

## Online Appendix: A review of theories of actionality in Bantu languages

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### 1 Introduction

Treatments of actionality (a.k.a. *lexical aspect*, *situation type* among other names; see Sasse [2002: 203]) in Bantu languages typically fall within those paradigms which Sasse (2002), drawing on Bickel (1997), calls *radical selection theories* (also see Croft 2012: 48–51).

The basic premise of these theories is that the dimension of actionality is represented as a combination of successive (boundaries and) phases. Morphosyntactic aspectual operators ‘pick out’ or ‘select’ (Sasse 2002:223) a specific phase or phases from the lexical dimension of actionality and relate them to a point of reference (also see Section 1.2 of the main body of this paper).<sup>1</sup> There are slight differences between such theories as to how exactly selection is understood: in Breu and Sasse’s (Breu 1984, 1994; Sasse 1991) and in Bickel’s (1996, 1997) approach, the morphosyntactic operators are understood to highlight phases or boundaries, whereas in Johanson’s (1996, 2000) and Botne and Kershner’s (e.g. 2000, 2008) approaches, a morphosyntactic operator can also introduce a perspective *relative to* a phase or boundary. In the case of Johanson’s (1996, 2000) *postterminality* and Botne and Kershner’s (2000, 2008) understanding of perfectivity (see Section 3.3), this perspective may be posterior to and thereby fall outside of the lexicalised state-of-affairs.

The radical selection theories applied to Bantu languages belong to two different strands that have been developed independently from one another. The first strand consists of the framework developed in a series of papers by Walter Breu and the late Hans-Jürgen Sasse (Breu 1984, 1994, 1998; Sasse 1991). The second, and currently dominant strand, consists of the framework developed specifically with Bantu languages in mind by Robert Botne and Tiffany Kershner (Botne 1983; Kershner 2002; Botne and Kershner 2000, 2008). Before giving the details and some basic criticisms of these frameworks in Sections 2 (Breu-Sasse) and 3 (Botne-Kershner), it is worth comparing and contrasting their main features.

Like much cross-linguistic work on actionality, the frameworks of both Breu/Sasse and Botne and Kershner take the classification of actional types first presented in Vendler (1957) as their starting point. In his influential work, Vendler attempts to explain the divergent semantic and syntactic behaviour of verbal expressions in English. Vendler’s original classification was meant to deal with entire expressions, but it has, in many cases, come to be understood as a classification of individual lexemes. Based on temporal criteria and the behaviour in specific syntactic frames, Vendler stipulates a fourfold classification: activities (e.g. *run*, *eat*), accomplishments (e.g. *grow up*, *recover from illness*), achievements (e.g. *find*, *die*), and states (e.g. *want*, *know*). A major split between these categories runs along the line of telicity (end-orientedness).<sup>2</sup> Achievements and accomplishments are understood as state-of-affairs that are directed towards an inherent end, and therefore as telic, whereas states and activities are understood as atelic. The latter two differ in the parameter of dynamicity: activities are understood as dynamic, states as not. States, activities, and accomplishments on the one hand, and achievements on the other, are further said to differ regarding durativity (temporal

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<sup>1</sup> When referring to “the main body” of this article, we mean the paper “What’s in a Bantu verb? Actionality in Bantu languages”, to which this paper serves as an appendix.

<sup>2</sup> The telic-atelic distinction is often taken as primary, see e.g. the discussion by Filip (2012: 721). It should be noted, however, that both definitions of and approaches to the theoretical modelling of telicity differ in the literature; see Borik (2006, ch. 2) for an overview. Some theories, on the other hand, draw a primary distinction between states and *occurrences* (Mourelatos 1978). For a graphic overview of implicit or explicit hierarchies in various classifications of actionality see Tatevosov (2002: 320–321).

extension). This difference is crucial in making the distinction between achievements and accomplishments: as Binnick (1991: 195) puts it, “an achievement is all culmination; although the achievement is possibly preceded by some activity [...] the verb refers only to the achievement phase, not the preceding activity”. Accomplishments, in contrast, include the process, and can therefore be understood as the combination of an activity (the coming-to-be) with an ensuing achievement (the culmination point). A widely accepted addition to Vendler’s classes has been the group of semelfactives, which are understood as punctual, but atelic occurrences such as *sneeze* or *knock* (Smith 1997 [1991]).

Breu (1984, 199) and Sasse (1991) maintain Vendler’s four main classes (see Table 1 below), adding a fifth class of left-delimited states. Botne and Kershner’s main modification to the Vendlerian system is the subdivision of achievements into four types, depending on the lexicalisation of a coming-to-be phase and resultant state (see e.g. Botne [2003] and Table 2 below). As a result of this addition, Botne and Kershner posit at least eight actional classes – the exact treatment of which differs from work to work – allowing their framework to account for the complex lexicalisations seen in Bantu verbal semantics. In contrast, Breu and Sasse (with the exception of Breu [1998]) depart from the assumption that the dimension of actionality can contain only a single (temporally extended) phase plus its possible boundaries.

Another key difference between the two approaches is that Breu and Sasse describe actionality in terms not only of phases, but also of boundaries that delimit these phases to their left and/or right. Botne and Kershner, on the other hand, do not assume any boundaries, but only phases. The phases themselves, however, may be punctual or durative. At a glance, the difference between punctual phases and phasal boundaries might seem like a minor discrepancy in terminology, but it is closely linked to another key difference. In Botne and Kershner’s understanding (which in turn is based on Freed [1979]), the constituent phases of a state-of-affairs are organised around a so-called *nucleus* phase, which is said to be the “characteristic and prominent feature of the event” (Botne and Kershner 2000: 165). The nucleus plays a central role in the interaction between the dimension of actionality and that of the morphosyntactic aspectual operators.

In the following sections we give a more detailed overview of each of these two strands of radical selection theories and their application to Bantu languages, including a preliminary evaluation in light of the characteristics of Bantu actionality described in Sections 2 and 3 of the main body of this paper. A dedicated in-depth intra- and inter-theoretical debate lies beyond the scope of this appendix and will constitute the topic of a follow-up paper.






## 2 The Breu-Sasse framework

### 2.1 Overview

Breu (1984, 1994) and Sasse (1991) depart from the assumption that, maximally, a single phase plus its left and right boundaries may be lexicalised. (Breu’s [1998] modification, which allows for the lexicalisation of more than one phase, is discussed below.) This assumption leads Breu (1984, 1994) and Sasse (1991) to postulate a maximum of five actional classes, which roughly reflect the four Vendlerian classes plus left-delimited states. Table 2 gives an overview of these classes, with English labels taken from Breu (1994). For the sake of comparison, and without changing their essential phase (+ boundary) structures, we have translated Breu and Sasse’s classes into graphic representations that mirror the representations of Botne and Kershner’s classes.

Table 1: Actional classes in the works of Breu (1994, 1998) and Sasse (1991)

Actional class	Constituent parts	Graphic representation
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totally static	phase	
activity	phase plus potential left and right boundaries	
gradually terminative	phase plus right boundary	
totally terminative	left and right boundaries collapsed into one	
inceptively static	phase plus left boundary	

As for the functions of the major types of morphosyntactic operators, Breu (1994, 1998) and Sasse (1991) understand perfective aspect as a boundary selector. This can be illustrated with an example from Bickel (1997), whose work closely reflects Breu and Sasse's. According to Bickel, the French *se noyer* 'to drown' can be understood as a Vendlerian accomplishment, in that it encodes a durative process of drowning plus a punctual transition (the culmination point). In terms of phases and boundaries, this translates into a phase plus its right boundary, i.e. a gradually terminative verb in Breu and Sasse's terms. The French past perfective *Passé Composé* then selects the right boundary and denotes the culmination, namely, that the subject drowned (1a). The imperfective aspect, on the other hand, is understood as a phase selector. Accordingly, the *Imparfait* (past imperfective) is said to select a time within the preliminary phase of drowning (1b).

