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Change-of-state Paradigms and the Middle in Kinyarwanda

Abstract: This article investigates the derivational relationships among members of verbal paradigms in Kinyarwanda (Bantu JD61; Rwanda) by pursuing two interrelated goals. First, I describe a variety of derivational strategies for marking transitive and intransitive variants in change-of-state verb paradigms. Second, I focus on the detransitivizing morpheme *–ik* which serves as one possible marking for intransitive members of these paradigms. Ultimately, I argue that this morpheme is a marker of middle voice, and the variety of readings which appear with this form can be subsumed under a single operation of argument suppression. Finally, I provide a discussion of reflexives and the apparent lack of a reflexive reading with *–ik* by arguing that this reading is blocked by either lexical reflexives or the reflexive prefix *i–*.

Keywords: valency-changing morphology, argument structure, verb meaning, syntax-semantics interface

1 Introduction

Work on valency-changing morphology in the Bantu languages has generally focused on morphology which increases valence, such as applicatives (Bresnan & Moshi 1990, Alsina & Mchombo 1993, Ngonyani & Githinji 2006, Jerro 2015, Pachiarotti 2017) and causatives (Cooper 1976, Simango 1999, Mwangi 2001, Hyman 2003, Muriungi 2009, Jerro 2017a). What has received comparably less attention until recently has been types of morphology which decrease the valency of the clause. This article contributes to the filling of this gap by providing a description of derivational strategies for relating paradigm members in change-of-state paradigms in Kinyarwanda (JD61; Rwanda). After a description of these different strategies in the language, I then focus on one such strategy: the morpheme *–ik*. This form — traceable to Proto-Bantu — has been called by several names in the literature on Bantu, such as *neuter, medio-passive, derived intransitive, stative,* and *neuter passive* (Meeussen 1967, Schadeberg 2003, Dom et al. 2017, this volume). Broadly speaking, there exist (at least) three different types of readings associated with *–ik*

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in Kinyarwanda, which I refer to as *potential*, *stative*, and *inchoative*, given in (1), (2), and (3), respectively.[1]

(1) Iki   gi-kombe cy-a-men-ek-a.
    7.this 7-cup   7S-COND-break-NEUT-IPFV
    'This cup might break.'   "Potential"

(2) Igi-kombe ki-ra-men-ets-e.
    7-cup   7S-NON.PST-break-NEUT-PFV
    'The cup is broken.'   "Stative"

(3) Iki   gi-kombe cy-a-men-ets-e.
    7.this 7-cup   7S-PST-break-NEUT-PFV
    'This cup broke.'   "Inchoative"

Studies on cognates of *–ik* in other Bantu languages have analyzed the morpheme as a detransitivizer (see, e.g., Mchombo 1993), though some have assumed the various readings were linked to two homophonous morphemes: one deriving statives and one creating derived adjectives (Dubinsky & Simango 1996:760-763). Subsequent work has instead treated *–ik* as a marker of middle voice in Swahili (Seidl & Dimitriadis 2003) and as one of various strategies for making middle voice across Bantu languages (Dom et al. 2017). To date, no work has investigated the morpheme *–ik* in its own right in Kinyarwanda, nor has any study looked at middle voice in the language.

I present a semantic analysis of *–ik*, implementing the treatment of middle voice from Beavers & Udayana (2018) who analyze the middle as a voice category that marks a mismatch between the syntax and semantics. I claim that all the readings of *–ik* follow from a single semantics (pace Dubinsky & Simango 1996), and that the lexical meaning of the verb as well as the tense and aspect of the clause conspire to partially determine which reading arises in a particular instance.

The article proceeds as follows. In the next section I lay out a brief discussion of the conventions that will be used in this article to represent the Kinyarwanda data. In Section 3 I outline the various strategies for marking transitivity alternations in change-of-state paradigms in Kinyarwanda. In Section 4 I provide a preliminary description of the various readings of the morpheme *–ik* in Kinyarwanda. In Section 5 I situate the discussion of *–ik* within work on middle voice, and I argue that the different readings are subsumed under one general analysis of middle-marking. From this, I discuss reflexive verbs and reflexive morphology in the language in Section 6, and I argue that inherent reflexives and reflexive morphology block the use of *–ik* in these cases. I conclude in Section 7 with various points for future research.

2 Kinyarwanda Orthography and Morphophonology

Before turning to the descriptive and theoretical discussion of change-of-state paradigms and verbal derivation in Kinyarwanda, I first discuss various components of Kinyarwanda morphophonology which are pertinent to the data that are presented in the present article.

Kinyarwanda exhibits a synchronic version of Dahl's law wherein there is dissimilation in voicing between certain syllable-initial consonants. This generally affects prefixes that come before the verb root, especially subject, object, and infinitive markers. For example, while the infinitive *ku–* arises as a voiceless velar stop in *ku-vuna* 'to break, snap', it is voiced with verbs for which the first consonant of the root is voiceless, such as *gu-kunda* 'to love'. In prose, a mention of a particular Kinyarwanda verb will include the infinitival prefix, which may arise as one of the following allomorphs: *ku–*, *gu–*, *kw–*, or *k–*. The infinitive and the verb root are separated by a dash and are associated with a translation given by the consultants interviewed for this project (with supplemental discussion from dictionary definitions provided where relevant).

Many suffixes are subject to vowel harmony. For example, the causative-instrumental suffix surfaces as *–ish* or *–esh* depending on the height of the vowel in the preceding syllable. When the preceding vowel is high or low, *–ish* is used, otherwise *–esh* is used. The morpheme *–ik* or *–ek*, which is the main point of discussion for the latter half of the article, is subject to the same conditioning factors with respect to vowel harmony.

Kinyarwanda verbs are marked with a final vowel, which — typical of Bantu — indicates tense and aspect. While I do not delve into the semantics of these suffixes, the suffix *–(y)e* corresponds to various readings that can be described as perfect, perfective, and result (see, e.g., Botne 1983, 2010, Crane 2012); I will refer to this form as a perfective.[2] Morphophonologically, this suffix triggers spirantization of the preceding consonant as well as various other consonant mutations (conditioned by the final consonant of the verb root), and has various allomorphs (*–ye*, *–iye*, *–eje*). I do not give a full account the determining factors here, but most relevant for this discussion is that it often affects the realization of the morpheme *–ik*, given this suffix's position in the verbal complex. Specifically, the presence of the perfective suffix changes the velar consonant of *–ik* to *ts* (consistent with the general pattern in the language of [k] changing to [ts] in contexts which trigger spirantization). Given spirantization and vowel harmony, there are thus four possible allomorphs of the morpheme in Kinyarwanda: *–ik*, *–ek*, *–its*, and *–ets*.

The data in this article are provided in standard Kinyarwanda orthography, and these have been confirmed during interviews with native speaker consultants. Kinyarwanda orthography, however, obscures some details of the phonology, though none of the facts here are affected by these processes. There are three specific points that are particularly relevant to mention. First, the past tense vowel is not represented when the verb stem begins with a vowel (which is appropriate since this vowel is not pronounced, though compensatory lengthening and other phonological operations may arise). In order to track when there is an underlying past tense morpheme, I include a null form, but this is not to be confused with a true null morpheme (i.e., the marking of the past via the absence of a morpheme).

Second, in sentences with a conditional reading, speakers produced what to my ears sounds like a long [aː] in the preverbal tense slot (see Section 4.1), and it is represented orthographically in the same way as the past tense morpheme $a-$. To my knowledge, there has been no mention of a conditional marker in Kinyarwanda in previous work on the language. While it is not clear what the semantics of this form is, it is phonologically distinct from the past tense $a-$ in that this putative conditional has a long vowel quality. I leave it to future work to further describe this form. I gloss this morpheme in the following discussion as COND.

Finally, Kinyarwanda has tone distinctions which, among various other lexical and grammatical distinctions, determines the distance in the past. Roughly, a high tone on the past tense morpheme indicates past events that correspond to time before the present day, while a low tone indicates a past time that is within the present day (see Botne 1983 for an in-depth discussion). Given that each of the sentences discussed here can arise in either the recent or distant past by changing the tone associated with the past tense morpheme — and that Kinyarwanda standard orthography does not indicate tone — I leave it unmarked in the data presented here.

3 Derivational Strategies in Change-of-State Paradigms

I now turn to discussing the paradigms of change-of state as a means of investigating the derivational relationships between paradigm members (Nedjalkov 1969, Haspelmath 1993, Alexiadou et al. 2006, Koontz-Garboden & Beavers 2016, a.o.). These paradigms relate a simple state (a state which carries no entailment of change), result state (a state which does entail a change), inchoative (an intransitive eventive verb that describes a change of state), and a causative (a transitive eventive verb that describes a change of state). A crucial feature of Kinyarwanda is that the

vast majority of states are described by verbs, and further, there is no derivational relationship between the simple state, result state, and inchoative members of a given paradigm. Instead, root meaning and inflectional morphology disambiguate the paradigm members. Consider the paradigm of *gu-tyara* 'to be(come) sharp'. The simple state, inchoative, and result state in (4) – (6) have the same morphological root, i.e., the verbal root –*tyara* [t͡cara] (note that the perfective suffix affects the nature of the final consonant of the root in the following examples).

