

TOWARDS A FIELDWORK METHODOLOGY FOR ELICITING DISTINCTIONS IN LEXICAL ASPECT IN BANTU

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While analyses of lexical aspect have traditionally relied on Vendler's (1957) typology and expansions thereof, more recent work has shown Vendler's classes to be insufficient for characterising event types in many languages. This is particularly true for Bantu languages, which typically have large classes of "change-of-state" (COS) verbs (or verbal predicates), and which are under-represented in cross-linguistic studies of lexical aspect. Understanding the nuances of lexical aspect in isiNdebele requires a toolkit that goes beyond the traditional Vendlerian tests, many of which produce misleading results in isiNdebele. During our 2016 fieldwork, we developed and refined a battery of tests aimed at teasing apart key distinctions within COS and other lexical aspect classes in isiNdebele. We then adapted the tests to Northern Transvaal Ndebele (Sindebele), which allowed us to make a direct cross-linguistic comparison of the construal of various events, and to see potential effects of language contact on event construal. However, even a detailed and robust series of tests can easily miss crucial phenomena related to event construal (often available to native-speaker linguists through introspection, but less easily accessed by linguists working on languages other than their own). To mitigate this issue, much of our research involved long, ethnographic-style discussions with Ndebele speakers of the potential meaning(s) and use(s) of verbs in various linguistic frames. Although this style of research is less amenable to producing neat categorisations of verbs that can be directly compared between languages, we argue that it both reduces artificially straightforward analyses, and allows us to discover which distinctions are actually worth comparing. In this paper, we describe our research strategies, and suggest how they might be adapted for use with other languages and in cross-linguistic comparison.

1. INTRODUCTION

Studies of contact linguistics have shed much light upon phenomena such as lexical borrowing and phonological change. Less is known, however, about the borrowing of semantic information. We set out to investigate the potential influence on semantics in isiNdebele and Sindebele, both spoken in long-term and intensive contact situations involving the Nguni and Sotho-Tswana language clusters.

We identified the lexical aspectual structure (also known as situation type, actionality, or aktionsart, among other labels) of verbs as a fruitful area for

investigations of contact-induced semantic change. Because of its intimate interactions with grammatical aspect, lexical aspect is a domain in which infinite meaning possibilities – lexical verbs and the way the actions they describe unfold across time – meet a closed set of grammatical categories; understanding these interactions is a step towards bringing the cognitive semantic “architecture” of eventualities to light.

As described in detail below (Section 3), Bantu languages typically have systems of lexical aspect that cannot be adequately captured using the classification described by Vendler (1957). Even across Bantu languages, verbs that are the nearest translation equivalents to one another may have different lexical aspectual structures in different languages. The questions that motivated our research therefore relate to such differences in semantic and conceptual structure and how they play out in language use, as well as how multilingual speakers negotiate such conceptual differences. To approach these questions, we needed to modify and expand existing methodologies for uncovering lexical aspectual distinctions (see, e.g. Bar-el 2015).

Lexical aspect is notoriously difficult to categorise. As noted by Sasse (2002) and others, aspect is not merely made up of the interactions between lexical and grammatical systems, but comprises many layers and dimensions up to the level of discourse. Further, speakers are very good at construing or coercing meanings to resolve seeming infelicities (e.g. the famous *i’m lovin’ it* [sic] marketing campaign). There seem to be as many exceptions as rules – or even more – when applying standard tests of lexical aspect cross-linguistically (see Bar-el 2015 for numerous examples).

Despite these important cautions, we believe that lexical aspectual structure can (and should) be meaningfully compared across languages. In this paper, we describe our investigations of lexical aspect in isiNdebele; our adaptation of the tests we developed to a related language, Sindebele; and some of the subtle semantic differences that were revealed between the two languages. We argue that developing and applying lexical aspect tests requires long, almost ethnographic-style discussions with speakers regarding the potential meaning(s) and use(s) of verbs in various linguistic frames. Although this style of research is less amenable to quickly producing neat categorisations of verbs, we argue that it both helps us to avoid artificially straightforward analyses and allows us to discover which distinctions are worth comparing.