(1) French (Romance; fra)

- a. *Il s'est noyé.*  
 PRON.3SG.M REFL-COP.3SG drown-PTCP  
 'He drowned.'
- b. *Il se noyait.*  
 PRON.3SG.M REFL drown-PST.IPFV  
 'He was drowning.'
- (Bickel 1997: 116, based on Garey 1957)

This understanding of the imperfective aspect as a phase selector explains the well-known effect that (1b) implicates, but does not entail (1a). While both the drowning phase and its culmination form part of the lexicalised aspectual potential, it is only the drowning phase which is selected by the imperfective aspect.

As has been pointed out above, apart from the four Vendlerian classes, Breu and Sasse's framework includes left-delimited states (inceptively static verbs, in their terms). This addition accounts for an actional type that has been documented for a variety of languages across Eurasia and Northern America. Examples include Turkish (Turkic; tur) *otur* 'sit down, sit' (Johanson 2000), Belhare (Sino-Tibetan, Nepal; byw) *misen nima* '(get to) know' (Bickel 1997) or Squamish (Salish, Canada) *t'ayaq* 'get/be angry' (Bar-el 2005); see Ebert (1995) and Tatevosov (2002) for more discussion. This actional type can be illustrated with Spanish (Romance; spa) *conocer* '(get to) know', which Chapado and García (1991) show denotes either the transition into the state of knowledge (2a) or the state within its inception and termination (2b) when it is used with perfective aspect. With imperfective aspect, what is referred to is the state itself (2c).

(2) Spanish (Romance; spa)

- a. *conoc-í* *a* *María* (*hace muchos años*)  
(get\_to)\_know-PST.PFV.1SG DOM M. ago many years  
'I got to know María (many years ago).'
- b. *tú* *conoc-iste* *muy bien* *a* *María*  
PRON.2SG (get\_to)\_KNOW-PST.PFV.2SG very well DOM M.  
'You knew María very well.' (e.g. she is dead now)
- c. *conoc-ía* *a* *María*  
(get\_to)\_know-PST.IPFV.1SG DOM M.  
'I knew María.'  
(Chapado and García 1991: 51; author's knowledge)

In his (1998) paper, Breu adds a sixth class of what he calls “inchoative” verbs to the framework. This class is understood as consisting of an extended phase delimited to its left and right (i.e. resembling Breu and Sasse’s understanding of Vendlerian activities) followed by a second phase (the resultant state). Breu introduces this complex class in order to account for the aspectual behaviour of Russian (East Slavic; rus) pairs such as *Прятаться* ‘hide.IPFV’ and *Спрятаться* ‘hide.PFV’, in which the imperfective form is ambiguous between a coming-to-be reading and a resultant state one,<sup>3</sup> while the perfective aspect denotes the state change. Zúñiga (2001) adopts this additional class in his analysis of aspect and actionality in Mapudungun (Isolate, Chile; arn). As for Bantu languages, Breu’s (1998) modification has, to our best knowledge, not been adopted.

In a purely theoretical vein, it is noteworthy that after introducing the class of “inchoative” (i.e. biphasal) verbs, Breu (1998: 64) continues, “... zeigt nur die [INCO]-Klasse eine Versprachlichung, ... die dem Aufbau eines idealtypischen Sachverhalts nahek kommt ... Die beiden anderen Klassen [GTER, ISTA] scheinen demgegenüber defektiv” (“... only the [inchoative]-class has a conventionalised linguistic representation that ... approximates the structure of an archetypal state-of-affairs ... the other two classes [phases with only a left or right boundary], seem defective in comparison”). Contrasting this statement with the central assumptions of Breu’ and Sasse’ framework<sup>4</sup> raises the following question: how can this additional class fit into an actional classification that departs from the very assumption that no more than a single extended phase may be lexicalised? On the other hand, assuming, that Breu’s (1998) inchoative class does not constitute a principled contradiction to their framework, we need to consider the addition of further classes, such as, for example, inchoatives without an initial boundary (see Section 2.2 below).

## 2.2 Applications to Bantu languages

We are aware of three studies that apply the Breu-Sasse framework to aspectuality in Bantu: Drolc (1992), Mreta (1997), and Fleisch (2000).

<sup>3</sup> Johanna Nichols (p.c.) points out that of these two, the resultant state reading is the more common one.

<sup>4</sup> As Sasse (1991: 6) puts it: “daß aufgrund der kognitiven Konzeption der gesamten ‘Aspektdimension’ diese und nur diese fünf Klassen das Maximum der möglichen grenzorientierten Distinktion bildet”(“that as a result of the overall cognitive conceptual design of the ‘dimension of aspect’, these, and only these, five classes constitute the maximal set of possible boundary-based distinctions”).

Drolc (1992) discusses the functions of the Perfect prefix *me-* in Swahili (G42d; East Africa, swb). As for inchoative verbs, in her understanding, the stative reading with *me-* is not due to a lexicalised resultant state phase but, with most telic verbs, arises through the Perfect's focus on the state brought about by the change having passed – an analysis comparable to Moens and Steedman's (1988) perfect state – whereas with other verbs it is due to an ongoing process of resemantification in which “telic” verbs acquire primarily “atelic or state meaning” (Drolc 1992:75).

Mreta (1997), in his work on Chasu (G22, Tanzania; asa), likewise applies Breu's (1984, 1994) and Sasse's (1991) categories. In Mreta's model, some inchoative verbs belong to the class of inceptively stative verbs (which Mreta renames “inchoative”), i.e. left-delimited states, whereas others belong to the gradually terminative class, encoding a phase with its right boundary (Mreta speaks of them as having features of both activity and totally terminative verbs).

Fleisch (2000), in his work on Luchazi (K10, Angola; lch) takes a slightly different approach in that he bases his classification of verb types not only on phases and boundaries, but – following, in part, Dik (1989) – also on additional semantic factors, including dynamicity and participant roles. Based on these factors, Fleisch posits three main classes of verbs, sometimes collapsing (and, to some extent, restructuring) the classes found in Sasse (1991) and Breu (1984, 1994).

*Actions* constitute the first, and largest, class. Actions are typically agentive (though they also include non-human-controlled weather events), and may have a left boundary. The right boundary is either potential or implicit, depending on the verb (phrase). Fleisch notes that with Actions, the parameter of telicity is of less importance. The second class is labelled by Fleisch as *Processes*. These verbs do not have an agentive/controlling subject, and they depict telic events leading to a result state. The run-up to the result state is not encoded; thus, Fleisch puts these verbs into Breu and Sasse's “totally terminative” class, marking only a right boundary. The result state, Fleisch argues, is pragmatically implicated and not lexically encoded; it is invoked by anterior verb forms. Finally, a small class labelled *Situations* collapses Sasse and Breu's Totally Stative and Inceptively Stative classes. These verbs are atelic, lacking a right boundary, and may or may not have a left boundary. The left boundary is construed as the dynamic situation leading to the state: Fleisch (2000:242) gives the example of *tsikama* ‘kneel’, which can be used to refer both to the dynamic situation of getting onto one's knees and to the state of being in a kneeling position. Situation verbs with a left boundary may be controlled by the subject (and can thus be felicitously used with imperative morphology) and, as mentioned, may refer to both the coming-to-be phase (although speakers differ as to the felicity of such uses with some verbs), and to the result state.