(4) Icy-uma ki-ra-tyay-e.
     7-knife   7S-NON.PST-sharp-PFV

     'The knife is sharp.'   (Simple State Reading)

(5) Icy-uma cy-a-tyay-e.
     7-knife   7S-PST-sharp-PFV

     'The knife sharpened.'   (Inchoative Reading)

(6) [Context: In a scenario where the speaker has witnessed a knife being sharpened.]

     M-perez-a   icy-uma gi-tyay-e.
     1SGO-hand-IPFV 7-knife   7.SBJ-sharp-PFV

     'Hand me the sharpened knife.'   (Result State Reading)

The causative differs in the morphological shape of the root, namely the labile *gu-tyaza* [gut͡caza] 'to sharpen' in (7).

(7) Umu-gabo a-ri   gu-tyaz-a   icy-uma.
     1-man   1.SBJ-COP INF-sharpen-FV 7-knife
     'The man is sharpening the knife.'   (Causative Reading)

The example of the *gu-tyara/gu-tyaza* 'sharp/sharpen' paradigm is typical of the preference in the language to mark simple-result-inchoative separately from the causative. As will be discussed below, this pattern is pervasive in the language regardless of the direction of derivation between the causative and simple-result-inchoative markings.

3.1 Disambiguating statives and inchoatives

There is no derivational marking between the inchoative and stative members of the paradigms (nor between result state and simple state members), and so the tense and aspect morphology marked on the verb is what distinguishes the inchoative from the stative reading. For example, with the past inchoative, the

tense is one of various past-tense forms, such as *a–* or *ara–* (determined by a distinction in conjoint/disjoint, which I do not discuss here; see Ngoboka & Zeller 2017), combined with a perfective or imperfective aspect morpheme; in the present, the inchoative appears with the present progressive. The stative readings (in the present) are marked with the non-past morpheme *ra–* and the perfective aspect suffix *–(y)e*. The table in (3.1) is not intended to be an exhaustive representation of tenses and aspects in Kinyarwanda, but rather an overview of the frames that appear in the present article.

Tense	Gloss	Aspect	Gloss	Reading
á–	'dist. past'	*–(y)e*	'perfective'	distant past inchoative
a–	'recent past'	*–(y)e*	'perfective'	recent past inchoative
ra–	'non past'	*–(y)e*	'perfective'	present stative
ra–	'non past'	*–a*	'imperfective'	present progressive or hodiernal future

As an example, consider the verb *ku-ryoha* 'to be(come) sweet'. In (8), the combination of the non-past tense and perfective aspect mark a present stative reading; in (9), the past tense and perfective aspect mark a past inchoative reading.

(8) Ubu-ki bu-ra-ryoshy-e.
14-honey 14.SBJ-NON.PST-sweet-PFV

'The honey is sweet.' (stative)

(9) Umu-vinyo w-a-ryoshy-e.
3-wine 3.SBJ-PST-sweet-PFV

'The wine became sweet.' (inchoative)

One way of bringing out these intuitions is the persistive morpheme *cya–* 'still' (see Nurse 2008:146), which I assume describes a non-completed state of affairs and not an event which is already complete (cp. the use of *immer noch* 'still' in German; Kratzer 2000). The persistive should be available in cases where the state still holds (or when the event has not yet been completed, such as in the present progressive), and *cya–* should be out in cases where there is a completed change, such as with inchoatives. This expected pattern is borne out; the statives in the (a) sentences are acceptable, while the inchoatives in the (b) sentences are infelicitous.[3]

(10) a. N-da-cya-rakay-e.
1SG.SBJ-NON.PST-PERS-angry-PFV

'I am still angry.'

b. #N-a-cya-rakay-e.
1SG.SBJ-PST-PERS-angry-PFV

Intended: 'I was still angry.'

(11) a. Mudasobwa i-ra-cya-men-ets-e.
          9.computer 9.SBJ-NON.PST-PERS-break-NEUT-PFV
          'The computer is still broken.'

     b.#Mudasobwa y-a-cya-men-ets-e.
          9.computer 9.SBJ-PST-PERS-break-NEUT-PFV
          Intended: 'The computer was still broken.'

Further evidence of the contrast between the stative and inchoative comes from the inability of states to co-occur with the modifier *vuba* 'quickly', which I assume is only compatible with events. For example, in (12a) and (12b), *vuba* 'quickly' is infelicitous with verbs marked in the present stative.

(12) a.#In-zu   i-ra-senyuts-e   vuba.
        9-house 9.SBJ-NON.PST-destroy-PFV quickly
        # 'The house is destroyed quickly.'

     b.#I-vi   ri-ra-vun-its-e   vuba.
        5-knee 5.SBJ-NON.PST-break-NEUT-PFV quickly
        #'The knee is broken quickly.'

This contrasts with inchoatives; these do permit the modifier *vuba* 'quickly', which is expected given that they describe an event.

(13) a. In-zu   y-a-senyuts-e   vuba.
        9-house 9.SBJ-PST-destroy-PFV quickly
        'The house got destroyed quickly.'

     b. Igi-kombe cy-a-men-ets-e   vuba.
        7-cup   7.SBJ-PST-break-NEUT-PFV quickly
        'The cup broke quickly.

The infelicity of the prefix *cya–* with the combination of tense and aspect in (10b) and (11b) is evidence that this particular tense and aspect combination gives rise to the inchoative reading, and furthermore, the inability of the statives with the modifier *vuba* 'quickly' in (12) is evidence that these indeed describe states.

3.2 Derivational strategies

With these distinctions in mind, there are several derivational strategies for marking causative-inchoative pairs in Kinyarwanda. The first under discussion is the morpheme *–ik*, which marks the intransitive members of the paradigm. Examples

of *–ik* are given in (14). In the tables which follow, the "inchoative" member is the intransitive form which covers the inchoative and stative (both result and simple state) forms of the verb, as discussed in Section 3.1.

(14)

Inchoative	Causative	Gloss
gu-c-ik-a	gu-ca	'tear'
ku-vun-ik-a	ku-vuna	'break/snap'
ku-gond-ek-a	ku-gond-a	'bend'

This morpheme will be discussed at length in Sections 4 - 5.

Another strategy is marking the causative variant, as in (15) with the morpheme *–ish/–esh* (see Jerro 2017a for a detailed analysis of this morpheme).

(15)

Inchoative	Causative	Gloss
gu-shonga	gu-shong-esh-a	'melt'
gu-tinya	gu-tiny-ish-a	'fear'
ku-ma	ku-m-ish-a	'dry'

Various suppletive pairs exist in the language, and incidentally all observed instances of these relate to verbs of dying, such as those in (16).

(16)

Inchoative	Causative	Gloss
gu-pfa	kw-ica	'die/kill'
ku-rohama	kw-ibiza	'drown'

Another pattern is one in which paradigm members are marked with an alternation of consonants at the end of the verbal root.

(17)

Inchoative	Causative	Gloss
ku-rakara	ku-rakaza	'angry'
gu-toha	gu-tosa	'wet'
kw-andura	kw-anduza	'dirty'
gu-shyuha	gu-shyushya	'hot'

I take this to be a synchronic manifestation of the short causative suffix *$*-i$ in Proto-Bantu (Bastin 1986, Schadeberg 2003). In some Bantu languages, the reflex of the Proto-Bantu short causative has the effect of so-called 'spirantization' on the preceding consonant—a process in which the consonant becomes one of a variety of fricatives or affricates, with the details varying by language (Bastin 1986, Hyman 2003, Janson 2007, Bostoen 2008). This is the case in Mongo and Bemba, as cited in Hyman (2003:60).

(18)   a. kɔt- 'cut' → kɔts-i- 'cause to cut'
            kɛnd- 'go' → kɛnj-i- 'cause to go'

<div align="right">Mongo</div>

      b. leep- 'be long' → leef-i- 'lengthen'
            fiit- 'be dark' → fiis-i- 'darken'

<div align="right">Bemba</div>

In these cases, there is the short causative i– which triggers spirantization on the preceding consonant (and in the case of Bemba, other consonants in the verbal stem). In Kinyarwanda, there is no instance where there is a clear segment corresponding to the i– of Proto-Bantu; instead, the contrast between the transitive and the intransitive is indicated entirely by whether the final consonant of the verbal root is spirantized, as in (17).[4] Thus, for Kinyarwanda I characterize these as equipollent paradigm members synchronically, despite their former derivational relationship. In other words, from the perspective of a child acquiring of Kinyarwanda, the contrast in causative and inchoative for these verbs is not a segmentable morpheme but an alternation in the final consonant of the verb root.

    Some of the paradigms are marked with a causative morpheme $–iz$ or $–ez$ (determined by vowel harmony) as in (19). These causative suffixes are not productive; rather, they appear only with these specific lexical items. The origins of this alternating pair likely arose via grammaticalization of a formerly productive causative in Proto-Bantu, perhaps *$–ici$ (Bastin 1986).

