikuyu. Kikuyu displays empirical similarities with both systems discussed in §4.2 and §4.3 respectively. As noted above, Kikuyu displays overt Undermerge to Foc^0 , thus displaying the same process shown in §4.2 for English. Below, I demonstrate that *nĩ* in Kikuyu is a Q-particle in the sense of Cable (2007, 2010). The analysis of Kikuyu pursued in this paper thus provides a novel connection between focus association via covert movement and Cable’s Q-based system of wh-movement; these are unified as separate instantiations of the a single phenomenon.

First, recall that Tlingit allows QP movement of a variety of wh-containing constituents, repeated below as (64). As (65) demonstrates, Kikuyu displays the same kinds of constructions.

(64) *Tlingit: QP movement*

- a. [[**daa**] **sá**] i éesh al’óon
 what Q your father he.hunts.it
 ‘What is your father hunting?’
- b. [[**aadóo** yaagú] **sá**] ysiteen?
 who boat Q you.saw.it
 ‘Whose boat did you see?’
- c. [[[**wáa** kwligeyi *rel*] **xáat** *NP*] **sá**] i tuwáa sigóo
 how it.is.big.REL fish Q your spirit it.is.glad
 ‘How big a fish do you want?’ (lit. ‘A fish that is how big do you want?’) (Cable 2010)

- (65) *Kikuyu: Movement to Q*
- a. **nĩ** [**kĩĩ**] Mwangi a-ra-thom-a
 FOC what Mwangi 1SM-PROG-read-FV
 ‘What is Mwangi reading?’
- b. **nĩ** [irio cia muthemba **ũrĩkũ**] Mwangi a-rug-ir-e
 FOC food 8AGR.of type 14AGR.which Mwangi 1SM-cook-PST-FV
 What kind of dish did Mwangi cook?’
- c. **nĩ** [mũndũ [_{rel} end-et-e **ũũ**]] Mwangi on-ir-e
 FOC man 1SM.like-HAB-FV who Mwangi 1SM.see-PST-FV
 ‘Which *x* is s.t. Mwangi saw the man that likes *x*?’

While the examples in (64) and (65) contrast in two respects, I propose that these divergences reflect different settings of two parameters. First, as established above, complementation between the Q-particle and the wh-constituent is derived by External Merge of Q in Tlingit and by Internal Merge of the wh-constituent in Kikuyu. I assume that the choice between these options falls within Cable’s (2007, 2010) broader typology of Q. Second, the morpheme order of Q and its complement differ. However, this is simply an issue of head directionality—Tlingit is right-headed, so Q follows the wh-constituent, while Kikuyu is left-headed, so Q precedes the wh-constituent. In fact, that we find these respective morpheme orders (rather than the opposite orders) provides further support for the current approach. In §5, I will present data from other languages which also bear out this prediction.

Moreover, focusing on the examples in (64c) and (65c), notice that both Tlingit and Kikuyu allow matrix wh-questions to be formed out of island-internal wh-words by associating the entire island (in these examples, a relative clause adjoined to the relative head) with the Q-particle.²³ Below, we find that associating the wh-word directly with the Q-particle is impossible in both languages.

- (66) a. *Tlingit: No association out of islands*
 *[[**wáa sá**] kwligeyi [_{rel} **xáat**] i tuwáa sigóo
 how Q it.is.big.REL fish your spirit it.is.happy
 Intended: ‘How big a fish do you want?’ (Cable 2010)
- b. *Kikuyu: No movement out of islands*
 ***n-ũũ** Mwangi on-ir-e mũndũ [_{rel} end-et-e ___]
 *FOC-who Mwangi 1SM.see-PST-FV man 1SM.like-HAB-FV
 Intended: ‘Which *x* is s.t. Mwangi saw the man that likes *x*?’ (lit. ‘Who did Mwangi see the man that likes?’)

This additionally shows that Tlingit places restrictions on the External Merge of Q, which Cable (2007, 2010) accounts for by restrictions on Agree. This will be discussed in §5.