What the three applications of the Breu-Sasse framework to Bantu languages share is that they are limited by Breu and Sasse's assumption that only a single phase, in the case of change-of-state verbs either the coming-to-be or the resultant state, but not both, can be lexicalised. As illustrated in Section 1.1 of the main body of this article, across the Bantu language family many verbs have a present state reading with perfect(ive) morphology, whereas the imperfective form highlights the process leading to the state. (3) illustrates this for the Southern Ndebele (S407, South Africa; nbl) verb *hlakanipha* ‘be(come) clever’.

### (3) Southern Ndebele

- a. *USipho u-hlakaniph-ile*  
1A.Sipho SP<sub>1</sub>-be(come)\_clever-PFV.DJ  
‘Sipho is clever.’ (he's wise/intelligent)
- b. *USipho u-ya-hlakaniph-a*  
1A.Sipho SP<sub>1</sub>-(PRS.IPFV)DJ-be(come)\_clever-FV  
‘Sipho is becoming clever.’ (e.g. his test scores are showing improvement)

(Crane fieldnotes)

A verb like Southern Ndebele *hlakanipha* allows for two types of analysis, each with its own problems. Under the first analysis, it is assumed that a verb like Southern Ndebele *hlakanipha* lexicalises a left boundary plus a following result state phase, in which case the coming-to-be reading with imperfective aspect would have to be explained as the result of aspectual shift, either synchronically in the form of coercion (see Mreta [1997: 125–126]) or in the form of an ongoing semantic shift (Drolc 1992). Under the second analysis, a verb like Southern Ndebele *hlakanipha* lexicalises a coming-to-be phase plus its right boundary. In this case, the static reading in the perfective aspect is assumed to be the result of a conversational implicature (as hinted at by Mreta [1997] and Fleisch [2000]), through which a proposition about a preceding state change is understood as reference to a following state. For Drolc (1992), for telic verbs (i.e. those featuring a right boundary) the resultant state is not part of the lexical aspectual potential, but introduced by the present-relevance component of perfect semantics. This does, however, not account for cases like Totela (K41, Namibia and Zambia; ttl) (Crane 2011: 129–135), in which the marker in question does not fit the postulated crosslinguistic gram of perfect (that is, if we assume that crosslinguistic grams have any reality at all, see Haspelmath [2010]).

As discussed throughout the main body of this paper, contrary to these analyses, the evidence available so far strongly points towards the lexicalisation of both the coming-to-be as well as the resultant state. Interestingly, Mreta (1997) introduces a subcategory of what he calls inchoative verbs (his term for Breu and Sasse's inceptively static, i.e. left-delimited states) that he terms transitionals. Although he does not further define them, he mentions (1997: 92) that they allow for adverbial quantification of the coming-to-be phase, which could be taken as a first indication that these verbs might also lexicalise a coming-to-be phase.<sup>5</sup>

For Ndali, Nyakyusa, and Southern Ndebele, there are strong indications for (at least) two different types of coming-to-be-phases; see the discussion around Table 1 in Section 3.1 of the main body of this paper. Even though Breu's (1998) addition of biphasal verbs in principle allows to account for complex lexicalisations, it does not offer a straightforward way of modelling this specific sub-distinction. In fact, Breu (1998) explicitly rejects any ontological difference between different types of coming-to-be phases. One conceivable solution could consist in adding an additional class of biphasal verbs without a potential left-boundary, thus distinguishing between an activity-like coming-to-be vis-à-vis a pre-state like one. However, this would raise the question of why what appears to be a difference within the semantic content of the coming-to-be phase should be translated into different phase-boundary configurations; see Section 3.3 for a similar criticism of Botne and Kershner's framework.

As mentioned above, Fleisch (2000) employs not only phasal configurations, but introduces further semantic factors into his classification of Luchazi verbs. In a comparable manner, Bickel (1996: ch 2, 1997: 117), who works within the Breu-Sasse framework, discusses the need for a semantic feature of dynamicity, and Johanson (1996, 2000), whose model in many respects reflects that of Breu and Sasse, also uses such a feature to differentiate between Vendlerian activities and states; see Johanson (1996, 2000) for a similar proposal. Lastly, Zuñiga (2001) in his treatment of Mapudungun (Isolate, Chile; arn) differentiates between different degrees of stativity. A tentative conclusion that we may take from this synopsis is that an understanding of actionality as the lexicalisation of a mere succession of phases and boundaries without including further information (and thus introducing the additional dimension of phasal qualities,

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<sup>5</sup> Also see Bertinetto's (2003) review of Mreta (1997) who points out that intra-group granularity could have been explored further and that the distinction between the groups appears to be less clear-cut than what Mreta assumes.

following e.g. Dik [1989]) is limited in its explanatory power (see also Sasse [2002: 225, fn28] and Croft [2012: 51]).

### 3 The Botne-Kershner framework

The dominant framework in current approaches to actionality in studies of Bantu languages is the variant of radical selection theory developed by Robert Botne and Tiffany Kershner (Botne 1983; Kershner 2002; Botne and Kershner 2000, 2008; among others). Botne and Kershner's approach to actionality, together with other ideas from their (2008) framework, has without doubt been the main instigator in the recent rise in research and publications on Bantu AT systems, as it is specifically designed to account not only for complex lexicalisations (a coming-to-be phase plus the point of change, as well as the resultant state lexicalised in a single verb), but also their interactions with markers of grammatical aspect. Many researchers (see Section 3.3 below) have turned to the Botne and Kershner framework to account for otherwise unexpected grammar–lexicon interactions in Bantu languages. Because of its descriptive advantages and widespread application, the Botne and Kershner framework merits close attention and further critical assessment.

#### 3.1 Botne and Kershner on actionality

Botne and Kershner's approach to actionality differs from that of Breu and Sasse in the number of actional classes it provides. In addition, it does not employ the concept of boundaries, but centers around a so-called “nucleus” phase. Concerning the latter, Botne and Kershner base their framework heavily on the work of Freed (1979), which therefore deserves a short excursion.

Freed (1979) is an analysis of English aspectualisers (a.k.a. phasal verbs) and their interaction with verbal semantics and the syntax of verbal complements. Freed proposes a classification of actionality that is based on the Vendlerian categories. In analogy with syllable phonology, she proposes that the temporal structure of the lexical verb or the verb phrase (i.e. the phasal configuration) can be understood as a combination of three segments, namely an onset, a nucleus,<sup>6</sup> and a coda. In Freed's understanding, the onset constitutes a preliminary or preparatory phase. The nucleus constitutes the “characteristic” act encoded in the lexical verb, or in Freed's (1979: 34) own words, “the time segment during which an act is ‘in progress’ without reference to its beginning, its end, or its duration. It is simply the period during which *the nuclear or characteristic activity* of the event is taking place [emphasis ours]”. The coda is a final phase following the nucleus.


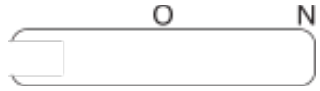
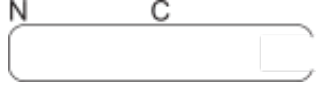

Botne and Kershner's framework was first developed in Botne's (1981, 1983) studies of Kinyarwanda and has been expressed perhaps most prominently in Botne and Kershner (2008). Their central modification of Freed's (1979) approach lies in allowing for more combinations of phases, along with an explicit conceptualisation of achievement verbs as having a punctual nucleus encoding the transition (Freed describes achievements as impossible to segment into phases). Achievement verbs, Botne and Kershner argue, may also encode an extended onset and/or coda phase, which leads to four different types of achievement verbs (the “acute”, nucleus-only type is not identified in Botne's earlier [1981, 1983] works). These four types of achievements are illustrated in Table 2. As discussed below, Botne and Kershner also posit structureless states and a class of verbs with “durative” nuclear structure, and some later works further distinguish between achievements with punctual nuclei and accomplishments with durative nuclei. Table 2 only deals with subtypes of achievements, as these are the most relevant

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<sup>6</sup> Freed's (1979) use of the term nucleus differs from that of Moens and Steedman (1988), in which the nucleus encapsulates “a culmination, an associated preparatory process, and a consequent state” (1988:18), that is, all three of Freed's phases.

for understanding change-of-state verbs, and as Botne's and Kershner's various works differ from one another more significantly in their treatments of other classes.