The purpose of this paper is, therefore, not to offer definitive theories of the systems of lexical aspectual classification in the languages discussed – such studies are ongoing – but rather to describe the investigative processes and the insights that emerged, in the hope that some of our experiences and the research

principles we suggest will be of use to researchers of lexical aspectual semantics in other languages.

The remainder of this paper is organised as follows: In Section 2, we discuss basic principles and challenges related to the investigation of lexical aspect. Section 3 briefly describes the most common research strands on lexical aspect in Bantu languages. In Section 4, we develop the basis of a research methodology for studying lexical aspect in isiNdebele, based on principles that can apply to studies of lexical aspect in other languages, as well. We describe research desiderata for obtaining robust results (Section 4.1) and the semi-structured interview process we used for eliciting most of our data (Section 4.2). Section 5 describes the adaptation of our tests to a related language, Sindebele, the challenges encountered, and some of the insights gained in the adaptation process. Adapting the tests allowed not only for fine-grained comparisons of the lexical aspectual “structures” associated with particular verbs in each of the languages, but also for deeper insights into the workings of the tense and aspect systems of each language. The paper concludes in Section 6.

We write isiNdebele sentences using the standard orthography for that language (see Mahlangu 2016); for Sindebele, where the standard orthography is still being developed and disseminated, we attempted to conform to speaker preferences. One area of divergence is in our treatment of the verbal word. Sindebele speakers tend to adopt more disjunctive writing practices, in which inflectional verbal morphemes are often written as separate words; this mirrors practices in languages like Sesotho sa Leboa, the most influential Bantu language in the areas where Sindebele is spoken. Despite this tendency, we write Sindebele examples conjunctively (i.e. as single verbal words) in this paper so they more closely mirror their isiNdebele counterparts in portraying verbal elements as unified or separate words. We have not yet made a thorough analysis of Sindebele phonology, and in particular, have not resolved all of the issues regarding vowel quality, but we have aimed for internal consistency. Sindebele transcriptions should thus be taken with a phonological grain of salt. In Sections 2 and 3, all examples are from isiNdebele. Starting in Section 4, where both languages are discussed, examples are labelled either isiNdebele or Sindebele. Verbal glosses for isiNdebele are taken, where possible, from the isiNdebele–English dictionary. Sometimes these glosses transparently indicate the change-of-state nature of the verbs (see 2.1), while other times, the relationship between translations and lexical aspectual structures remains more opaque.

2. INVESTIGATING LEXICAL ASPECT

2.1 *Some challenges*

Analyses of lexical aspect have traditionally relied on Vendler's (1957) typology and expansions thereof (e.g. Smith 1997; Croft 2012). Vendler's original classification included states (e.g. *love*), activities (e.g. *run*), accomplishments (e.g. *eat an apple*, *run a mile*), and achievements (e.g. *reach the summit*, *arrive*). Smith added the category of semelfactive, for verbs like *cough* and *kick* that usually have iterative meanings in the progressive. However, much recent work has shown Vendler's classes to be insufficient, in terms of both specificity and ontology, for characterising event types in many languages (see Bar-el 2015 for an overview).

This is certainly the case for Bantu languages, which typically have large classes of "change-of-state" (COS) verbs (or verbal predicates) (Botne & Kershner 2000; Kershner 2002; Nurse 2008; Persohn 2018; Crane & Persohn 2019a). COS verbs, generally speaking, have as part of their meaning the subject's change from one state to another; they can often also depict the result state following the change. Many Bantu languages have relatively small, closed adjective classes, and adjectival meanings are often expressed with COS verbs. Frequently, COS verbs are interpreted as present states when paired with past or perfect(ive) aspectual morphology, as seen in the contrast between the isiNdebele examples in (1) and (2). Although the dictionary translates *kwata* as 'be angry, be furious, be unhappy', a more precise translation would incorporate the notion of getting angry – that is, of transition into the state – as well.