Kikuyu exhibits other properties that parallel what has been previously shown above. The focus intervention data from Erlewine & Kotek (2014) and Sauerland & Heck (2003), repeated here as (67)–(68), demonstrated that focus operators within (overtly or covertly) pied-piped constituents disrupt the semantic relationship between a higher focus operator and the lower F-marked element.

- (67) *English: No pied-piping of intervener to focus operator*
- a. *It’s [**no** book from THIS library] that John read.
 b. *I *only* read **no** books from THIS library. (Erlewine & Kotek 2014)

²³Another way to form this kind of wh-question in Kikuyu is to have no movement at all, i.e. in wh-in situ constructions. Parallel facts are seen in other Bantu languages, e.g. Shona (Zentz 2015).

(68) *German: No association between Q and focus intervener-containing constituent*

*Fritz möchte wissen [**kein** *wie* schnelles Motorrad] du fahren darfst

Fritz wants to.know no how fast motorbike you drive may

Intended: ‘Fritz would like to know how fast no motorbike you are allowed to drive.’ (Sauerland & Heck 2003)

Crucially, Kikuyu exhibits the same effect in the same configuration, (69). The focus intervener here is *o...tu* ‘only.’²⁴ The example in (69a) provides the control construction, which is grammatical without *o...tu* within the Undermerged constituent. However, (69b), which does contain *o...tu* (parallel to the examples in (68)), is ungrammatical. Finally, (69c) shows that a wh-word c-commanded by *o...tu* is *in principle* grammatical, as in wh-in situ constructions; it is ill-formed only if the wh-word is also c-commanded by a higher instance of *nĩ*.²⁵ More generally, these data show that Kikuyu *nĩ* is indeed a focus operator, as asserted earlier.

(69) *No pied-piping of intervener to nĩ*

a. nĩ [DP ũhorō wa Mwangi gũ-thamb-i-a **kĩĩ**] ũ-tũm-ir-e Njeri
 FOC matter 14.AGR.of Mwangi 15SM-clean-TRNS-FV what 14SM-cause-PST-FV Njeri
 ũru
 1.AGR.sad

Lit: ‘It’s Mwangi washing what that made Njeri sad?’

b. *nĩ [DP ũhorō wa Mwangi gũ-thamb-i-a o **kĩĩ** tu] ũ-tũm-ir-e
 FOC matter 14.AGR.of Mwangi 15SM-clean-TRNS-FV EXH what ONLY 14SM-cause-PST-FV
 Njeri ũru
 Njeri 1.AGR.sad

Intended: ‘It’s Mwangi only washing what that made Njeri sad?’

c. Mwangi a-thamb-i-a o **kĩĩ** tu
 Mwangi 1SM-clean-TR-FV EXH what ONLY
 ‘What did Mwangi only wash?’

Finally, the behaviour of island-internal wh-words suggest that Cable’s exact semantics for Q are extendable to *nĩ* in Kikuyu. Recall that Cable takes Q to be a variable over choice functions, bound by C_Q . Cable cites the behaviour of wh-indefinites in Tlingit as evidence for this particular treatment of Q. In Tlingit, wh-indefinites may behave like wide scope indefinites in that they are able to scope out of islands, as shown in (70).

(70) *Tlingit: Wide scope indefinites formed from wh-words*

a. **daa** **sá** xwasiteen
 what Q I.saw.it
 ‘I saw something.’

b. [**wáa** kunaaliyéi wugoodi **sáwé**] wé t’akwanéiyi du dix’kaadé sh k’awdligáy
 how it.is.far she.went Q.FOC this baby her back.on it.fussed
 ‘After she had gone **a certain distance**, the baby began to fuss on her back.’ (Nyman & Leer (1993), cited in Cable (2010))

The island-insensitivity of indefinites may not be captured under a QR-analysis, since QR (being covert movement) is sensitive to island constraints. The QR-analysis thus incorrectly predicts that island-internal indefinites may only scope as high as the edge of the island, though not out of it. On the other hand, the choice function analysis allows for wide scope readings of these indefinites, because choice function variables may be bound by their binders

²⁴See Branan (2015) for evidence that *tu* is at the vP level, despite its clause-final position.