Table 2: Types of achievements Botne and Kershner's framework  
(O = onset, N = nucleus, C = coda)

Label (Botne 2008)	Graphic representation	Approx. correspondence in Breu and Sasse's works	Example (Botne 2008)
Acute achievement		<i>totally terminative</i>	Ndali <i>fika</i> 'arrive'
Inceptive achievement		<i>gradually terminative</i>	Ndali <i>pola</i> 'heal (intr.)'
Resultative achievement		<i>inceptively static</i>	Ndali <i>hoboka</i> 'be(come) happy'
Transitional achievement		n/a	Ndali <i>fwa</i> 'die'

Botne and Kershner base their classification of verb types on their different interpretations with tense-aspect inflection, phasal verbs and temporal adverbials. A summary of Botne's (1983) work on Kinyarwanda (JD61, Randwa, kin) illustrates this approach.

Botne (1983) sets out by observing a major split between verbs in their behaviour with the Kinyarwanda Past Imperfective construction SP-*a*-VB-*aga*: activity-type verbs like *kama* 'milk' and state-type verbs like *bona* 'see' have an ongoing as well as a habitual/generic reading in this construction (4).

#### (4) Kinyarwanda

- a. *y-á-kám-àgà* *inka*  
SP<sub>1</sub>-PST-milk-IPFV cow  
1. 'She was milking the cow.'  
2. 'She used to milk the cow.'
- b. *y-á-bón-àgà* *ko* *nyogokuru* *y-á-vúg-àgà* *ukuri*  
SP<sub>1</sub>-PST -see- IPFV COMP grandmother(1) SP<sub>1</sub>-PST-speak- IPFV truth  
'He was realizing [=he knew] (at that time) that his grandmother was telling the truth.'  
'He used to accept that his grandmother was telling the truth.'  
(Botne 1983: 161)

Verbs expressing a change-of-state, such as *ragira* 'start to tend/tend',<sup>7</sup> on the other hand, only have the habitual/generic reading, but not the progressive one (5a). To express the subject's engagement in herding, the Completive aspect (understood by Botne as inducing a post-nucleus perspective; see Section 3.2), has to be used (5b).

#### (5) Kinyarwanda

- a. No extended nucleus phase:

<sup>7</sup> While 'tend' at first glance might seem like a counterintuitive example, Kinyarwanda *ragira* encodes both the transition into and the "state" of being engaged in herding.



*y-á-rágìr-àgà*                      *ihene n'intaama*  
 SP<sub>1</sub>-PST -tend- IPFV      goats and sheep  
 'He used to tend the goats and sheep.'  
 NOT: 'He was tending the goats and sheep.'

- b. Reference to tending through Completive aspect:

*y-á-rí*                      *à-ràgìye*                      *ihene n'intaama*  
 SP<sub>1</sub>-PST-COP      SP<sub>1</sub>-tend.CMPL goats and sheep  
 'He was tending the goats and sheep.'  
 (Botne 1983: 162)

According to Botne, the past Imperfective in its progressive reading refers to an extended nucleus phase. By this logic, achievement-type verbs allow only for the habitual/generic reading because their nucleus phase is lexicalised as punctual. As additional evidence for this interpretation, Botne discusses the divergent behaviour of activity-type verbs and achievement-type verbs in the disjoint simple present configuration SP-*ra*-VB-*a*.<sup>8</sup> Activity-type verbs allow for a present progressive as well as for a future-of-today reading in this configuration (6a). Achievement-type verbs, however, only allow for the futurate reading (6b).

#### (6) Kinyarwanda

- a. Extended nucleus phase:

*à-rá-kám-à*      *inka*  
 SP<sub>1</sub>-DJ-milk-FV cow  
 1. 'She is milking the cow (at present).'  
 2. 'She is going to milk the cow (later in the day).'

- b. Punctual nucleus phase:

*à-rà-ràgìr-a*      *intaama*  
 SP<sub>1</sub>-DJ -tend-FV      sheep  
 'He is going to tend the sheep (later in the day).'  
 Not: 'He is tending the sheep (at present).'  
 (Botne 1983: 162–163)

Having established a basic distinction between verbs with an extended nucleus phase and those with a punctual nucleus phase (achievement-type), Botne identifies further subdivisions within the latter, based on the presence or absence of the coming-to-be and resultant phases. This leads him to distinguish between three classes of achievements: inceptive achievements (labelled simply "achievements" in this specific work), transitional achievements, and resultative achievements. The argumentation runs as follows. First, verbs like *tegereza* 'wait' (7a) differ from verbs like *siinzira* 'sleep' (7b) and *gera* 'arrive' (7c), in that only the latter have a coming-to-be reading in the periphrastic progressive construction (copula plus locative plus infinitive). Botne interprets the availability of this coming-to-be reading as an indication of a lexicalised coming-to-be phase (which he calls the onset phase).

#### (7) Kinyarwanda

- a. No onset phase available:

\**à-rí*                      *mù*                      *kú-mú-tègèrèz-à*  
 SP<sub>1</sub>-COP      18(LOC)      INF-OP<sub>1</sub>-wait- FV  
 'Intended: 'He is about to wait for him.'

- b. Onset phase available:

<sup>8</sup> Botne (1983) speaks of a segmental prefix and perfective aspect. We follow Ngoboka and Zeller (2017) and references therein in their choice of label.

*à-rì mù gù-siinzìr-à*  
 SP<sub>1</sub>-COP 18(LOC) INF-OP<sub>1</sub>-sleep- FV  
 ‘He is falling asleep.’

- c. Onset phase available:

*tù-rì mù kù-gèr-à iwanyu*  
 SP.1PL-COP18(LOC) INF -arrive-FV home  
 ‘We are about to arrive home.’  
 (Botne 1983: 166)

On the other hand, verbs like *siinzira* ‘sleep’ (8b) and *tegera* ‘wait’ (8c), but not *gera* ‘arrive’ (8a) can occur in the frame of (past tense plus) completive aspect plus a temporal adverbial phrase, which in this case measures the duration of the resultant state (the coda phase).

#### (8) Kinyarwanda

- a. No coda phase available:

*\*y-à-gèye iwe minota icumi*  
 SP<sub>1</sub>-PST-arrive.CMPL home minutes ten  
 Intended: ‘S/he arrived home for ten minutes.’  
 [i.e. ‘His/her arrival led to him/her staying for ten minutes.’ - Authors]

- b. Coda phase available:

*y-à-siinzìr-iyè masaaha abili*  
 SP<sub>1</sub>-PST-sleep.CMPL hours two  
 ‘S/he slept for two hours.’

- c. Coda phase available:

*y-à-mù-tègèr-èjè masaaha abili*  
 SP<sub>1</sub>-PST- OP<sub>1</sub>-wait- CMPL hours two  
 ‘She waited for him/her for two hours.’  
 (Botne 1983: 165)

The behaviour of the verbs in question within other syntactic frames, such as with expressions of ‘for X time’ and as the complement of the phasal verb *taangira* ‘start’ corroborate these patterns.