(19)

Inchoative	Causative	Gloss
ku-ryoha	ku-ryoh-ez-a	'sweet'
ku-raba	ku-rab-iz-a	'wilt'

    Some paradigm members mark inchoatives/statives with the reflexive prefix i–. Others mark the causative with the reciprocal suffix $–an$.

(20)

Inchoative	Causative	Gloss
kw-i-hinarika	gu-hinarika	'wrinkle'
ku-za	ku-z-an-a	'come'/'bring'
ku-genda	ku-jy-an-a	'go'/'take'

I return to the discussion of the reflexive morpheme i– in Section 6. As for the reciprocal morpheme being used to mark a causative paradigm member, it is worth noting the possible historical origins of such a form. As suggested by an anonymous reviewer, it is likely that these derive from the associative reading of the reciprocal; namely, a reading in which the event happens in association with another participant. On this view, the event would have meant something like

"go together with X" at an earlier stage, and this has become grammaticalized as "bring X" synchronically.

Finally, some forms are marked by the passive suffix *–w* on the inchoative member. However, I argue that these are not productive passives, but rather they are lexicalized with specific verbs, such as those in (21).

(21)

Inchoative	*Causative*	*Gloss*
gu-tungur-w-a	**gu-tungura**	**'surprised'**
ku-nanir-w-a	**ku-naniza**	**'be tired/tire'**

Evidence for the lexicalization of the passive morpheme in (21) is that a productive passive reading is not available. Consider the example in (22) where speakers judge that the reading is crucially not that subject has been made tired.[5]

(22) N-da-naniw-e.
      1SG.SBJ-NON.PST-tired-PFV
      'I am tired.'

   #'I have been (made) tired.'

To bring out this judgment, consider the fact that the lexicalized passives in (21) cannot appear with agentive *na*-obliques, as is typical of productive passives. Specifically, compare the verb *ku-nanirwa* 'to be tired' in (23) with the productive passive *k-ubak-ir-w-a* 'to be built for' in (24); while the latter can appear with an agentive oblique, the former cannot.

(23) Libby a-ra-naniw-e   (*n' aba-na).
      Libby 1.SBJ-NON.PST-tired-PFV   by 2-child
      Intended: 'Libby is tired (*by her kids).'

(24) In-zu   y-∅-ubak-i-w-e   umw-ana (n' umu-yobozi).
      9-house 9.SBJ-PST-build-APPL-PASS-PFV 1-child   by 1-chief
      'The house was built for the child by the chief.'   (Jerro 2016b:176,(43b))

A final piece of evidence that the passive *–w* is lexicalized with this class is that *ku-nanirwa* 'to be tired' is doubly marked with respect to the causative *ku-naniza* 'to tire someone'. Specifically, *ku-nanirwa* 'to be tired' has both marking of the equipollent class derived from spirantization discussed in (17) above (i.e., the consonant [r] at the end of the verb stem) and, in addition, is marked with the lexicalized passive *–w*. This is surprising if the passive morpheme *–w* were productively applied. The putative non-passive intransitive that we might expect given the pattern in (17) above is *ku-nanira* 'to fail; to be unable'. While there is a likely semantic relatedness between this form and the paradigm under discussion,

this form itself cannot have the meaning of 'to be tired', and thus I exclude it from the paradigm. In conclusion, then, from the possible readings of the form, the inability to appear with *na*-obliques, and the doubly-derived marking of these forms, I conclude that the seeming passive morphology on verbs of the type in (21) is lexicalized. This means that while in some cases *–w* is a productive passive morpheme, in other cases it marks intransitives in change-of-state paradigms.

In this section I have provided a description of the seven observed derivational strategies in Kinyarwanda for marking change-of-state paradigms. From the point of view of the cross-linguistic literature on change-of-state paradigms, Kinyarwanda has two noteworthy properties. First, there are a variety of strategies, including causative, anticausative, labile, and equipollent marking, and, second, which strategy is employed for a particular paradigm is lexically determined. I now turn to one particular strategy of detransitivization via marking with the suffix *–ik*.

4 The Morpheme *–ik*

In the previous section I described the various strategies for marking transitivity alternations within the empirical domain of change-of-state verb paradigms. Some of these strategies have been discussed in previous work (such as the causative *–ish*; Kimenyi 1980, Jerro 2013, 2017a), but a morpheme that has not been investigated in detail in Kinyarwanda is the suffix *–ik*. In this section, I give a descriptive overview of the different readings associated with the form: the potential, the inchoative, and the stative. I then discuss some lexical idiosyncrasies related to the form before I turn to formal account in the next section.

4.1 Potential

The potential reading indicates that the event described by the verb is possible or available (Mchombo 1993, Dubinsky & Simango 1996, Schadeberg 2003:75). In Kinyarwanda, the potential reading is marked with the imperfective suffix *–a* and either the non-past prefix *ra–* or the conditional *a–*. Consider the data in (25); in these sentences the reading is that the event described by the main verb is stated to be possible.

(25) a. Umu-gezi u-ra-simbuk-ik-a.
        3-river   3S-NON.PST-jump-NEUT-IPFV
        'This river is jumpable.'

b. In-ya-rwanda zi-ra-byin-ik-a.
10-of-Rwanda 10S-NON.PST-dance-NEUT-IPFV

'Rwandan music is easy to dance to.'

c. Umu-gezi w-∅-orog-ek-a.
3-river   3S-TNS-swim-NEUT-IPFV

'The river is safe for swimming.' (lit. The river is swimmable)

The sentences in (25) are all intransitive, and each corresponds to a transitive counterpart:

(26) a. Nkusi y-a-simbuts-e   umu-gezi.
Nkusi 1S-PST-jump-PFV 3-river

'Nkusi jumped the river.'

b. Habimana y-a-byinn-ye   in-dirimbo.
Habimana 1S-PST-dance-PFV 9-song

'Habimana danced to the song.'

c. Munyaneza y-∅-oz-e   mu mu-gezi.
Munyaneza 1S-PST-swim/bathe-PFV 18 3-river

'Munyaneza swam/bathed in the river.'

In these cases, the transitive event is the one that is described by the potential readings in (25). Crucially, I assume – following the arguments presented in Jerro (2016b, 2018) – that nouns marked with the class 18 prefix are arguments and not obliques. Note that the verb *k-oga* has two senses: 'to swim' and 'to bathe'.

The contrast between the choice of the non-past tense prefix and conditional prefix relates to the degree of certainty that the event is possible. For example, with the verb *gu-funga* 'close', the non-past *ra–* in (27a) indicates that the speaker is certain that the door is able to close, while the conditional *a–* in (27b) indicates that the speaker is assuming that the door might be able to close.

(27) a. Uru-gi   ru-ra-fung-ik-a.
11-door 11S-NON.PST-close-NEUT-IPFV

'The door closes.'

b. Uru-gi   rw-a-fung-ik-a.
11-door 11S-COND-close-NEUT-IPFV

'The door might close.'

In both of these cases, there is some degree of possibility in the closing of the door, and this contrast follows from the nature of the tense (or mood) prefix that appears before the verbal stem.

With various verbs, however, the potential reading of the *–ik* morpheme is not permitted. For example, *–ik* cannot appear with the verbs *gu-kunda* 'to love' in

(28a) or *kw-anga* 'to hate' in (29a). Instead, the passive is given as an alternative, as shown in the (b) sentences.

(28)   a. *N-da-kund-ik-a.
           1SGS-NON.PST-love-NEUT-IPFV
           Intended: 'I'm lovable.'

       b. N-da-kund-w-a.
           1S-NON.PST-love-PASS-IPFV
           'I'm loved.'

(29)   a. *Umu-gabo a-r-ang-ik-a.
           1-man   1S-NON.PST-hate-NEUT-IPFV
           Intended: 'The man is hated.'

       b. Umu-gabo a-r-anz-w-e.
           1-man   1S-NON.PST-hate-PASS-PFV
           'The man is hated.'

In (28), the potential reading with the verbs *gu-kunda* 'to love' and *kw-anga* 'to hate' is idiosyncratically not available (I discuss below the lexicalization of the *–ik* morpheme in relation to particular verbs). The closest analog to the described reading is the passive *–w*.

4.2 Inchoative

Another reading of *–ik* is the inchoative — namely, the intransitive variant of a causative verb, as discussed in Section 3.2. Recall that the inchoative in Kinyarwanda appears with one of the various past tense prefixes as well as the perfective suffix *–(y)e*. Consider the examples in (30) of *–ik*-marked inchoative verbs.

(30)   a. Igi-kombe cy-a-men-ets-e.
           7-cup   7S-PST-break-NEUT-PFV
           'The cup broke.'

       b. Ubu-nyobwa bw-a-hond-ets-e.
           12-nut   12S-PST-crush-NEUT-PFV
           'The peanuts (got) crushed.'

       c. Uru-papuro rw-a-c-its-e.
           11-paper   11S-PST-tear-NEUT-PFV
           'The paper tore.'