²⁵As noted earlier, accounting for wh-in situ is outside of the scope of this paper. Thus, the example in (69c) is presented only for comparative purposes; no explanation for its grammaticality will be offered here.

regardless of the structural distance between the two (Reinhart 1997, ?, ?).²⁶

While I have not tested the behaviour of indefinites in Kikuyu, the choice function treatment of wh-questions seems to be independently needed to capture the following data in (71). The examples below demonstrate that, while wh-movement is impossible out of islands, (71a), it *is* possible to form matrix scope-taking wh-questions by *partially moving* a wh-word within an island, (71b-c).²⁷

(71) *Choice function treatment of partially moved wh-words derives matrix questions*

- a. ***nĩ kũ** Mwangi a-kũ-rug-a [*island* korwo Njeri nĩ-a-thamb-ir-i-e ____]
 FOC what Mwangi 1SM-FUT-cook-FV if Njeri FOC-1SM-clean-PST-TR-FV ____
Intended: ‘What will Mwangi cook if Njeri cleaned ____?’
- b. Mwangi a-kũ-rug-a [*island* korwo Kamau a-k-ug-a [_{CP} **nĩ kũ** Njeri
 Mwangi 1SM-FUT-cook-FV if Kamau 1SM-FUT-say-FV FOC what Njeri
 a-thamb-ir-i-e ____]]
 1SM-clean-PST-TR-FV ____
 ‘What Mwangi will cook if Kamau says that Njeri cleaned ____?’
- c. Mwangi a-kũ-rug-a [*island* korwo **nĩ kũ** Kamau a-k-ug-a [_{CP} Njeri
 Mwangi 1SM-FUT-cook-FV if FOC what Kamau 1SM-FUT-say-FV Njeri
 nĩ-a-thamb-ir-i-e ____]]
 FOC-1,-clean-PST-TR-FV ____
 ‘What Mwangi will cook if Kamau says that Njeri cleaned ____?’

While wh-in situ has been demonstrated to be insensitive to islands in previous literature (Reinhart 1992, Rooth 1996, Cole & Hermon 1998, Pesetsky 2000, Zentz 2015) and is often assumed to take matrix scope via the unselective binding properties of matrix C^0 , *partial movement* has not been known to exhibit such properties (to my knowledge). Yet, that is what we find in Kikuyu. The grammaticality of (71b-c) is easily captured by the choice function analysis, which allows the Q particle *nĩ* to be bound long-distance by matrix C_Q .

To summarize, Kikuyu provides evidence for the unification of Cable’s (2007, 2010) Q-based system of wh-questions and focus association by covert movement, as the behaviour of focus-related movement to Foc^0 in Kikuyu displays clear parallels with both. I showed that Kikuyu *nĩ* behaves like a Q particle. Undermerge to *nĩ* in Kikuyu seems to obey syntactic restrictions that recall the restrictions on the External Merge of Q in a language like Tlingit; moreover, the semantics of *nĩ* in Kikuyu are reminiscent of that proposed by Cable.

4.5 Summary

In this section, I demonstrated that association with focus operators takes place by establishing a sisterhood relationship between the focus operator and an F-marked element (or a constituent containing an F-marked element). Moreover, this section established two ways in which this complementation may take place: either by Externally Merging a focus operator over the F-marked element or by Undermerge—Internally Merging an F-marked/F-containing element to the complement position of the focus operator.

Whether a given language exhibits one option or the other is subject to cross-linguistic variation. The first option is instantiated by Tlingit, following Cable (2007, 2010), and the second option is instantiated by Kikuyu

²⁶As a concrete example, the ambiguous construction in (i) from Reinhart (1997) may be derived by inserting the existential binder either at the edge of the adjunct clause or at the matrix level. The ability to do the latter is what allows *some woman* to be interpreted as a wide scope indefinite.