Based on similar distinctions, Botne (2003) discusses verbs translating as ‘to die’ across a set of genetically and geographically diverse languages and postulates that they belong to different classes of achievements. According to Botne, a case of a Vendlerian achievement, i.e. the lexicalisation of only a punctual nucleus phase, is found in Yoruba (Niger-Congo, Benin and Nigeria; yor). In this language, *kú* ‘to die’ cannot occur in progressive aspect (9a), unlike a verb like ‘to sing’ (9b). Instead, to express an imminent transition towards death, a periphrastic future construction needs to be used (9c). Botne takes this as evidence for the lack of a lexicalised coming-to-be phase (onset phase). In (9d), in which the length of the state of death (until the point of speech) is indicated, the speaker must refer to the point of transition, rather than to the state itself. Botne interprets this fact as indicating the lack of a lexicalised result state (coda phase).

#### (9) Yoruba

- a. *ó ñ kú*  
 3SG PROG die  
 (intended: ‘S/he is dying.’)  
 b. *ó ñ kòrin*  
 3SG PROG sing

- ‘S/he is singing.’
- c. *òun máa to kú*  
3SG FUT sufficient die  
‘S/he will soon die.’
- d. *ó ti kú láti ọdú méjì séhìn*  
3SG PFCT die from year two past  
‘S/he has been dead for two years.’ (lit. s/he has died from two years past)  
(Botne 2003: 270– 271)

As for Vendlerian states, in Botne and Kershner’s framework they are typically described as having no internal structure at all (Kershner 2002; Botne 2008), thus distinguishing them from Vendlerian activities, which are described as encoding an extended nucleus phase. However, some treatments (Seidel 2008; Persohn 2017) argue that this class of verbs is not principally different from other activity-type verbs, except in the parameter of dynamicity. We might also point out that the idea of structureless verbs appears, at first evaluation, to be orthogonal to the basic assumption of radical selection theories, namely, that the dimension of actionality is made up of a succession of (phases and) boundaries.

Concerning Smith’s (1997 [1991]) semelfactives, in some treatments (e.g. Botne [1983] on Kinyarwanda), they are analysed as consisting of solely a punctual nucleus phase, hence as identical to Vendlerian achievements. Seidel (2008) and Persohn (2017), in their respective treatments of Yeyi (R41, Namibia and Botswana; yey) and Nyakyusa, mention that these verbs mostly pattern with activity-type verbs. Kershner (2002) in her work on Sukwa (M202, Malawi; mis) subdivides durative verbs (consisting of an extended nucleus phase) into three types: extended (corresponding to activities), instantaneous (akin to Smith’s semelfactives), and periodic (e.g. verbs that translate as ‘shiver’ or ‘flap’; Kershner [2002:74]).

In later works adopting the framework of Botne and Kershner (Botne 2008; Persohn 2017), two additional classes of verbs are introduced. The first are so-called simple accomplishments, consisting of a durative nucleus phase plus a punctual coda phase and corresponding to Vendlerian accomplishment. The second addition consists of a class of transitional accomplishments, which consist of a durative nucleus phase followed by a durative coda phase. The latter is introduced to account for verbs like Nyakyusa *gaala* ‘be(come) drunk’, whose coming-to-be phase systematically differs in behaviour from that of verbs like *fugama* ‘kneel, be kneeling’; see the discussion around Table 1 in the main body of this paper. Table 3 illustrates this distinction as well as the phasal representation of “simple” (read: Vendlerian) accomplishments.

Table 3: Two types of complex lexicalisation

Nyakyusa verb	Phasal configuration following Botne (2008) and Persohn (2017)
<i>fugama</i> ‘get on one’s knee/be kneeling’ (transitional achievement)	
<i>gaala</i> ‘get drunk/be drunk’ (transitional accomplishment)	
<i>lya inguku joosa</i> ‘eat a whole chicken’ (simple accomplishment)	

While the stipulated different phasal configurations allow for modelling these distinct types of complex lexicalisations, they raise several principled questions: Is there any evidence for fundamentally different semantic representations, if both classes of verbs denote a coming-to-be together with a resultant state? What makes ‘to get drunk’ more essential (nuclear) than ‘to

get on one's knee? Or can the difference between these two classes be described instead in terms of identical phasal structures but with additional information about the quality of the coming-to-be phase?

Relatedly it seems possible to refer to the resultant state of an inchoative verb while at the same time excluding the entrance into that state, as illustrated in (10)–(11); see Section 3.2 of the main body of this paper for a more extensive discussion.

(10) Kinyarwanda

*Icy-umba cya Nkusi gi-hora gi-sukuy-e*  
 7-room CON<sub>7</sub> Nkusi SM<sub>1</sub>-always SM<sub>7</sub>-clean-PFV  
 'Nkusi's room has always been clean.'

(Jerro 2017: 8)

(11) Southern Ndebele

*Umntwana u-beleth-iw-e a-hlubule*  
 1.child SM<sub>1</sub>-give.birth-PASS-PFV.CJ SM<sub>1</sub>-undress.PFV.DJ  
 'The child was born naked.'

(Crane ms.)

With this in mind, can we maintain the assumption that the change-of-state rather than the resultant state constitutes the core meaning of such a verb? As Seidel (2008) points out, the alleged polysemy of many inchoative verbs in Bantu (which are often defined as, e.g. 'to become X'; 'to be X') should not be understood as an inherent ambiguity, but rather as "a metalinguistic inadequacy of English" (Seidel 2008:269, FN 249). In this case, defining the nucleus as the "characteristic and prominent feature of the event" (Botne and Kershner 2000: 62) obfuscates rather than brings to light this important semantic feature.

### 3.2 Botne and Kershner on the grammar-lexicon interface

So far we have discussed the treatment of actionality in Botne and Kershner's framework. A further major difference vis-à-vis Breu and Sasse's framework lies in the functions ascribed to the morphosyntactic operators.

First, in Botne and Kershner's framework, the morphosyntactic operators may not only select a phase or boundary, but also induce a perspective relative to one of the latter. Thus perfective (also sometimes labelled completive) aspect in Botne and Kershner's framework, is normally understood to construe the nucleus phase as having passed (Botne 1983, 2008, 2010; Botne and Kershner 2000, 2008; Kershner 2002). As Kershner (2002: 136) puts it, the suffix *-ite* in Sukwa (M202, Malawi, ndh) denotes "completion of the nuclear phase of the event, that is, the speaker's viewpoint is depicted as following the nucleus of the event". This idea of perfectivity in Bantu as denoting a sort of completion is already found in Welmers' (1974: ch12) seminal monograph on African language structures. What differentiates Botne and Kershner's proposal is the reference to the nucleus. With verbs (and verb phrases) that do not encode an extended coda phase (resultant state), such as Vendlerian activities, a post-nucleus perspective means that the state-of-affairs as a whole has passed (12). With those verbs that encode a coda state, however, the post-nucleus perspective can (and typically does) fall within this coda and thus refer to the resultant state (13). The graphics in Figures 1 and 2 illustrate this visually; for the sake of simplicity, the perspective induced by the perfective aspect is shown as a point in time.

(12) Sukwa

*a-sab-ite mu-nyanja*  
 SP<sub>1</sub>-swim-CMPL 18(LOC)-9.lake

‘S/he swam in the lake (earlier today).’

(Kershner 2002: 46)

Figure 1: Graphic illustration of (12)



(13) Sukwa

*a-kalal-ite*

SP<sub>1</sub>-be(come)\_angry-CMPL

‘S/he is angry (now).’

(Kershner 2002: 140)

Figure 2: Graphic illustration of (13)



In (13), the perfective aspect can only have a current-state reading. To denote a state-change that has passed, but whose resultant state does not hold, the perfective must be augmented by the preceding time unit (typically a past of today) prefix *aa-*.