These verbs correspond to causative verbs in (31):

(31) a. Nkusi y-a-menn-ye   igi-kombe.
          Nkusi 1S-PST-break-PFV 7-cup

    'Nkusi broke the cup.'

   b. Habimana y-a-honz-e   ubu-nyobwa.
       Habimana 1S-PST-crush-PFV 12-nut

    'Habimana crushed the peanuts.'

   c. Munyaneza y-a-c-iye   uru-papuro.
       Munyaneza 1S-PST-tear-PFV 11-paper

    'Munyaneza tore the paper.'

4.3 Stative

The final reading I discuss for *–ik* is the stative. Recall that the unambiguous (present) stative reading is marked by the combination of the non-past morpheme *ra–* and the perfective suffix *–(y)e*. For example, in (32a) the cup is currently in a state of being broken (and it is unspecified as to whether that is the result of a prior change).

(32) a. Igi-kombe ki-ra-men-ets-e.
          7-cup   7S-NON.PST-break-NEUT-PFV

    'This cup is broken.'

   b. Uru-papuro ru-ra-c-its-e.
       11-paper   11S-NON.PST-tear-NEUT-PFV

    'The paper is torn.'

   c. Igi-ti ki-ra-gond-ets-e.
       7-tree 7S-NON.PST-bend-NEUT-PFV

    'The tree is bent.'

Recall from Section 3.1 that various diagnostics — such as the persistive prefix *cya–* 'still' and the (in)ability to appear with the adverb *vuba* 'quickly' — provide evidence that while formally unmarked with respect to one another in terms of derivational morphology, the inchoative and the stative readings are distinct.

4.4 Idiosyncrasies and Other Restrictions

There are three distinct readings of the *–ik* morpheme, but — as I argue in the next section — all of these follow from the same operation of argument suppression. Before elaborating on the analysis of this form, it is worth noting that there are

various lexicalizations and idiosyncrasies. In this section I discuss three such cases: (i) idiosyncratic readings of the *–ik*-marked verb, (ii) cases where the intransitive requires other morphology (specifically, the reciprocal), and, (iii) restrictions on verb class.

In some cases, the use of *–ik* has a reading that is unrelated to the meaning of the base verb. For example, the verb *ku-bona* 'to see' has the meaning 'to be available' when it appears with *–ik*, and the productive reading is not allowed.[6]

(33)   Igi-ti cy-a-bon-ek-a.
       7-tree 7S-PST-see-NEUT-IPFV

   'The tree (i.e., wood) is available.'

   #'The tree/wood is visible.'

While the *–ik*-marked form is available in (33), it does not have the expected reading of potentiality. Instead, the productive reading (namely, 'the wood is visible') is blocked by an idiosyncratic reading: 'the wood is available'.

Another lexicalized pattern is a case in which *–ik* must appear with the reciprocal morpheme *–an*, such as with *ku-mva* 'to hear/understand'. Without *–an* the sentence is ungrammatical — a fact also described for Swahili (Seidl & Dimitriadis 2003). Compare the transitive use of the verb *ku-mva* 'to hear/understand' with the elicited detransitive variants in (35).

(34)   U-ri   ku-mva iyi   n-dirimbo?
       2SGS-COP INF-hear 9.this 9-song

   'Are you hearing this song?'

(35)   a.*In-dirimbo i-r-umv-ik-a.
           9-song   9S-PRES-hear-NEUT-IPFV
           Intended: 'The song is audible.'

     b. Aba-na ba-r-umv-ik-an-a.
        2-child 2S-NON.PST-hear-NEUT-RECIP-IPFV
        'The kids can be heard.'

In (35a), the *–ik* morpheme alone is not available with the verb *ku-mva* 'to hear/understand'; instead, the presence of the reciprocal morpheme *–an* is obligatory. This is surprising since the verb in (35b) does not have a reading of reciprocity (e.g., 'the kids can hear each other'), but rather that the kids are audible to some other participant.

Finally, the only class of verb for which all three readings is available is the class of change-of-state verbs. The examples in (1) - (3) are typical of most of change-of-state verbs, where there is a potential, stative, and inchoative reading. Other verb classes do not have the same range of possible readings. For example, the ingestive verb *ku-rya* 'to eat' only has the potential reading:[7]

(36)　　a.　Umu-gati w-a-r-ik-a.
　　　　　　　3-bread　3S-COND-eat-NEUT-IPFV
　　　　　　　'The bread is edible.'　　　　　　　　　　　　　　　　Potential

　　　　b.*Umu-gati w-a-r-its-e.
　　　　　　　3-bread　3S-PST-eat-NEUT-PFV
　　　　　　　'The bread got eaten.'　　　　　　　　　　　　　　Inchoative

　　　　c.*Umu-gati u-ra-r-its-e.
　　　　　　　3-bread　3S-NON.PST-eat-NEUT-PFV
　　　　　　　'The bread is all eaten.'　　　　　　　　　　　　　　Stative

These data show that verb class plays a role in determining the possible readings of *–ik*, both in that only certain classes (i.e., change-of-state verbs) can have an inchoative counterpart, but also that there is lexical idiosyncrasy wherein individual verbs arbitrarily lack particular readings. This fits with previous research which has argued that valency-changing morphology is not as productive as has previously been assumed, and instead lies on a continuum of productivity between entirely productive, productive within specific verb classes, and lexically idiosyncratic (see Jerro 2018). These facts are also consistent with the claim I make in the next section that *–ik* is a marker of middle voice in Kinyarwanda; specifically, the lexical idiosyncrasy in Kinyarwanda fits with the observation that middle voice in other languages is not a fully productive category and often has a random distribution among verbs.

5　*–ik* as a Middle

The term 'middle' is used to describe a voice category that covers several intransitive verb classes (Condoravdi 1989, Fagan 1992, Kemmer 1993, Ackema & Schoorlemmer 1994, 1995, Lekakou 2002, Kaufmann 2007, Alexiadou & Doron 2012, a.o). Middles, however, are a relatively heterogenous class, and their properties vary greatly across languages. The property that is generally shared across middles is their reduction of a transitive argument structure, though this is not necessarily derived productively from the meaning of the base verb. Various readings are often associated with middles, though three common ones are anticausative, inherent reflexive, and the so-called "middle construction." I discuss these briefly in turn.

　　　One oft-cited class associated with middle voice is anticausatives. As discussed above, these mark the inchoative member of a causative-inchoative pair. An example this is the *se* clitic in Spanish.

(37)　Anticausative; Spanish

El vaso se   rompió.
the cup REFL broke

'The cup broke.'   (Koontz-Garboden 2009:84,(14))

Another reading that is generally associated with the middle voice is the middle construction, which is typified by its generic reading. Consider the following example from Dutch in (38) where there is a middle construction reading in which the clause indicates that the pair of shoes, in general, walk nicely.

(38)   Middle Construction; Dutch

Deze schoenen lopen lekker.
these shoes   walk   nicely

'These shoes walk nicely.'   (Ackema & Schoorlemmer 1994:60,(1b))

Another class which recurrently falls within the domain of middle voice is inherent reflexives (referred to by Kemmer 1993 as "grooming" or "body care" middles), which are verbs which describe an action performed by the subject back onto the subject. Verbs in this class often include things like "wash," "shave," and "dress (oneself)". Consider the example in (39) from the Atlantic language Fula:

(39)   Inherent Reflexive; Fula

o   loot-ake
3SG wash-PERF.MID

'S/he washed.'   (Kaufmann 2007:1681,(2b))

In (39), the verb is marked with a specific suffix that marks middle voice. Crucially, the ability for this suffix to appear with this verb comes from the reflexive meaning of the verb.

Following the claim for other Bantu languages by Seidl & Dimitriadis (2003) and Dom et al. (2017), I propose that the *–ik* morpheme in Kinyarwanda is a marker of middle voice.[8] Building on work by Kaufmann (2007), Beavers & Zubair (2013), Spathas et al. (2015) and especially Beavers & Udayana (2018), I argue in the next subsection that the middle is a non-active voice that marks a mismatch between the verb's syntax and semantics, and the three readings of the *–ik* morpheme discussed above follow from this analysis of the middle. Two pieces of evidence support the general proposal that *–ik* is a marker of middle voice. First, *–ik* is in complementary distribution with the passive *–w*; both morphemes fill the same slot in the verbal complex after the verbal stem, and there is no evidence that the two can co-occur. This provides suggestive evidence that both morphemes have the function of marking voice categories.

Second, a general property of middles is that they are not always productive within a given verb class (Kemmer 1993). As was discussed in Section 4.4, this is the case with the morpheme *–ik* in Kinyarwanda. For example, recall that the earlier example of *ku-rya* 'to eat' in (36a) where the use of *–ik* has a potential reading. Another verb in the same class does not have the same property, namely *ku-nywa* 'to drink' as in (40).[9]

(40) *Ama-ta a-ra-nyw-ek-a.
6-milk 6S-NON.PST-drink-NEUT-IPFV
Intended: 'The milk is drinkable.'