(i) *Choice function analysis of indefinites*

If **some woman** comes to the party, John will be glad.

a. $\exists f [CH(f) \ \& \ [come \ (f(woman)) \ \rightarrow \ glad(John)]]$

b. $[\exists f [CH(f) \ \& \ [come \ (f(woman)) \] \ \rightarrow \ glad(John)]$

(Reinhart 1997)

²⁷Leaving the wh-phrase in situ inside the island is also possible.

(overtly) and English (covertly). This section thus also provides evidence from Kikuyu for the unification of Cable’s Q-based system of wh-movement and the covert movement-based system of focus association proposed by Wagner (2006), Erlewine & Kotek (2014), and others.

However, we are left with an outstanding puzzle. Cable’s (2007, 2010) system aims to eliminate the notion of *pied-piping*—movement of a constituent containing an F-marked element—from the grammar. However, the existence of such movement is exactly what this paper argues for, on the basis of Kikuyu, and following the previous literature on focus association by movement. Addressing this issue will be taken up in §5 below. I will suggest that the pied-piping data shown throughout this paper do not counterexemplify Cable’s claims, but are actually orthogonal to them—pied-piping is recast under the current system as also due to the c-selectional requirements of the Q particle.

5 C-selection and pied-piping

This section addresses the puzzle posed at the end of the previous section. Under Cable’s (2007, 2010) theory of wh-questions, pied-piping is recharacterized as QP movement. Because Q may Merge above a constituent *properly containing* a wh-element, this results in the appearance of pied-piping (especially in languages in which Q is null, e.g. English). However, the Undermerge analysis given for Kikuyu (as well as the English focus association phenomena discussed in §4.1-2), is *prima facie* not entirely compatible with this treatment of pied-piping. Crucially, Undermerging an F-containing constituent to Q (i.e. pied-piping non-focused material to Q) is exactly what should be *ruled out* by Cable’s theory, since this revives the original problem of pied-piping.

While this problem is not solved in this paper, I nonetheless suggest that, while Cable (2007, 2010) is correct in his analysis of standard pied-piping (namely, that it is always QP movement), Cable’s current system also somewhat underdevelops the syntactic relationship between Q and its complement. In various languages, including Tlingit, there are categorical restrictions on what Q is able to Merge with. Moreover, the syntactic restrictions on Undermerge in a language like Kikuyu parallel restrictions seen in other languages in which Q is Externally Merged above an F-marked element, again suggesting a uniformity between Internal Merge to complement and typical External Merge.

Following Rizzi (2008), Donati & Cecchetto (2011), Müller (2015), and others, I suggest that c-selection—that is, the operation driving complementation between a head and its selectee—is *Agree-driven*. In cases of External Merge, a probing head H^0 in the workspace is Merged into the syntax once it undergoes Agree with the existing structure. In cases of Undermerge, both H^0 and its goal are in the existing structure. More broadly, this approach advocates for the parity of External Merge and Internal Merge as nearly identical operations.

This section is organized as follows. In §5.1, I demonstrate that $n\bar{i}$ in Kikuyu may *only* take complements of category D or Σ , and connect this observation with the broader notion that c-selection may be reduced to a special kind of Agree. In §5.2, I show that such category-related restrictions are pervasive in focus association cross-linguistically. Finally, §5.3 provides some discussion of the status of pied-piping, in light of Cable’s (2007, 2010) Q-based theory of wh-movement.

5.1 C-selectional restrictions in Kikuyu

Throughout this paper, I provided various examples of focus association in Kikuyu. As illustrated below, it turns out that there are syntactic restrictions on the types of elements that are able to Undermerge to Foc^0 . First, as repeated from various earlier points, Kikuyu allows F-marked DPs to Undermerge, (72a), as well as complex DPs *containing* an F-marked element, (72b). Moreover, as discussed in §3.3, the polarity head Σ^0 may also associate with $n\bar{i}$, (72c).

(72) *Undermerge of DPs and Σ^0*

- a. $n\bar{i}$ [$k\bar{i}\bar{i}$] Mwangi a-ra-thom-a
 FOC what Mwangi 1SM-PROG-read-FV
 ‘What is Mwangi reading?’