- (1) *Ngi-ya-kwat-a*¹
1SG.SM-DJ-be.angry-FV
'I am getting angry'

- (2) *Ngi-kwat-ile*
1SG.SM-be.angry-PFV
'I am angry'

1 The present and perfective paradigms in isiNdebele exhibit a morphological contrast between "conjoint" and "disjoint" forms, where conjoint morphology indicates shared constituency with the following element. See Buell (2006) for details. In this article, we gloss the present-tense disjoint marker as DJ (the conjoint form is not segmentally expressed). The disjoint perfective form is "long" *-ile*, while the conjoint perfective is "short" *-e*. This distinction is not explicitly indicated in our interlinear glosses, and both forms are glossed as PFV. The perfective marker sometimes "imbricates" (see Bastin 1983) into the stem, conditioning vowel changes; these imbricated forms are also glossed as PFV. See Crane & Fleisch (*forthcoming*) and Botne & Kershner (2000) for more details.

COS verbs are frequently classified as “achievement” or “punctive” verbs in the Bantu literature (see, e.g. Kershner 2002; Botne 2003; Persohn 2017), due to the posited punctual nature of the change from one state to another, in addition to a potential run-up phase and resultant state. However, many of these verbs represent meanings quite different from the prototypical examples of achievements usually given in Vendlerian classifications (e.g. *reach the summit* and *win the race*). Furthermore, COS verbs are not a monolithic group. For example, some verbs in isiNdebele contrast with *-kwata* ‘get angry’ above in that they do not lexically encode a coming-to-be phase leading up to the state change. When used with the present tense, such verbs have habitual readings (3a) or even have conventionalised figurative meanings (3c). That these verbs can be considered COS verbs is shown in (3b,d), where the perfective forms have present stative readings.

- | | |
|--|---|
| <p>(3a) <i>U-ya-thul-a</i>
1.SM-DJ-keep-FV
‘S/he keeps quiet’</p> | <p>(3b) <i>U-thul-ile</i>
1.SM-keep-quiet-PFV
‘S/he is quiet / he is being quiet’</p> |
| <p>(3c) <i>U-ya-lamb-a</i>
1.SM-DJ-be.hungry-FV
‘S/he is poor’</p> | <p>(3d) <i>U-lamb-ile</i>
1.SM-be.hungry-PFV
‘S/he is hungry’</p> |

Given these basic facts, it is clear that more detailed investigation of lexical aspect in Bantu languages is warranted. Bantu languages are excellent laboratories for studies of lexical aspect, both because of their (typically) large classes of COS verbs and because of their (typically) extensive inventories of verbal tense and aspect markers. However, relying on standardly cited tests for Vendlerian lexical aspectual types is unlikely to produce sufficiently nuanced results, and may even be misleading, for several reasons.

The first, and lesser, problem is with the tests themselves. As has been repeatedly noted (and is convincingly demonstrated in Bar-el 2015), lexical aspect tests do not function the same way in every language, or even for all predicates in the same “class” within a language, including English. Below, we give a few examples of how Vendlerian tests fail or are misleading in isiNdebele.

In English, temporal adverbials are said to distinguish activities and accomplishments (see, e.g. Smith 1997; Van Valin 2006), as in (4).

- (4) The knight fought dragons for five years / # in five years. (activity)
The knight wrote a letter to the prince for two days / in two days.
(accomplishment)

IsiNdebele, however, the bare form of duration temporal adverbials such as *iimveke ezimbili* ‘two weeks’ can be translated into English either as (e.g.) ‘for two weeks’ or ‘in two weeks’, depending on the context. In (5b) the most natural reading absent other context is ‘in two weeks’, but both readings are possible; in (5c), both readings seem to be about equally natural.