The distributional similarly between *–ik* and the passive as well as the idiosyncratic nature of the middle voice are both consistent with the claim that *–ik* marks middle voice in Kinyarwanda. In what follows I argue for such an analysis of *–ik*, but it is worth noting that *–ik* may not be the only strategy for marking readings associated with middle voice in the language. In particular, Dom et al. (2017) show that there are various strategies for making middle voice across the Bantu subfamily; my goal in the present article is to outline an account of *–ik* that captures the different readings that arise with this morpheme.

5.1 A Formal Account of *–ik*

I now turn to outlining a formal semantic analysis of *–ik*. Building on the analysis in Beavers & Udayana (2018), I propose that *–ik* marks a mismatch between the syntax and semantics, and the possible strategies for resolving this mismatch correspond to the different readings that arise with *–ik*. In order to model this analysis, I adopt a neo-Davidsonian event semantics in which thematic relations relate participants to eventualities (Parsons 1990). For the purposes of the present discussion, I use the variables e, v, and s to represent (sub)events, and the variables x and y for individuals.

In most work on the lexical semantics of argument realization, subevent structure is represented through hierarchical organization of what is often referred to as an event structure (Dowty 1979, Jackendoff 1990, Hale & Keyser 1993, Levin & Rappaport Hovav 1995, Ramchand 2008, a.o.). Hierarchical structure is useful for capturing things like sublexical scope (e.g., Dowty 1979) and correlating hierarchical relations in the syntax (e.g., Wunderlich 1997). While there is considerable debate as to whether event structure is lexical or constructional, the common thread across these approaches is they provide a means for formalizing the relations between events and their associated participants. One such relation is the mapping of an argument to subject. I assume that the last individual argument to combine with the

verb (i.e., the innermost lambda-abstracted individual) is mapped to subject (see Wunderlich 1997 and Jerro 2017a). I assume that any other argument is mapped to object (as I am focusing only on transitive predicates here, I leave the question of the mapping of indirect and applied objects aside). Thus in the denotations that follow, I encode event structural relations directly as truth conditional content of the verb, and the order of saturation is linked to the grammatical functions in the clause, which preserves the hierarchical nature of other event structural approaches.

With this framework in mind, I implement the proposal of *–ik* as a middle marker by analyzing *–ik* as an operation which saturates the innermost argument of a transitive VP with an open variable, which thus reduces the semantic valence by one (see Beavers & Zubair's (2013) causer suppression operation). I assume that *–ik* can only apply to transitive verbs, and this is encoded as a restriction on the type of the predicate that the morpheme combines with (i.e., transitive predicates). For simplicity, I will not repeat the subscripted type in the derivations which follow.

(41) $[\![-ik]\!] := \lambda P_{\langle e, \langle e, \langle s, t \rangle \rangle \rangle} \lambda y \lambda e_1...e_n[P(e_1...e_n, x, y)]$

The combination of the denotation in (41) with a transitive verb results in the saturation of the x variable of the verb (i.e., the subject), but it otherwise leaves the truth conditional content unchanged. The $e_1...e_n$ notation in the denotation in (41) is a shorthand that is meant to capture that *–ik* may combine with predicates with a series of possible subevents (as will be the case with change-of-state verbs below). In cases where the predicate has just one event, e_1 is that single event. I assume that the subevents range over events and states.

The result of the composition of the denotation of *–ik* in (41) with the verb is an open variable x, which — assuming with Chomsky (1995:56) that unbound, open variables result in infelicity — would cause the derivation to crash. This thus results in a mismatch between syntax and semantics; while there are two semantic participants of the event, there is only one individual argument in the syntax (i.e., y). I propose, in line with Beavers & Udayana (2018), that there are two possible ways of interpreting the open variable. The first option is that x is co-identified with some other argument (in this case, the y argument). The second possibility is that the unsaturated variable x is existentially bound, comparable to what has been proposed for passives in Wunderlich (to appear).

This analysis is similar in spirit to Beavers & Udayana (2018) where the *ber*– middle in Indonesian opens up a variable of the transitive verb. In the account proposed here, however, the denotation takes a transitive verb and saturates the innermost argument, capturing the fact that the intransitive subject is always the transitive object. On Beavers and Udayana's account, the single argument of a verb in the middle voice may be either argument of the transitive, depending on

language-specific facts regarding object incorporation that do not come into play here.[10]

In what follows, I show that the two possible strategies for interpreting the open x variable correspond to the various readings discussed above: the middle construction reading follows from the existential binding of the open variable, while the inchoative and stative readings follow from co-identification of the open variable with the other argument. The inchoative and stative are then distinguished from each other by the tense and aspect of the clause.

5.2 Middle construction reading (cf. Potential)

The middle construction reading (which I am treating as the potential reading that is discussed in the Bantuist literature) comes from the existential binding of the open x variable. Consider the transitive use of the verb *gu-simbuka* 'to jump', the denotation of which is provided in (43) where there is an agent and a path participant in the meaning of the verb.[11]

(42)   Nkusi y-a-simbuts-e   umu-gezi.
           Nkusi 1S-PST-jump-PFV 3-river

           'Nkusi jumped the river.'

(43) $[\![gusimbuka]\!] := \lambda y \lambda x \lambda e[jumping'(e) \wedge agent'(e,x) \wedge path'(e,y)]$

The denotation in (43) states that there is an event of jumping which has both an agent and a path. When this verb combines with the meaning of *–ik* in (41), the result is the denotation in (44b), where the variable x (underlined for clarity) is unbound.

(44)   a. $\lambda P \lambda y \lambda e_1...e_n[P(e_1...e_n,x,y)](\lambda y \lambda x \lambda e[jumping'(e) \wedge agent'(e,x) \wedge path'(e,y)])$

       b. $\lambda y \lambda e[jumping'(e) \wedge agent'(e,\underline{x}) \wedge path'(e,y)]$

The denotation in (44b) is what arises from the combination of the verb *gu-simbuka* 'to jump' with *-ik*; specifically, there is an event of jumping, an unsaturated argument y, and an open variable x. There are two possible methods for resolving this: existential binding of the open variable or coreference with the internal argument. With many verbs, either option is possible, and each gives rise to a different reading. I turn to the coreference strategy in the next section. For now, I discuss the non-coreference reading in which I assume the open variable is interpreted as being existentially bound, as in (45).

(45) $\lambda y \lambda e \exists x[jumping'(e) \wedge agent'(e,x) \wedge path'(e,y)]$

This corresponds to the middle construction reading for the verb *gu-simbuka* 'to jump', repeated in (46a).

(46) a. Umu-gezi u-ra-simbuk-ik-a.
       3-river   3S-NON.PST-jump-NEUT-IPFV
       'This river is jumpable.'

    b. $\exists e \exists x [jumping'(e) \wedge agent'(e, x) \wedge path'(e, river')]$

In (46a), the reading is that there exists some agent participant who can jump the river.

The existential binding of the external argument makes the prediction that it should be possible to describe the agent via another means. This is borne out: while the agentive oblique that appears with passives is not available, as in (48), the agent can be licensed via the oblique *ku/kuri* 'for', as in (47).

(47) a. Igi-tabo ki-ra-som-ek-a   neza (k' umw-arimu).
       7-book   7S-NON.PST-read-NEUT-IPFV well   for 1-teacher
       'The book reads easily (for the teacher).'

    b. Umu-gezi u-ra-simbuk-ik-a   neza (kuri Nkusi).
       3-river   7S-NON.PST-jump-NEUT-IPFV well   for   Nkusi
       'The river jumps easily (for Nkusi).'

(48) a. Igi-kombe cy-a-men-ets-e   (#n' aba-na).
       7-cup   7S-PST-break-STAT-PRFV   by 2-child
       'The cup is broken #by the children.'

    b. Igi-kombe cy-a-men-ek-a   (#n' aba-na).
       7-cup   7S-COND-break-STAT-IMP   by 2-child
       'The cup can break (#by the children).'

The fact that the agent of the middle-marked verb is reintroduced via an oblique phrase is expected given the analysis of existential binding since such an analysis states that the agent — while suppressed syntactically — is still entailed to exist.

On the analysis presented here, the potential reading of *–ik* is an outgrowth of the general analysis of this morpheme and not a separate function, as argued by Dubinsky & Simango (1996) who claim for Chichewa that the potential reading arises via a homophonous form distinct from the detransitivizing function that gives rise to stative and inchoative readings. On the view that the potential reading of *–ik* is a separate homophonous morpheme, it would have to be proposed that the putative potential morpheme *–ik* contributes the semantics of modality. However, *–ik*-marked verbs that have a potential reading pattern with other verbs with a middle-construction reading, which suggests that the potentiality that corresponds to this reading arises independently of *–ik*. In (49b), for example, the middle

construction reading arises with the verb *ku-byimba* 'to swell' with the same tense and aspect marking as the stative-marked verb *ku-mena* 'to break' in (49a), but this verb is crucially not marked with *–ik*.