- b. **nĩ** [irio cia muthemba **ũrĩkũ**] Mwangi a-rug-ir-e
 FOC food 8AGR.of type 14AGR.which Mwangi 1SM-cook-PST-FV
 'What kind of dish did Mwangi cook?'
- c. mwana **nd**-a-gũ-thom-a ibuku
 child NEG 1-1SM-FUT-read-FV book
 'The child will not read the book.'

However, a survey of a wider range of data reveals that *only* elements of category D and Σ may Undermerge to Foc^0 in Kikuyu. For instance, Kikuyu disallows the pied-piping of prepositions; prepositions must be stranded, (73).

(73) *Only Undermerge of DPs and Σ permitted*

- a. nĩ **mũrutwa** **ũrĩkũ** mwarimũ arĩ-ir-i-e na ____
 FOC student 1.which teacher 1SM.talk-PST-TR-FV with
 'Which student did the teacher talk with?'
- b. *nĩ **na** **mũrutwa** **ũrĩkũ** mwarimũ arĩ-ir-i-e ____
 FOC with student 1.which teacher 1SM.talk-PST-TR-FV
 Intended: 'Which student did the teacher talk with?'

This generalization is also illustrated in (74), which shows that narrow verb focus association necessitates first nominalizing the fronted verb (as indicated by Halpert (2016) on Zulu, nominalized or gerundive verbs in Bantu appear infinitival and take class 15/17 morphology).²⁸

(74) *Narrow verb focus requires nominalization*

- ndi-na-gũr-a nguo ñno, **nĩ-[kũ-hoy-a]**
 NEG.FOC.1SG.SM-PST-buy-FV dress 9.AGR.DEM, FOC-15SM-borrow-FV
 ndĩ-mĩ-hoy-ir-e
 FOC.1SG.SM-9.OM-borrow-PST-FV
 'I didn't buy this dress, I BORROWED it.'

Finally, when F-marked elements (regardless of category) are contained within a larger DP, this results in *obligatory pied-piping* of that DP. Only the F-containing DP may Undermerge; as the examples below demonstrate, it is not possible to directly extract these F-marked elements, stranding the rest of the DP.

(75) *F-marked DP-internal adjective requires fronting DP*

- a. nĩ [_{DP} ngari **ndune**] Mwangi a-gũr-ir-e, ti njirũ
 FOC car red Mwangi 1SM-buy-PST-FV, NEG.COP black
 'Mwangi bought a RED car, not a blue one.'
- b. *nĩ **ndune** Mwangi a-gũr-ir-e [_{DP} ngari ____] ...
 FOC red Mwangi 1SM-buy-PST-FV car
 Intended: 'Mwangi bought a RED car, not a blue one.'

(76) *F-marked DP-internal DP requires fronting complex DP*

- a. nĩ [_{DP} ngari ãrĩa ã mwena wa **ũmotho**] ti ãrĩa ã mwena wa ãrĩo
 FOC car 9.REL 9.COP side 14.of left NEG.COP 9.REL 9.COP side 14.of right
 'Mwangi bought the car on the LEFT, not the car on the right.'

²⁸In this example, the fronted nominalized verb doubles a fully inflected verb in situ. See e.g. Landau (2006) for one approach to such constructions cross-linguistically.

- b. *nĩ **ũmotho** Mwangi a-gũr-ir-e [DP ngari ĩrĩa ĩĩ mwena wa ___] ...
 FOC left Mwangi 1SM-buy-PST-FV car 9.REL 9.COP side 14.of
 Intended: ‘Mwangi bought the car on the LEFT, not the car on the right.’
- c. *nĩ **mwena wa ũmotho** Mwangi a-gũr-ir-e [DP ngari ĩrĩa ĩĩ ___] ...
 FOC side 14.of left Mwangi 1SM-buy-PST-FV car 9.REL 9.COP
 Intended: ‘Mwangi bought the car on the LEFT, not the car on the right.’