Similar situations are found in Sukwa’s neighbour Ndali (Botne 2008) and in Kinyarwanda (Botne 1983). In Zulu (S42, South Africa; zul), some verbs have two possible forms in the so-called perfect: one with the common Bantu suffix *-ile* and another one in which *-e* is suffixed and *-i-* is typically infixes. In those verbs that encode a resultant state (coda phase), Botne and Kershner (2000) postulate that the *-ile* form induces a perspective following the lexically encoded state-of-affairs as such, yielding a state-change reading with inchoative verbs (14a), while the (*-i-*)...*-e* form yields a post-nucleus perspective and thereby a stative reading (14b).<sup>9</sup>

(14) Zulu

a. *ba-khatal-ile*

SP<sub>2</sub>-be(come)\_tired-PFCT

‘They got tired.’

b. *ba-khate:le*

SP<sub>2</sub>-be(come)\_tired-PFCT

‘They are tired.’

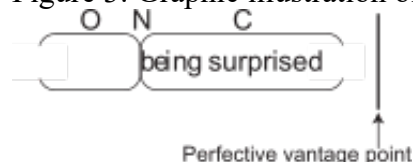
(Botne and Kershner 2000: 169–170)

In other Bantu languages, one and the same form can give both a stative reading and a state-change one. This phenomenon has been reported by Botne (2010) for Tooro (JE12, Uganda; ttj), Wanga (JE32a, Kenya; lwg) and Nyole (JE35, Uganda; nuj), by Botne et al. (2006) and Botne (2010) for Saamia (JE34, Uganda; lsm), by Dom *et al.* (2018) for the KiKongo cluster (H10), by Crane (2011, 2012) for Totela, by Gunnink (2018) for Fwe (K402, Namibia and Zambia; fwe) by Persohn (2017, 2018) for Nyakyusa and by Seidel (2008) for Yeyi. While analyses vary in their details, it is commonly assumed that in these languages the post-nucleus perspective is vague, allowing both for a perspective within the coda state as well as one following the state-of-affairs as a whole. Example (15) together with the illustration in Figure 3 illustrate this latter perspective for Totela.

<sup>9</sup> The long mid vowel /e:/ in the stem *kathe:le* is due to the infixation of /i/ plus vowel coalescence.

- (15) Totela  
*Ndá-komok-w-á* *sunu*  
 SP<sub>1</sub>.CMPL-surprise-PASS-FV today  
 ‘I got surprised today!’  
 (Crane 2011: 116; 127)

Figure 3: Graphic illustration of (14)

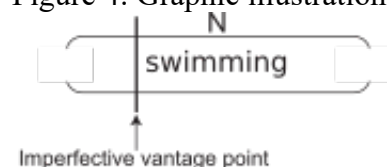


Further in-depth, language-specific analysis are needed to determine whether in cases such as (14) the state change reading necessarily arises from an aspectual perspective posterior to the manifestation of the entirety of a given lexeme’s (or verb phrase’s) phasal configuration (i.e., maximally the coming-to-be, the point of change, as well as the resultant state all having passed), or whether, at least in certain cases, the perfective might just select the point of change, similar to Breu-Sasse’s understanding of perfective aspect (see Section 2.1).

While perfective aspect in Botne and Kershner’s framework is typically understood as a marker of nuclear completion (Crane 2011, 2012), imperfective aspect (sometimes referred to as a non-completive perspective) may conversely be understood as selection of a phase before the right edge of the nucleus phase (16, Figure 4).

- (16) Sukwa  
*a-ku-sab-a* *mu-nyaanja*  
 SP<sub>1</sub>-PRS.IPFV-swim-FV 18(LOC)-9.LAKE  
 ‘S/he is swimming in the lake.’  
 (Kershner 2002: 46)

Figure 4: Graphic illustration of (15)



The interaction between imperfective aspect and the dimension of actionality may be more complex than these first examples suggest. As discussed above, according to Botne (1983), the Kinyarwanda past imperfective only selects an extended nucleus phase and is therefore, in its single-event reading, incompatible with achievement-type verbs. To refer to a coming-to be phase of these verbs, a periphrastic progressive marker needs to be used. In Ndali, on the other hand (Botne 2008: 99–103), the periphrastic progressive is not compatible with achievement-type verbs. This restriction distinguishes Ndali from its neighbours Sukwa (Kershner 2002) and Nyakyusa (Persohn 2017, 2018), where the cognate construction can be used more freely. Examples (17, 18) illustrate this phenomenon in Ndali and Nyakyusa, respectively, with the verb *fwa* ‘die’, which in both languages is classified as an transitional achievement, consisting of a durative onset phase, a punctual nucleus and a durative coda.

- (17) Ndali  
*\*a-li* *pa-ku-fw-a*

SP<sub>1</sub>-COP 16(LOC)-15(INF)-die-FV  
 (intended: ‘S/he is dying/about to die.’)  
 (based on Botne 2008: 101–102)

- (18) Nyakyusa  
*a-li pa-ko-fw-a*  
 SP<sub>1</sub>-COP 16(LOC)-15(INF)-die-FV  
 ‘S/he is about to die.’  
 (Persohn 2017: 129)

In many languages, including, for example, Totela (Crane 2011, 2012) and Fwe (Gunnink 2018), the aspect that is analysed as indicating a perspective prior to the right edge of the nucleus also has futurate readings; these are considered natural extensions of the pre-terminative perspective.

As both the imperfective and the perfective aspects, as described here, refer crucially to the nucleus phase – in particular, its right edge – it is not clear to us whether the model requires an ontologically distinct onset phase to account for aspectual phenomena. Certain aspectual markers do appear to target only certain kinds of phases: for example, the present tense construction in Fwe cannot target the coming-to-be phase of change-of-state verbs, which instead receive a futurate interpretation, while progressive forms do give a coming-to-be reading with change-of-state verbs (Gunnink 2018; see also the discussion of Kinyarwanda above). However, it is common across languages for tense and aspect markers to have selectional restrictions, and it may be that the stipulated onset/nucleus distinction in change-of-state verbs instead reflects differences in the quality of the coming-to-be phase. We take up this question in more detail in Crane and Persohn (in prep.).

### 3.3 Applications to Bantu languages

As mentioned above, the model put forth by Botne and Kershner has been the most widely adopted in recent analyses of Bantu actionality and aspectuality. Botne’s (1981, 1983) early model was first systematically applied to a large set of verbs by Kershner (2002) for Sukwa M202. Kershner investigates approximately 200 verbs using a series of tests. The tests involve interactions with various tense/aspect and negation operators, complementation with phasal auxiliary verbs, and the felicity of modal forms like the imperative. From the results of these tests, Kershner derives three overarching actional categories: “states”, “punctives”, and “duratives”. The difference between punctives and duratives is not construed in terms of temporal duration, but rather in the nature of the nucleus: the punctive nucleus (i.e. our change-of-state) represents a “transitional pivot” (2002:67), while durative nucleus types can include events that are “extended” in time, “instantaneous” (similar to Smith 1997 [1991]’s semelfactives), or “periodic” (e.g. verbs with English equivalents like ‘shiver’ or ‘flap’; Kershner 2002:74). Kershner’s punctive (change-of-state) class is further divided into the four achievement types shown in Table 2 above, with slightly different terminology.