(49) a. Iki   gi-kombe cy-a-men-ek-a.
       7.this 7-cup   7S-COND-break-NEUT-IPFV
       'This cup might break.'

    b. Uku-guru kw-a-byimb-a.
       15-leg   15S-COND-swell-IPFV
       'The leg might swell.'

The fact that the middle construction reading is found in cases without *–ik* suggests that the potentiality is not contributed by a separate potential morpheme; instead, *–ik* has a single semantics that derives the middle construction reading as one of the possible ways of resolving the unbound variable.

5.3 Anticausative

In the previous section, I proposed that the *–ik* morpheme reduces the transitivity of a verb, and one strategy for resolving the open variable is to existentially bind that argument. The other possible means of resolution is coreference with the other argument in the clause. In this section, I show that this strategy gives rise to the anticausative reading. Anticausatives are inchoative forms derived from a transitive base, and they are generally argued to have no external causation entailments (Levin & Rappaport Hovav 1995, Chierchia 2004, Koontz-Garboden 2009). This means that while there is a change of state described by an anticausative, there is not necessarily an external causer of the event. Generally speaking, anticausatives are only derived from caused change-of-state verbs whose causer subjects are unspecified for agentivity entailments; while there often can be an external causer, this is not an entailment of the verb.

Chierchia (2004) and Koontz-Garboden (2009) analyze anticausativization as an operation of reflexivization wherein the patient is linked with the causer, which is crucially unspecified for agentivity. Koontz-Garboden (2009) proposes the following formal operation for reflexivization:

(50) Reflexivization Operator
      $\lambda \Re \lambda x[\Re(x, x)]$ (Koontz-Garboden 2009:83,(11))

The variable $\Re$ ranges over transitive verbs, and this operator takes some relation and makes both arguments in that relation the same. I adopt this analysis for Kinyarwanda in cases where the *–ik* morpheme marks an anticausative (and stative,

which I return to shortly). By means of example, consider the denotation of the verb *ku-vuna* 'to break', modified from the analysis of the verb *romper* 'to break' in Spanish (cf. Koontz-Garboden 2009:85,(17)).

(51) $[\![kuvuna]\!] := \lambda y \lambda x \lambda s \lambda v \lambda e[cause'(v,e) \wedge effector'(v,x) \wedge become'(e,s) \wedge theme'(s,y) \wedge not.whole'(s)]$

In this denotation, the verb describes a series of events in which a causing event v has the result state s of making some entity not whole. The causing event v is linked to the argument x, which is the effector — a generalized thematic role which subsumes instruments, agents, and inanimate causers (see Koontz-Garboden 2009 and Van Valin & Wilkins 1996). The argument y is linked to the result subevent s and has the semantic role of theme.

Consider now the combination of the verb *kuvuna* 'to break' with the meaning of the morpheme *–ik* in (41). First the denotation of *-ik* combines with the meaning of *ku-vuna* 'break', which results in (52b) where the variable x is left open. In (52c), the open variable is resolved by the co-identification of the single argument and the open variable via the reflexivization operation in (50).

(52)   a. $\lambda P \lambda y \lambda e_1...e_n[P(e_1...e_n,x,y)](\lambda y \lambda x \lambda s \lambda v \lambda e[cause'(v,e) \wedge effector'(v,x) \wedge become'(s,e) \wedge theme'(s,y) \wedge not.whole'(s)])$

   b. $\lambda y \lambda s \lambda v \lambda e[cause'(v,e) \wedge effector'(v,\underline{x}) \wedge become'(s,e) \wedge theme'(s,y) \wedge not.whole'(s)]$

   c. $\lambda y \lambda s \lambda v \lambda e[cause'(v,e) \wedge effector'(v,y) \wedge become'(s,e) \wedge theme'(s,y) \wedge not.whole'(s)]$

Consider (53b) where the single argument of the clause is co-identified with the open x variable, and thus *igikombe* 'cup' is a single argument of the clause that is linked to both the theme and the effector of the clause.

(53)   a.   Igi-kombe cy-a-men-ets-e.
         7-cup   7S-PST-break-NEUT-PFV
         'The cup broke.'

   b. $\exists s \exists v \exists e[cause'(v,e) \wedge effector'(v,cup') \wedge become'(s,e) \wedge theme'(s,cup') \wedge not.whole'(s)]$

The reflexivization account of anticausatives in Kinyarwanda predicts that while there is not necessarily an agent in the event, there is in fact causation, as specified by the denotation in (53b) where there is a specification that the causing subevent v causes the result state s. There are various diagnostics to probe whether there is causation present in the meaning of a verb, but given language-specific facts, it has not been possible to replicate these exact diagnostics for Kinyarwanda.

I provide two pieces of suggestive evidence that there is causation present with anticausative verbs in Kinyarwanda (and thus that the reflexivization account is appropriate for this language).

One diagnostic for probing causation is the phrase *da se* 'by itself' (i.e., without external help) in Italian, which distinguishes verbs that entail causation and verbs that do not (Chierchia 2004). While there does not appear to be a cognate to *da se* in Kinyarwanda, the closest analog is a phrase which means "with nobody doing X" or "with nothing doing X"; this is given in (54) and (55) for the anticausatives of *ku-mena* 'to break' and *ku-vuna* 'to snap'.

(54)   a.   Igi-kome cy-a-men-ets-e   ntawe u-ki-menn-ye.
             7-cup   7S-PST-break-NEUT-PFV no.one 1S-7O-break-PFV
             'The cup broke with nobody breaking it.'

         b.   Igi-ti cy-a-vun-its-e   ntawe u-ki-vunn-ye.
             7-tree 7S-PST-snap-PFV no.one 1S-7O-snap-PFV
             'The tree snapped with nobody snapping it.

(55)   a.   Igi-kombe cy-a-men-ets-e   nta-ki-ki-menn-ye.
             7-cup   7S-PST-break-NEUT-PFV NEG-7S-7O-break-PFV
             'The cup broke with nothing breaking it.'

         b.   Igi-ti cy-a-vun-its-e   nta-ki-ki-vunn-ye.
             7-tree 7-PST-snap-NEUT-PFV NEG-7S-7O-snap-PFV
             'The tree snapped with nothing snapping it.'

The fact that the examples in (54) are felicitous is suggestive that agentivity is not entailed; the modifier *ntawe* 'nobody' indicates that no person is intentionally doing the action. However, there remains the possibility in such contexts that the change happened as a result of some other action; namely, the cancellation here could also be that no *person* broke the tree or cup, but that something else did. The sentences in (55) can have the targeted reading that rules out that there is a causer, but these are ambiguous with a reading where no *specific* object broke (or snapped) the cup (or tree). Thus while the desired readings are possible, the constructions in (54) and (55) do not unambiguously capture the necessary reading.

Another diagnostic to probe causation in the meaning of the verb implements a negation diagnostic in which it is possible to deny that the subject of the inchoative was the cause of its own change of state (Koontz-Garboden 2009). Consider the following exchange from Spanish, where the father negates that the cup is the cause of its own breaking.

(56)   a.   Padre: ¿Que pasó, hijo?
             Father: 'What happened, child?'

    b. Hijo: El vaso se rompió.
       Son: 'The glass broke.'

    c. Padre: No se rompió sino que tú lo rompiste!
       Father: 'It didn't *break* — you broke it!'

<div align="right">(Koontz-Garboden 2009:103,(57))</div>

The father in (56) is not denying that the vase is broken, but rather, he is denying that it is the cause of its own change of state. Thus what is denied is that the undergoer of the change is also the effector of that change, and this ability to take scope over a *cause* operator is evidence that such an operator is entailed in the meaning of the verb.

    In Kinyarwanda, a comparable exchange does not utilize negation, and so it is not possible to conclude definitively that there is causation in the meaning of the verb. However, a similar effect can be found in which the parent accepts that the cup broke, but emphasizes that the cup was actually broken by the child (and thus not by the cup on its own accord).

(57) [A parent (b) and a child (a) are talking about how the cup got broken]

    a. Igi-kombe cy-a-men-ets-e.
       7-cup   7S-PST-break-NEUT-PFV
       'The cup broke.'

    b. Igi-kombe cy-a-men-ets-e,   ki-men-w-e   na-we.
       7-cup   7S-PST-break-NEUT-PFV 7S-break-PASS-PFV by-you
       'The cup broke, (but) by you!'

(58) [A parent (b) and a child (a) are talking about how the door closed]

    a. Uru-gi rw-a-fung-its-e.
       11-door 11S-PST-close-NEUT-PFV
       'The door closed.'

    b. Uru-gi rw-a-fung-its-e,   ru-funz-w-e   na-we.
       11-door 11S-PST-close-NEUT-PFV 11-close-PASS-PFV by-you
       'The door closed, (but) by you!'

The fact that it is felicitous in (57) to correct the child about whether the cup broke on its own accord is suggestive evidence for the existence of *cause* in the anticausative sentences. This suggests that there is indeed causation in the event, but not necessarily agentivity. While more concrete evidence would come from explicit negation of the anticausative, language-specific facts about the nature of such constructions preclude this option in Kinyarwanda. However, given the evidence here, I conclude that these data are compatible with the reflexivization analysis of anticausatives.