(77) *F-marked DP-internal DP requires fronting complex DP*

- a. nĩ [DP mũhuhu ũkonĩĩ **Mwangi**] Kamau a-igw-ir-e, ti ũkonĩĩ Njeri
 FOC rumour concerning Mwangi Kamau 1SM-hear-PST-FV NEG.COP concerning Njeri
 ‘Kamau heard a rumour about Mwangi, not Njeri.’
- b. *nĩ **ũkonĩĩ Mwangi** Kamau a-igw-ir-e [DP mũhuhu ___], ti ũkonĩĩ Njeri
 FOC concerning Mwangi Kamau 1SM-hear-PST-FV rumour NEG.COP concerning Njeri
 ‘Kamau heard a rumour about Mwangi, not Njeri.’
- c. *nĩ **Mwangi** Kamau a-igw-ir-e [DP mũhuhu ũkonĩĩ ___], ti ũkonĩĩ Njeri
 FOC Mwangi Kamau 1SM-hear-PST-FV rumour concerning NEG.COP concerning Njeri
 ‘Kamau heard a rumour about Mwangi, not Njeri.’

While it is unclear why Kikuyu exhibits these particular restrictions, the generalization is nonetheless clear: Foc^0 only attracts phrases of category D to its complement position (and, otherwise, Σ^0). I argue that this may be recast as *c-selectional restrictions* between a head and its complement. That is, there is a syntactic restriction on focus association that determines the types of constituents that may associate with focus. In Kikuyu, Foc^0 c-selects for D and Σ . In the examples in (76)-(77), in which the F-marked element is contained within a DP, this triggers pied-piping.

That focus association by Undermerge is sensitive to c-selectional considerations accords with similar explanations for the existence of Undermerge offered by McCloskey (1984) and Pesetsky (2007, 2013): movement to complement satisfies the selectional requirements of the movement-triggering head. More broadly, this approach supports an Agree-driven view of c-selection between a head and complement, since Undermerge to Foc^0 in Kikuyu is demonstrably Agree-based (§2.2). Interestingly, such a treatment of c-selection has also been proposed for External Merge by e.g. Rizzi (2008), Donati & Cecchetto (2011), and Müller (2015), wherein a head H^0 in the workspace must Agree with a root phrase in the existing derivation in order to be Merged into the structure. This, in turn, advocates for an equivalency between External Merge and Internal Merge (movement) to complement position: both types of Merge form the same structural configuration between the probe and goal. Additionally, as I will show below with focus association cross-linguistically, both types are subject to the same kinds of categorical restrictions.

5.2 C-selectional restrictions on focus association cross-linguistically

In addition to the Kikuyu data presented above, there is cross-linguistic evidence for the aforementioned parity of External Merge and Internal Merge to complement position. Specifically, other languages also display c-selectional restrictions between the focus morpheme and its complement in focus association, whether complementation is derived by Undermerge or by Externally Merging the focus morpheme above an F-marked element. I illustrate with Turkish and Navajo, drawing on work by Özyıldız (2015, to appear) and Bogal-Allbritten (2013, 2014) respectively.

Starting with Turkish, Özyıldız (2015, to appear) argues that the particle *mI* is always hosted in a functional head above TP and that it triggers phrasal movement to it in focus association; this is similar in spirit to my analysis of Kikuyu.²⁹ Evidence for movement to *mI* comes from scope; Özyıldız observes that certain phrases,

²⁹Specifically, Özyıldız (2015, to appear) takes movement to target the specifier of the head hosting *mI*, based on the ability of the moved constituent to bind a lower anaphor. While he argues that this is not predicted by complement-forming movement to *mI*, I point out that Kikuyu allows Undermerged constituents to bind lower anaphora as well. Moreover, the morpheme order is compatible with both movement to specifier and movement to complement, given that Turkish is head-final. I believe that there is a broader discussion to be had

e.g. universal quantifiers, associated with *mi* obligatorily take wide scope with respect to clausemate negation, though these phrases are otherwise most naturally narrow scope.