In his grammar of Yeyi R41, Seidel (2008) also employs the Botne and Kershner model, noting that it best captures the lexicon/grammar interactions evident in the language. However, Seidel also finds it necessary to make several significant changes. Unlike Kershner, he rejects a principled distinction between states and other durative verbs. He also proposes a slightly different sub-classification of change-of-state verbs. Seidel’s description and analysis are thorough and his descriptions of semantic effects and variation enlightening; his analysis does not, however, strictly fit into the radical selection mould. Although he extensively documents interactions between verbs and operators of grammatical aspect, his classification hinges on where each verb type “put[s] an emphasis” (2008:274) instead of on specific phasal structures

that can be targeted by grammatical operators. For example, punctive achievement verbs lay “meaningful focus...on the end-point of a change” (2008:272); in contrast, “inceptive transitional verbs” (corresponding roughly to transitional achievements in Table 2) “tend to highlight aspects of a change of state around its beginning” while “the endpoint of the initiated change usually remains vague” (2008:273). Seidel does not note the total number of verbs analysed, but lists approximately sixty verbs in his descriptions of actional classes.

Crane (2011, 2012, 2013), describing Totela K41, adopts Seidel’s bipartite classification and illustrates different subtypes within each class, but does not deal in detail with these subtypes or offer an explicit classification. Gunnink (2018), describing Fwe K402, introduces the broad classes of “dynamic”, “change-of-state” (further subdivided between those verbs that encode an onset and those that do not), and “true stative” verbs to explain interactions between tense/aspect operators and lexical items, but does not deal extensively with the classification itself.

A more explicit treatment is found in Persohn (2017, 2018). Persohn uses a variety of tests on a sample of fifty verbs to arrive at a proposed actional classification with seven different types. Like Botne (2008), Persohn includes transitional accomplishments, which contrast with transitional achievements in that they have a temporally extended nuclear (rather than onset) phase; both types of transitional verbs encode a resultant state. Persohn does not distinguish a separate class of stative verbs. Two classes – inceptive achievements and acute achievements – each have only one potential member in the author’s fifty-verb sample, and Persohn notes that these classes require further study.

Lusekelo (2016) follows Kershner (2002) and Botne (2003) in his description of actional classes in Swahili, positing the maximal four subtypes of achievement verbs with punctive nuclear phases, and discussing the interactions of each aspectual type with various TA operators. Additional significant contributions of this work include a comparison of previous models of Bantu actionality, and a brief discussion of usage patterns of various actional types in discourse and texts, including interactions with phasal verbs.

While the Botne and Kershner system has gained great traction in studies of Bantu languages, it is only in recent years that efforts have been made to extensively test and justify the model and resulting classifications in a wider group of languages. We are aware of several ongoing studies with these goals; they are being undertaken in South Africa – Crane and Fleisch’s work on Southern Ndebele and Northern Transvaal Ndebele (S408, South Africa; mis), Persohn’s work on Xhosa (S41, South Africa; xho) – and Tanzania – Kanijo on Nyamwezi (e.g. Kanijo [forthc.]) and Persohn on Nyakyusa. Also in Tanzania, a team studying the Mara Bantu languages is investigating, among other things, variation in actionality from grammatical and usage perspectives. Roth’s work on this topic focuses primarily on Ikoma (JE45; ntk) and Ngoreme (JE401; ntq); see e.g. Roth (2018). These studies use broader arrays of tests (see e.g. Crane and Fleisch [2016]) and have as goals both the evaluation of the model and a deeper understanding of actional categories and actional potential in the languages of study.

It should also be noted that the Botne and Kershner system is not meant to be specific to Bantu, although its model is particularly useful in describing the complex lexicalisations that appear to be pervasive in many Bantu languages. Especially in Botne (2003), the model is expanded to explain differences between translational equivalents across many language families; hence, its evaluation is important not only for a better understanding of Bantu but also for developing a more complete picture of actional possibilities across languages.

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### Acknowledgements

The authors wish to thank Sebastian Dom, Axel Fleisch, and Johanna Nichols, along with the editors of *Linguistic Typology* and three anonymous reviewers for their thorough and insightful comments on earlier versions of this paper. We also thank Lotta Aunio, Peter Mabena, and Ponsiano Kanijo for their helpful discussions of data, and our many brilliant and dedicated native speaker consultants around Zambia, Namibia, South Africa, and Tanzania, too numerous to name here. All errors, of course, are our own.

### Abbreviations

1– 18	noun classes
1A	noun class 1a
2SG	second person singular
3SG	third person singular
CJ	conjoint
CMPL	completive aspect
CON	connective (‘genitive’)
COMP	complementiser
COP	copula
DJ	disjoint
DOM	differential object marking
FUT	future tense
FV	final vowel
INF	infinitive
IPFV	imperfective aspect
LOC	locative
M	masculine
PASS	passive voice
PFCT	perfect
PFV	perfective aspect
PROG	progressive aspect
PRON	pronoun
PTCP	participle
PST	past tense
REFL	reflexive
SP	subject prefix
OP	object prefix

## References

- Bar-el, Leora. 2005. Aspectual distinctions in Skwxwú7mesh. Vancouver: University of British Columbia dissertation.
- Bertinetto, Pier Marco. 2003. On describing tense and aspect systems. A review-article. *Rivista di Linguistica* 15(1): 141–171.
- Bickel, Balthasar. 1996. *Aspect, mood, and time in Belhare: studies in the semantics-pragmatics interface of a Himalayan language*. Zürich: Arbeiten des Seminars für Allgemeine Sprachwissenschaft der Universität Zürich.
- Bickel, Balthasar. 1997. Aspectual scope and the difference between logical and semantic representation. *Lingua* 102: 115–131.
- Binnick, Robert I. 1991. *Time and the verb: a guide to tense and aspect*. Oxford: Oxford University Press.
- Borik, Olga. 2006. *Aspect and reference time*. Oxford: Oxford University Press.
- Botne, Robert. 1981. On the nature of tense and aspect: studies in the semantics of temporal reference in English and Kinyarwanda. Illinois: Northwestern University dissertation.
- Botne, Robert. 1983. On the notion “inchoative verb” in Kinyarwanda. In Jouannett, Francis (ed.), *Le kinyarwanda: Études linguistiques*, 149–180 Paris: SELAF.
- Botne, Robert. 2003. To die across languages: towards a typology of achievement verbs. *Linguistic Typology* 7(2). 233–278.
- Botne, Robert. 2008. *A grammatical sketch of Chindali* (Malawian variety). Philadelphia: American Philosophical Society.
- Botne, Robert. 2010. Perfectives and perfects and pasts, oh my!: On the semantics of *-ILE* in Bantu. *Africana Linguistica* 16. 31–63.
- Botne, Robert, Hannington Ochwada & Michael R. Marlo. 2006. *A grammatical sketch of the Lusaamia verb*. Cologne: Köppe.
- Botne, Robert & Tiffany L. Kershner. 2000. Time, tense and the perfect in Zulu. *Afrika und Übersee* 83. 161–180.
- Botne, Robert & Tiffany L. Kershner. 2008. Tense and cognitive space: on the organization of tense/aspect systems in Bantu languages and beyond. *Cognitive Linguistics* 19(2). 145–218.
- Botne, Robert, Hannington Ochwada & Michael R. Marlo. 2006. *A grammatical sketch of the Lusaamia verb*. Cologne: Köppe.
- Breu, Walter. 1984. Zur Rolle der Lexik in der Aspektologie. *Welt der Slaven* 29. 123–148.
- Breu, Walter. 1994. Interactions between lexical, temporal and aspectual meanings. *Studies in Language* 18(1). 23–44.
- Breu, Walter. 1998. Komplexe aktionale Verbklassen, insbesondere Inchoativa. In Berg, Tilman & Raecke, Jochen (eds.), *Slavistische Linguistik 1997. Referate des XVIII. Konstanzer Slavistischen Arbeitstreffens, Blaubeuren, 26.–28.08.1997*, 55–80. Munich: O. Sagner.
- Chapado Chorro, Olga & Luisa García García. 1991. Spanisch. In Sasse, Hans-Jürgen (ed.), *Aspektsysteme*, 47–68. Cologne: Institut für Sprachwissenschaft.
- Crane, Thera Marie. 2011. Beyond time: temporal and extra-temporal functions of tense and aspect marking in Totela, a Bantu language of Zambia. Berkeley, California: University of California at Berkeley PhD dissertation.
- Crane, Thera Marie. 2012. Completion and dissociation in Totela tense and aspect. In Michael R. Marlo, Nikki B. Adams, Christopher R. Green, Michelle Morrison & Tristan M. Purvis (eds.), *Selected proceedings of the 42nd Annual Conference on African Linguistics*, 208–220. Somerville, MA: Cascadilla Proceedings Project.
- Crane, Thera Marie. 2013. Resultatives, progressives, statives, and relevance: The temporal pragmatics of the *-ite* suffix in Totela. *Lingua* 133. 164–188.
- Crane, Thera Marie. Ms. Notes on lexical aspect and participant structure in isiNdebele.