Before moving on, it is crucial to note that the potential reading discussed in the previous subsection is also a possible with the verb *ku-mena* 'to break', as shown in (59).

(59) Igi-kombe cy-a-men-ek-a.
7-cup 7S-COND-break-NEUT-IPFV
'The cup can break.'

Thus the operation of argument suppression in (41) can be resolved in two ways, and these two options correspond to different readings with particular verbs. Specifically, this can either be the anticausative (discussed in this section), or the middle construction reading (discussed in Section 5.2).

5.4 Statives

Turning now to the stative, I argue here that this reading arises from the same formal resolution of the open x variable as with inchoatives (namely, the co-identification of x with the other variable), and the difference between the stative and the inchoative readings arises from whether there is an eventive semantics, as determined by the tense and aspect morphology of the verb. Evidence for their comparable semantic treatment is that anticausatives and statives are not otherwise distinguished derivationally more generally in the language — as discussed in Section 3.1 above. Consider the verb *ku-ryoha* 'to be(come) sweet' in (60), which is inchoative and stative in (a) and (b) respectively (Jerro 2017b).

(60) a. Ubu-ki bu-ra-ryoshy-e.
14-honey 14S-NON.PST-sweet-PFV
'The honey is sweet.' (stative)

    b. Umu-vinyo w-a-ryoshy-e.
3-wine 3S-PST-sweet-PFV
'The wine became sweet.' (inchoative)

(61) a. N-da-rakay-e.
1SGS-NON.PST-angry-PFV
'I am angry.' (stative)

    b. N-a-rakay-e.
1SGS-PST-angry-PFV
'I got angry.' (inchoative)

Crucially there is no derivational relationship between the inchoative and stative forms; the difference in reading comes from the tense and aspect morphology.

On this approach then, the stative reading arises as an outgrowth of co-identification of the two participants of the event in the same way as anticausatives. Given the fact that the analysis of *–ik* here involves no change in the event structure of the verb, one prediction is that for verbs that entail a change of state (i.e., 'result verbs' in the terminology of Koontz-Garboden & Beavers 2016, Beavers et al. 2017), this change will also be present with the stative. One piece of evidence that this is the case is that the stative reading of *–ik* with result verbs is infelicitous if there has never been a change.

(62) a.#Iki   gi-kombe gi-hora   ki-men-ets-e.
         7.this 7-cup   7S-always 7S-break-NEUT-PFV
         'This cup has always been broken.' (on intended reading)

      b.#Ubu   bu-nyobwa bu-hora   bu-hond-ets-e.
         12.this 12-nut   12S-always 12-crush-NEUT-PFV
         'This peanut has always been crushed.'

Thus, like anticausatives, the entailment of change is present in the stative member of the paradigm (this the case with result roots; see Jerro 2017b for discussion of entailments with different verbs). This is expected on the view that statives are derived from the existential binding operation; for verbs which entail a change, this entailment will be present across all paradigms since there is no deletion or suppression of any piece of the event structure (as was argued in Dubinsky & Simango 1996).

5.5 Interim Summary

In this section, I have argued for an analysis of the morpheme *–ik* as a middle marker, and I have analyzed middles as a mismatch between the syntax and semantics. Specifically, *–ik* is an operation which saturates the innermost argument in the denotation (which will be the subject of a transitive verb). There are then two possible options for resolving the unbound variable, and which option is used corresponds to the various readings of *–ik*-marked verbs. One option is existential binding, which corresponds to the middle construction reading; the other option is coidentification, which derives the inchoative and stative readings of the morpheme. These latter two readings are in turn distinguished by the tense and aspect marking.

6 Where are the reflexives?

One verb class generally marked by middle voice is inherent reflexives, i.e., verbs which describe a reflexive relationship of the agent acting on him-, her-, or them-self, as with verbs like *wash* and *shave*. The question arises, then, whether *–ik* is found with inherent reflexives in Kinyarwanda. It turns out that this is not the case. In this section, I argue that for three inherent reflexive verbs — *k-ogosha* 'to cut hair' (used also for 'shave'),[12] *k-oga* 'to wash', and *kw-ambika* 'to dress someone' — the morpheme *–ik* is blocked for independent reasons. Specifically, I propose that the middle voice marking with *–ik* in these cases is blocked by one of two possibilities: the existence of a lexicalized intransitive verb or a separate reflexive morpheme *i–*. This pattern of blocking is comparable to Indonesian (Beavers & Udayana 2018), but crucially distinct: in Indonesian the middle *ber–* does mark reflexives (among other categories), but a separate morpheme *ter–* marks the anticausative (thus blocking *ber-*).[13] The case in Kinyarwanda, on the other hand, is that the middle form *–ik* marks statives, anticausatives and the middle construction and is blocked from marking reflexives.

The most straightforward case of this blocking relationship is the verb *k-oga* 'to wash (intr)', which is lexically intransitive. An example of this verb is given in (63) where there is a single participant of the verb.[14]

(63)   Nkusi y-∅-oz-e   (mu gi-tondo).
       Nkusi 1S-PST-wash-PFV   18 7-morning
       'Nkusi washed (in the morning).'

The causative variant of this form is equipollently related via the consonant spirantization strategy discussed in Section 3.2. Consider the verb *k-oza* 'to wash (tr)' in (64).

(64)   K-oza   ama-sahane.
       INF-wash 6-plates
       'to wash dishes'

I propose that the existence of a lexicalized form for both intransitive and transitive (*k-oga* 'to wash (intr.)' and *k-oza* 'to wash (tr.)', respectively) blocks the existence of an *–ik*-marked intransitive derived from the transitive. Thus, while in principle *–ik* could apply to the transitive verb in (64) to derive a middle, there is already a form to mark the intransitive reflexive member of the paradigm.

Another inherent reflexive verb that is often discussed in the literature is 'to shave.' To my knowledge, there is no exact cognate in Kinyarwanda; instead, the verb *k-ogosha* 'to cut hair' is used, as in (65).

(65) Umu-gabo y-∅-ogosh-e   ubw-anywa.
      1-man   1S-PST-cut.hair-PFV 14-beard

      'The man shaved his beard.' (lit. the man cut the beard)

In (65), speakers indicate that there is an implication that the man shaved his own beard. However, this is not entailed by the verb, as indicated by the fact that it is possible to use the verb when the beard belongs to someone else. Consider (66) where the same form of the verb is found in a non-reflexive situation where Nkusi shaved another person.

(66) Nkusi y-∅-ogosh-e   Habimana.
      Nkusi 1S-PST-cut.hair-PFV Habimana

      'Nkusi shaved Habimana.'

From the example in (66), it can be concluded that *k-ogosha* 'to cut hair' is actually not an inherently reflexive verb, but rather the implication that the subject shaved their own beard arises based on the real-world nature of how shaving often works. Thus I conclude that this verb is not actually an inherent reflexive in Kinyarwanda, but rather a transitive verb that can be used to describe a reflexive action given the right context.

Evidence that the base meaning of this verb is not reflexive is that the causative morpheme is permitted with *k-ogosha* 'to shave', and it crucially means to cause someone to get shaved.

(67) Nkusi y-∅-ogosh-esh-eje   Habimana.
      Nkusi 1S-PST-cut.hair-CAUS-PFV Habimana

      'Nkusi brought Habimana to have him shaved.'

This fits with the non-reflexive nature of the verb; if it were the case that *k-ogosha* 'to cut hair' were indeed inherently reflexive ('to shave oneself'), the reading of the corresponding causative would be that 'Nkusi caused Habimana$_i$ to shave himself$_i$'.[15] However, this is not the case; in (67), the reading of the causative is added to a transitive event ('Nkusi causes Habimana to go get shaved'), which supports the claim that this verb is is not inherently reflexive.

On the view that *k-ogosha* 'to cut hair' is a transitive verb that is not inherently reflexive, we would actually expect that it is eligible to combine with the meaning of -*ik* given in (41); this is indeed the case: both the middle construction and the anticausative readings are possible, as given in (68) and (69), respectively.

(68) Imashini y-ogosh-ek-a   neza.
      9.machine 9S-cut.hair-NEUT-IPFV well

      'The machine (i.e., an electric beard trimmer) shaves well.'

(69) Ubw-anywa bw-∅-ogosh-ets-e.
      14-beard   14S-PST-cut.hair-NEUT-PFV

      'The beard (got) shaved.'

I conclude, then, that the verb *k-ogosha* 'to shave' is not an inherent reflexive and so it is not eligible for a reflexive reading via middle voice. It can, however, combine with *–ik* to have anticausative and middle construction readings, as expected given its status as a transitive change-of-state verb.

 The third inherently reflexive verb I discuss in this section is the verb *kw-ambika* 'to dress', which is a transitive verb in its unmarked form, as in (70), and the intransitive is marked by the reflexive prefix *i–*, as in (71).