- (5a) *U-khamb-e iimveke ezimbili*
 1.SM-go-PFV 10.week 10.two
 ‘S/he left (i.e. was gone) for two weeks’
- (5b) *U-tlol-e incwadi iimveke ezimbili*
 1.SM-write-PFV 9.letter 10.week 10.two
 ‘S/he wrote a book in (/ for) two weeks’
- (5c) *U-dl-e umengo imizuzu elitjhumu*
 1.SM-eat-PFV 3.mango 4.minute 4.ten
 ‘S/he ate (the) mango in / for ten minutes’

With some predicates, the *-ile* form does not combine naturally with a durative temporal adverbial, although the predicates are durative. For example, *-khohlela* ‘cough’ can describe either a semelfactive event (one cough) or a temporally extended (iterative) activity. The latter seems to be the preferred reading without additional context in the present disjoint form in (6a).

- (6a) *U-ya-khohlel-a*
 1.SM-DJ-cough-FV
 ‘S/he is coughing’
- (6b) *?U-khohlel-e iimveke ezimbili*
 1.SM-cough-PFV 10.week 10.two
 intended: ‘S/he coughed for two weeks’
 (Speaker comment: “Then what? Did he die?”)²

2 As pointed out by an anonymous reviewer, the perfective entails some sort of termination or post-state, but the reviewer also wonders why this would render the sentence awkward. Our hunch here is that the awkward semantics result from combining a construction implying not just termination, but also completion with a non/telic verb and a durative adverb, but we do not have sufficient comparable examples to substantiate this impression sufficiently at this point.

The natural way of expressing ‘s/he coughed for two weeks’ is as in (7), with a past imperfective form.

- (7) *Be-ka-khohlel-a* *iimveke* *ezimbili*
 be.PFV-1.SM-cough-FV 10.week 10.two
 ‘S/he coughed for two weeks’

In fact, isiNdebele – unlike many other Bantu languages – has a morphological means for expressing ‘in X time’, namely with the “inner-space” (Fleisch 2005) locative adverbial prefix *nga-*, as in *ngemizuzu elitjhumu* ‘in ten minutes’. However, even this does not reliably distinguish between translations of English activity verbs like ‘sing’ and accomplishment verbs like ‘eat a mango’. This is because speakers seem to easily construe (elided) bounding objects for potentially transitive verbs in such contexts. Note that such elisions are also possible in English, with sufficient context; however, they seem to us to be at least somewhat more natural in isiNdebele.

- (8a) *U-dl-e* *umengo* *ngemizuzu* *elitjhumu*
 1.SM-eat-PFV 3.mango LOC.4.minute 4.ten
 ‘S/he ate a/the mango in ten minutes’
- (8b) *U-cul-e* *ngemizuzu* *elitjhumu*
 1.SM-sing-FV LOC.4.minute 4.ten
 ‘S/he sang in ten minutes’ (e.g. a song, or the set program)

These and other examples raise the question of whether the activity/accomplishment distinction is less important in isiNdebele, or whether it simply needs to be captured using other tests. (See, e.g. Wilhelm 2007 for further discussion on the language specificity of properties such as telicity and durativity.) It’s worth noting that even in English, (8b) is completely acceptable if a specific singing program is already contextually invoked. Although the temporal adverbial test does not straightforwardly distinguish activities and accomplishments, as it is said to do in English, acceptability judgments and translations into English, taken carefully, can still shed light on aspectual properties of different predicates.

More insidiously challenging to apply is a test like the imperfective paradox, which in English distinguishes activities from accomplishments (and possibly achievements).

- (9a) Siphó was eating ENTAILS Siphó ate [activity]
 (9b) Siphó was eating a mango DOES NOT ENTAIL Siphó ate a mango [accomplishment]
 (9c) Siphó was reaching the summit DOES NOT ENTAIL Siphó reached the summit [achievement]

In isiNdebele, this test has several potential pitfalls. While it works as expected for activity verbs, as in (10), objects are not necessarily quantized, so that many predicates are ambiguous between activity and accomplishment readings. The entailment test can therefore depend on which interpretation is salient in the speaker's mind (see interpretation (i) vs. (ii) in 10c); great care must thus be taken to specify the appropriate context.³