- Crane, Thera Marie & Axel Fleisch. 2016. Event type lexicalization across language boundaries: Verbs in South African Ndebele varieties. *6th International Conference on Bantu Languages*. Helsinki, Finland.
- Crane, Thera Marie and Bastian Persohn. Under review. A model-theoretic discussion of Bantu actionality.
- Croft, William. 2012. *Verbs: Aspect and causal structure*. Oxford: Oxford University Press.
- Dik, Simon. 1989. *The theory of functional grammar. Part I: The structure of the clause*. Dordrecht: Foris.
- Dik, Simon C. 1997 [1989]. *The theory of functional grammar. Part I: The structure of the clause*, 2nd revised edn., edited by Kees Hengeveld (Functional Grammar Series 20). Berlin & New York: Mouton de Gruyter.
- Dom, Sebastian, Gilles-Maurice de Schryver and Koen Bostoen. 2018. The diachronic semantics of the Dissociative Past Completive construction in the Kikongo Language Cluster (Bantu). *Folia Linguistica Historica* 39(2). 297–340.
- Drolc, Ursula. 1992. On the perfect in Swahili. *Afrikanistische Arbeitspapiere* 29. 63–87.
- Ebert, Karen. 1995. Ambiguous perfect-progressive forms across languages. In Bertinetto, Pier-Marco, Valentina Bianchi, Östen Dahl & Mario Squartini (eds.), *Temporal reference, aspect, and actionality*, vol. 2, 185–204. Torino: Rosenberg & Sellier.
- Filip, Hana. 2012. Lexical aspect. In Robert I. Binnick (ed.), *The Oxford handbook of tense and aspect*, 721–751. Oxford: Oxford University Press.
- Fleisch, Axel. 2000. *Lucazi grammar*. Cologne: Köppe.
- Freed, Alice. 1979. *The semantics of English aspectual complementation*. Dordrecht: D. Reidel.
- Garey, Howard B. 1957. Verbal aspect in French. *Language* 33(2). 91–110.
- Gunnink, Hilde. 2018. A grammar of Fwe. A Bantu language of Zambia and Namibia. Ghent: University of Ghent PhD dissertation.
- Haspelmath, Martin. 2010. Comparative concepts and descriptive categories in crosslinguistic studies. *Language* 86(3). 663–687.
- Johanson, Lars. 1996. Terminality operators and their hierarchical status. In Devrient, Betty, Louis Goossens & Johan van der Auwera (eds.), *Complex structures: a functionalist perspective*, 229–258. Berlin: de Gruyter.
- Johanson, Lars. 2000. Viewpoint operators in European languages. In Dahl, Östen (ed.), *Tense and aspect in the languages of Europe*, 27–187. Berlin: de Gruyter.
- Jerro, Kyle. 2017. Change of state in Kinyarwanda: A study in root meaning. *Proceedings of the Linguistic Society of America* 2(25):1–15.
- Kanijo, Ponsiano Sawaka. Forthcoming. The interactions of *-ø-...-ile* with aspectual classes in Nyamwezi. In: Samson Lotven, Silvina Bongiovanni, Phillip Weirich, Samuel Obeng, Robert Botne, *African linguistics across the disciplines: Selected papers from the 48th Annual Conference on African Linguistics*. Berlin: Language Science Press.
- Kershner, Tiffany L. 2002. The verb in Chisukwa: aspect, tense and time. Bloomington: Indiana University dissertation.
- Lusekelo, Amani. 2016. Lexical semantics and selection of TAM in Bantu languages: A case of semantic classification of Kiswahili verbs. *International Journal of Society, Culture & Language* 4(1): 89–102.
- Moens, Marc & Mark Steedman. 1988. Temporal ontology and temporal reference. *Computational Linguistics* 14(2). 15–28.
- Mourelatos, Alexander P. D. 1978. Events, processes and states. *Linguistics and Philosophy* 2. 415–434.
- Mreta, Abel. Y. 1997. An analysis of tense and aspect in Chasu. Bayreuth: Universität Bayreuth doctoral thesis.
- Nurse, Derek. 2008. *Tense and aspect in Bantu*. Oxford: Oxford University Press.

- Ngoboka, Jean Paul & Jochen Zeller. 2017. The conjoint/disjoint alternation in Kinyarwanda. In Van der Wal, Jenneke & Larry Hyman (eds.), *The conjoint/disjoint alternation in Bantu*, 350–389. Berlin: Mouton de Gruyter.
- Persohn, Bastian. 2017. *The verb in Nyakyusa: A focus on tense, aspect and modality*. Contempora. Berlin: Language Science Press.
- Persohn, Bastian. 2018. Aspectuality in Bantu: On the limits of Vendler's categories. *Linguistic Discovery* 16(2).
- Roth, Tim. 2018. Aspect in Ikoma and Ngoreme: a comparison and analysis of two Western Serengeti Bantu languages. Helsinki: University of Helsinki PhD dissertation.
- Sasse, Hans-Jürgen. 1991. Aspekttheorie. In Sasse, Hans-Jürgen (ed.), *Aspektsysteme*, 1–35. Cologne: Institut für Sprachwissenschaft.
- Sasse, Hans-Jürgen. 2002. Recent activity in the theory of aspect: Accomplishments, achievements, or just non-progressive state? *Linguistic Typology* 6(2). 199–271.
- Sauder, Doris M. n.d. A comprehensive guide to Rufumbira grammar. <http://rufumbiralang.org/en/mlsp-dl/557/27161/73921%3Fs%3D1%26type%3D.pdf> (accessed 12 April 2018).
- Seidel, Frank. 2008. *A grammar of Yeyi: A Bantu language of Southern Africa*. Cologne: Köppe.
- Smith, Carlota S. 1997 [1991]. *The parameter of aspect*, 2nd edn. Dordrecht: Kluwer.
- Tatevosov, Sergej. 2002. The parameter of actionality. *Linguistic Typology* 6(3). 317–401.
- Vendler, Zeno. 1957. Verbs and times. *The Philosophical Review* 66. 143–160. Reprinted in Vendler (1967), *Linguistics in philosophy*, 97–121. Ithaca: Cornell University Press.
- Welmers, William Everett. 1974. *African language structures*. Berkeley: University of California Press.
- Zúñiga, Fernando. 2001. A selection theory of Mapudungun aspect. In Zúñiga, Fernando & Karen H. Ebert (eds.), *Aktionsart and aspectotemporality in non-European languages. Proceedings from a workshop held at the University of Zurich, June 23–25, 2000*, 73–96. Zurich: Universität Zürich.