(70) Mama y-∅-ambits-e   aba-na.
      mom   1S-PST-dress-PFV 2-child

      'Mom dressed the children.'

(71) Aba-na b-iy-ambits-e.
      2-child 2S-REFL-dress-PFV

      'The children dressed themselves.'

I adopt an analysis of reflexivization for the morpheme *i–* that indicates agentive reflexivization (adapted from the analysis proposed by Koontz-Garboden 2009 for the morpheme *kal* in Ulwa).

(72) $[\![i-]\!] := \lambda\Re\lambda x\lambda e[\Re(e,x,x)]$
      meaning postulate: $\forall\Re\forall e\forall x[i -' (\Re, x, e) \rightarrow agent(e,x)]$

      (Koontz-Garboden 2009:95,(39))

The meaning of the agentive reflexive in (72) differs from *–ik* in that it has a meaning postulate which states that when the *i–* prefix is present, the single argument is agentive. Crucially, this is not the case with the morpheme *–ik* where the nature of reflexivization arises via co-identification alone (i.e., with no associated entailment of agentivity). On this view of reflexives, I propose — assuming a general linguistic tendency for more specified forms to be preferred over less-specified forms — that the reflexive morpheme blocks the *–ik* stative in cases where the intended reading is an agentive reflexive — as is the case for *kw-ambika* 'to dress' in (71).

 Beyond the discussion of the inherent reflexive verbs, however, the picture with the reflexive prefix *i–* is more complex than the morpheme productively marking agentive reflexivization. As mentioned in Section 3.2, with some verbs the reflexive prefix marks the inchoative/stative members of the change-of-state paradigms, as shown in (73b) and (74b) for the verbs *kw-i-shima* 'to be happy' and *kw-i-karuma* 'to be calm', respectively.[16]

(73)   a. gu-shim-ish-a
           INF-please-CAUS-IPFV

           'to please'

       b. kw-i-shima
           INF-REFL-happy

           'to be happy/pleased'

(74)   a. gu-karum-ish-a
           INF-calm-CAUS-IPFV

           'to calm' (tr.)

       b. kw-i-karum-a
           INF-REFL-calm-IPFV

           'to be(come) calm'

I argue that the reflexive morpheme is lexicalized in these cases, which contrasts with the case in (71) where the morpheme *i–* is productively used to derive a reflexive reading. One piece of evidence for lexicalization is that the transitive causative variants in the (a) examples are doubly-derived from the intransitive ones in (b); specifically, to mark the intransitive in the (b) examples there is both the absence of the causative as well as the presence of the *i–* prefix. This means that the transitive and intransitive variants are not directly derived from each other, and thus I assume these are not productive uses of these morphemes.

7 Conclusion

In this article, I have provided a description of strategies for marking the derivational relationship between intransitive (specifically: inchoative, simple state, and result state) and transitive paradigm members in caused change-of-state paradigms. I have focused in particular on the detransitivizing morpheme *–ik*, and I argued that the various readings of this morpheme can be subsumed under the umbrella of middle voice. I adopt an analysis of middles as marking a mismatch between the number of semantic participants and syntactic arguments in a particular clause. Formally, the morpheme *–ik* represents an operation in which the argument that is mapped to subject is saturated, and the open variable is resolved in two possible ways: existential binding or co-identification with another argument. These two strategies correspond to the different readings of the middle: the former is the middle construction reading, and the latter is either the anticausative or stative, which are distinguished by the tense and aspect marking on the verb.

I also proposed an analysis of the reflexive morpheme *i*– which I assume has the same reflexivization semantics proposed for the co-identified readings of the middle, but with the additional constraint that the single argument of a verb marked with *i*– is always agentive. This in turn blocks the *–ik* middle from marking reflexives, and I furthermore argued that for other inherent reflexives the *–ik*-marking is blocked for independent reasons.

As part of the analysis of *–ik* I assumed the analysis of anticausatives from Koontz-Garboden (2009), which treats anticausatives as derived from caused change-of-state bases whose causer subjects are unspecified for agentivity entailments. While I have assumed this analysis and provided some preliminary evidence which suggests that this is consistent with the Kinyarwanda data, I have been unable to replicate the diagnostics used in previous literature (e.g., 'by itself' modification) to fully motivate the nature of causation and agentivity in Kinyarwanda anticausatives due to language-specific facts that confound the traditional diagnostics. An aim for future work is to continue searching for diagnostics which can probe causation in the meaning of verbs, and this in turn will provide stronger evidence for the analysis of the morpheme *–ik* proposed here.

This study is a first pass at describing detransitivization strategies and analyzing the semantic nature of the morpheme *–ik* in Kinyarwanda. While there are still many questions for future work, I have made the case here that the possible readings of the morpheme *–ik* are determined in part by the meaning of the verb to which the form attaches. This fits with recent work on applicatives and causatives which argues that verb meaning is crucial to the realization of valency-changing morphology (e.g., Jerro 2016b, Sibanda 2016). Specifically, it was shown that the possible readings of *–ik* vary depending on the class of verb and, in some cases, idiosyncratic meanings of individual verbs. This suggests that valency-changing operations are not as productive as sometimes assumed in the literature. Further, the derivational marking between transitive and intransitive variants of a verb are often doubly-marked (e.g., a causative morpheme on the transitive and a passive morpheme on the intransitive), which suggests that the morphology is not productively increasing or decreasing the valence, but rather marking paradigm members non-derivationally. As research continues to investigate the nature of argument structure in Bantu languages, a rich area of future work is the degree of productivity and lexicalization that is at play with respect to valency-changing morphology.

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Notes

[1]See Section 2 for discussion of the presentation of Kinyarwanda data. I gloss the morpheme *–ik* as NEUT for "neuter," in line with previous work, though I will ultimately argue for this morpheme to be analyzed as a marker of the middle voice.

[2]See Kimenyi (1973), Coupez (1980), Botne (1983) and Ngoboka & Zeller (2017) for discussion of tense, aspect, and information structure in Kinyarwanda.

[3]The non-past prefix *ra–* is realized as *da–* after nasals.

[4]The orthographic sequence "shy" in Kinyarwanda corresponds to the palatal fricative [c], thus the contrast between the inchoative and causative for the verb *gu-shyuha* 'hot' is not additional phonological material, but a change in the nature of the final consonant.

[5]Recall that the perfective affects the final consonant of the verbal stem; in the case of *ku-nanirwa* 'to be tired', the perfective deletes the [r] in the stem.

[6] An anonymous reviewer points out that the productive reading in (33) is listed as an available reading in Coupez et al. (2005). The speakers I consulted were consistent about their interpretation the sentence in (33). I find it unsurprising that there is speaker variation with respect to various judgments of these kinds; my impression is that Kinyarwanda exhibits more variation than has been fully documented in the literature, and this is a rich area for future exploration. The point in (33) is that for at least certain speakers, the productive reading is blocked.

[7]On some approaches, ingestive verbs like "eat" and "drink" are analyzed as specific subtype of change-of-state verbs in which an agent reflexively causes him-/her-/them-self to potentially digest food (Jackendoff 1990, Amberber 2002, Krejci 2012, Jerro to appear). I leave the discussion as to whether these facts hold in Kinyarwanda to future research.

[8]See also work on the polysemy of *–ik* in other Bantu languages (Chavula this volume, Bernander this volume).

[9]Coupez et al. (2005) include a possible reading for this verb. As mentioned in footnote 6, it is probable (and perhaps expected) that speakers vary in their judgments. The data in (40) is the consistent judgment of the speakers I consulted.

[10]There is a debate as to whether a particular sentence with a middle construction is an unergative or unaccusative—see, e.g., Ackema & Schoorlemmer (1995), among others. I do not engage with this set of facts here.

[11]The verb *gu-simbuka* 'to jump' also has an intransitive use (see Jerro 2016a); I assume here that these are separate but related senses of the verb.

[12]An anonymous reviewer points out that this verb may include a lexicalized causative in its form. This is consistent with the fact that this verb is causative (and not reflexive).

[13]Beavers & Udayana (2018) also note that the language has a general tendency for causative marking over anticausative marking.

[14]Note that the *z* consonant in (63) is a result of spirantization triggered by *–(y)e*; this is the intransitive verb *k-oga* 'to wash (intr).' The transitive verb with the perfective would have the form *–ogeje*.

[15]Another possibility is that if *k-ogosha* 'to shave' were reflexive, the causative could delink the reflexive nature of the verb — a pattern observed in a variety of languages (Jackendoff 1990, Amberber 2002, Krejci 2012, Jerro to appear). This would result in causative-marked form in (67) having the reading of 'Nkusi shaved Habimana'. This is also not the reading of the verb, which further indicates that the base verb is not reflexive.

[16]Coupez et al. (2005) list the verbs *–karuuka* "atténuer sa colère" and *–karuura* "rendre calme, adoucir" for this paradigm. I report here the forms given by the speakers I have consulted, and I leave the reasons for these difference (or a possible relationship between the forms reported here and those in the Coupez et al Dictionary) for future work.

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