While the surface position of *mI* is somewhat free (see below), Özyıldız points out that there are certain positions in which it may not occur, for instance between an adjective and the modified nominal, as well as between P⁰ and its DP complement. In the examples below, these restrictions hold even though the adjective is F-marked in (78) and the DP complement is F-marked in (79), as indicated by the stress accents.

(78) *Turkish: mI cannot intervene between adjective and noun*

a. *Can [_{DP} [sárı **m**ı] muz-u] yedi
 Can yellow PQ banana-ACC ate
 Intended: ‘Did Can eat the YELLOW banana?’ (or the green one?)

b. Can [_{DP} sárı muz-u] **m**u yedi
 Can yellow banana-ACC PQ ate
 ‘Did Can eat the YELLOW banana?’ (or the green one?)

(Özyıldız 2015)

(79) *Turkish: mI cannot intervene between P and DP*

a. *Tunç [_{PP} [arabá **m**ı] için] gel-di
 Tunç car PQ for came
 Intended: ‘Did Tunç come for the CAR?’

b. Tunç [_{PP} arabá için] **m**i gel-di
 Tunç car for PQ came
 ‘Did Tunç come for the CAR?’

(Özyıldız to appear)

In other cases, *mI* is used to create polar questions:

(80) *Turkish: mI in polar questions*

Tunç (**m**u) dün (**mü**) araba al-dı (**m**ı)
 Tunç PQ yesterday PQ car bought PQ
 ‘Did Tunç buy a car yesterday?’

(Özyıldız to appear)

I suggest that the behaviour of Turkish *mI* is parallel to that of Kikuyu *nĩ*. First, both morphemes are used to encode by polar questions and focus. Second, both morphemes trigger pied-piping of F-containing constituents if the F-marked element within that constituent may not be subextracted. However, in Turkish, elements of categories Σ , D, and P may associate with *mI*, whereas in Kikuyu only the former two may do so. Presumably, the kinds of categories that a given head may c-select for are subject to cross-linguistic variation.

Turning to Navajo, Bogal-Allbritten (2013, 2014) shows that the language has a focus-sensitive modal morpheme, *daats’í*, which gives rise to polarity association and constituent association. This is illustrated below:

(81) *Navajo: Polarity and DP association*

a. *Context: You don’t know if it is raining or not. You say:*
 nahałtin **daats’í**
 3S.rain **DAATS’Í**
 ‘I wonder if it’s raining.’ or ‘Maybe it’s raining, or maybe not.’ or ‘Is it raining?’

about binding domains of Undermerged constituents, to be left for future research.

- b. *Context: You see your coworker Mary taking some pain pills. Something is definitely hurting her. It might be her stomach that hurts, or maybe her head, or maybe her back. You say:*
 Mary bibid **daats'í** diniih
 Mary 3POSS.stomach **DAATS'í** 3S.hurt
 'It might be Mary's stomach that hurts (or it might be her head).' *or* 'Is it Mary's stomach that hurts?
 (Or is it her head...)'

Bogal-Allbritten argues that *daats'í* in Navajo is a focus sensitive operator with an additional modal meaning encoded in it, which may associate with either a polarity head (Σ^0) or a DP. This, again, is reminiscent of the Kikuyu data presented above. However, whereas focus association in Kikuyu involves movement to the focus operator, Bogal-Allbritten assumes that *daats'í* Externally Merges with a phrase of category D or a Σ . If this is the correct approach, then Navajo may be viewed as a mirror of Kikuyu and Turkish. The same selectional constraints restricting what may Undermerge to a focus head in Kikuyu and Turkish determines where the focus morpheme may Externally Merge in Navajo.

Below, I extend this approach to Tlingit.

5.3 Revisiting pied-piping

As detailed in §4, Cable (2007, 2010) analyzes the morpheme *sá* in Tlingit as a Q particle Merged above a wh-word; wh-movement is recharacterized as QP movement and pied-piping is recharacterized as QP movement when Q^0 c-commands non-wh-material in addition to the wh-word.