- (10a) *USiphó be-ka-cul-a* ENTAILS *U-cul-ile*
 1A.Siphó be.PFV-1.SM-sing-FV 1A.Siphó 1.SM-sing-PFV
 'Siphó was singing' 'He sang'

- (10b) *USiphó be-ka-akh-a indlu*
 1A.Siphó be.PFV-1.SM-build-FV 9.house
 'Siphó was building a house'

DOES NOT ENTAIL *Wa-akh-e indlu*
 1.SM.PST-build-PFV 9.house
 'He built a house'

- (10c) *USiphó be-ka-dl-a umengo*
 1A.Siphó be.PFV-1.SM-eat-FV 3.mango
 i 'Siphó was eating a mango'
 ii 'Siphó was eating mango'

³ We tried several methodologies for employing this test in isiNdebele. For example, we said (using English as a framing language), "I know that *Siphó bekacula*. In other words, *Siphó uculile*, right?" We also tested (without using English) the felicity of the IPFV BUT NOT PFV frame, as well as several other contexts; all proved rather difficult in elicitation, with different speakers responding more intuitively to different tests, but the results were nevertheless sometimes enlightening, when interpreted with caution.

COULD ENTAIL *U-dl-e* *umengo*
 1.SM-eat-PFV 3.mango
 ‘He ate a mango’
 ‘He ate mango’

(Speaker’s comment regarding this example: “They’re [the two sentences] not the same. Actually, they’re similar. They’re basically the same.”)

Furthermore, the test seems to work for some achievement-like verbs (11a), but it is difficult to construct with many other change-of-state verbs, as in (11b), where the predicates *bekalamba* and *ulambile* are not straightforwardly related.

(11a) *USipho be-ka-khamb-a*
 1A.Sipho be.PFV-1SG.SM-leave-FV
 ‘Sipho was leaving’

DOES NOT ENTAIL *U-khamb-ile*
 1.SM-leave-PFV
 ‘He left’⁴

(11b) <i>USipho be-ka-lamb-a</i>	???	<i>U-lamb-ile</i>
1A.Sipho be.PFV-1SG.SM-be.hungry-FV		1.SM-be.hungry-PFV
‘Sipho used to get hungry’ /		‘He is hungry’
‘Sipho was poor’		

With many COS predicates, the perfective *-ile* form is ambiguous between a state-change reading (e.g. ‘got fat’) and a current state reading (e.g. ‘is fat’), which makes the test even more difficult to reliably apply. In any case, this test – like adverbial tests – is instructive, but must be applied with great care.

Even if the tests were perfected for application within a particular language, their success in elicitation contexts would not be assured. For example, a speaker might reject an utterance outright because not enough contextual information is provided, as in (12). (See Matthewson 2004 for arguments that in semantic elicitation, sentences should never be presented for translation without additional contextual information.)

⁴ Note that *-khamba* also means ‘go’, ‘travel’ or ‘walk’, so this test is only meaningful if speakers have the COS meaning ‘leave’, rather than the ongoing activity meanings, in mind.

- (12) *U-pheze wa-fik-a* (utterance offered for judgment)
 1.SM-nearly 1.SM.PST-arrive-FV

Intended: 'S/he almost arrived'

Speaker judgment: "You can't say that. You should say *upheze weza* 'he almost came'."

Subsequent context provided to the speaker: "What would you say if Siphso was climbing a mountain and almost reached the top, but didn't quite make it?"

Speaker response: "*Upheze wafika*."

A more serious issue in relying on tests used to distinguish Vendler's lexical aspectual types in English is the underlying assumption that the categories themselves are universal. We return to this point throughout the following sections.

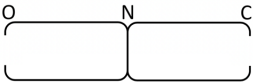
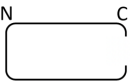
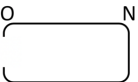

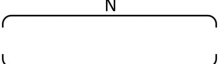
2.2 Which characteristics need to be investigated?