Cable proposes that where Q may be Merged is subject to certain syntactic restrictions. Specifically, in Tlingit, it may *not* be Merged between a functional head and its c-selectee; however, Q may be Merged anywhere else, e.g. between a lexical head and its selectee or above any adjuncts. Cable argues that this 'QP-intervention' treatment accounts for the range of pied-piping options in Tlingit, as given below. In (82a), Q is Merged above a DP; in (82b), the constituent is a PP; in (82c), it is a subordinate CP.

(82) *Tlingit: Q may Merge over various constituents*

- a. [_{DP} aadóo yaagú] **sá** ysiteen
 who boat Q you.saw.it
 'Whose boat did you see?'
- b. [_{PP} aadóo teen] **sá** yeegoot
 who with Q you.went
 'Who did you go with?'
- c. [_{CP} Goodéi wugoot_x] **sá** has oowajée i shagóonich
 where.to he.went Q they.think your parents.ERG
 'Where do your parents think he went?' (Cable 2010)

Interestingly, if we abstract away from the *size* of the pied-piped constituents and examine instead the categories of the phrases that Q^0 may Merge with, the only categories attested are D, P and (subordinate) C.³⁰ Cable's intervention-based approach thus appears to overgenerate, as various other positions of Q that do not intervene between a functional head and its selected complement are nonetheless absent.

I suggest, instead, that where Q may surface in Tlingit is constrained by similar c-selectional restrictions as those seen in Kikuyu and other languages: Q may Merge over phrases whose categories it c-selects for. This alternative approach makes a different set of predictions for Tlingit, though it is unclear at this time whether these predictions are empirically borne out. Generally, it is much more restrictive than Cable's system, since it prevents Q from Merging with anything that is not of the categories listed above. For example, while Cable's system allows Q^0 to Merge with all adjuncts, the current approach rules this out if the adjunct is not of the right syntactic category.

³⁰Cable (2007, 2010) points out that that, unlike in other languages in which the Q particle is used in both polar and wh-questions, Tlingit *sá* must co-occur with a wh-word. In polar questions, a different particle *gé* is used.

If this is a plausible analysis of Tlingit, then Tlingit fits straightforwardly with the typology set up in this paper. Like the other languages mentioned, focus association in Tlingit—which takes place by External Merge of a focus morpheme, the Q particle—is c-selectionally constrained.

This, in turn, results in a somewhat amended view of the phenomenon of pied-piping. Contra Cable (2007, 2010), pied-piping is *not* necessarily QP movement, per se; rather, pied-piping takes place when Q c-selects for an XP of a particular category, and that XP happens to dominate a wh-word or otherwise F-marked element. In a language like Tlingit, because Q^0 is Merged with a wh-word in situ and then projects, wh-movement is QP movement. However, in an Undermerge language like Kikuyu, locality constraints on Agree triggers movement of the first focused DP that Foc^0 encounters. Pied-piping occurs when this DP dominates an F-marked element.

6 Conclusion

In Kikuyu, wh-movement and focus-fronting are derived by Undermerge—movement to complement—to Foc^0 , headed by the focus operator *nĩ*. From this point, this paper makes two related contributions.

The first is an argument for the existence of movement-to-complement as a viable operation (and configuration) that exists alongside movement-to-specifier, following Pesetsky (2007, 2013). As a corollary to this, the Extension Condition of Chomsky (1995) must be replaced with a weaker condition, e.g. featural cyclicity, that rules out true countercyclicity but nonetheless does not require that the root of the tree be extended by every operation. Following McCloskey (1984) and Pesetsky (2007, 2013), I proposed that Undermerge takes place to satisfy the c-selectional requirements of a probing head, and that it is the mirror image process of External Merge, which is also selectionally constrained.

The second point concerns the syntax of focus association. This paper proposes that focus association always requires a particular syntactic configuration in which focus operator and a constituent containing a F-marked element form a sisterhood relationship. Cross-linguistically, this may be instantiated by (overtly or covertly) Internally Undermerging the constituent to the focus operator, or by Externally Merging the focus operator above the constituent.

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