A first step in investigating lexical aspect is determining what semantic properties of a lexical expression have the potential to make aspectual contributions relevant for grammar and the interpretation of utterances. Since we do not want to assume the universality of Vendlerian distinctions a priori, we need to take a more basic approach. As noted by Bar-el (2015: 105), "what may be universal is an inventory of building blocks that languages use to construct aspectual classes". Therefore, one of our starting points was the idea that both phases (and the transitions between them) and the internal "structures" or characteristics of phases can be linguistically significant (see also Croft 2012 and references therein). The following discussion describes ways of understanding these components and some of their potential variations.

Botne (2003) shows that languages can construe the phasal structure of events quite differently, even when the verbs encoding them are translational equivalents. To illustrate, he shows differences in an apparently canonical achievement verb 'to die' across languages. Botne posits that achievement verbs like 'die' can maximally encode the following phases: (A) a pre-state; (B) a dynamic stage leading up to (C) the nucleus, which in achievement verbs represents the "pivot" or point of transition; (D) the "denouement", representing entry into (E) the result state (see Botne 2003: 237 for a schematic depiction). Botne gives illustrations of different languages encoding different combinations of these phases, although all encode at least the nucleus phase. In general, the nucleus represents the primary lexical content of an expression; in the words of Botne and Kershner (2000: 165), the "characteristic and prominent feature of the event". The key

feature of achievement verbs, Botne argues, is that the nucleus (the point of transition, in this verb type) is construed as temporally punctual; other phases may or may not be lexically encoded. In other verb types, with the exception perhaps of semelfactives, the nucleus is not construed as punctual, but rather as extended in time. For example, an activity verb like *run* might consist solely of a temporally extended nucleus phase (Table 1).

Table 1 Graphic depictions of some verb types in the Onset-Nucleus-Coda framework (e.g. Botne 2003)⁵

	“Transitional achievement”: Onset + Nucleus + Coda
	“Resultative achievement”: Nucleus + Coda
	“Inceptive achievement”: Onset + Nucleus
	“Acute achievement”: Nucleus only
	Activity verb: Extended Nucleus

As noted above, Botne shows that languages differ significantly as to which phases are lexically encoded (i.e. can be linguistically targeted by grammatical forms) in an achievement verb like ‘die’. Noting that, in general, only three major phases – onset (A/B), nucleus (C), and coda (D/E) – are necessary in the analysis of verbs like ‘die’, Botne (2003: 238) proposes four major types of achievements: “acute” (only the nucleus is encoded), “inceptive” (onset phase + nucleus), “resultative” (nucleus + coda phase), and “transitional” (onset + nucleus + coda).

5 The formats of the graphics in Table 1 take inspiration from graphics originally created by Bastian Persohn (e.g. 2017). See Crane & Persohn 2019a; 2019b for further discussion of how the Botne and Kershner lexical aspectual framework works and how it interacts with grammatical aspect.

These types are largely consonant with the types of “punctive” verbs proposed in Kershner (2002); see Section 3 below for further discussion. Botne and Kershner treat most Bantu change-of-state verbs as achievement verbs encoding a punctual nucleus, possibly along with lexically encoded onset and coda phases (see the online appendix of Crane & Persohn 2019a for more detailed discussion). Botne and Kershner’s Onset-Nucleus-Coda scheme has been the most widely adopted framework for understanding verb categories in Bantu (see Section 3), and it includes the important underlying ideas that verbs can encode more than one phase, and that these phases are not always identical across nearest translational equivalents. As noted in Section 3 below, recent work suggests some open questions in this framework; because of both its crucial insights regarding Bantu lexical aspect and its widespread adoption, we will also follow this framework in referring to onset, nucleus, and coda phases.

Table 1 gives schematic depictions of some of Botne’s (e.g. 2003) proposed verb types, using the Onset-Nucleus-Coda structure. For change-of-state verbs (roughly, “achievements” in this table), roughly speaking, the onset phase (if there is any) represents the phase in which the change takes place; the nucleus phase indicates the (often subjectively construed) point of change, and the coda phase represents the state resulting from the change. With activity verbs, for example, the temporally extended nucleus represents the occurrence of the activity itself (e.g. English *running*).

An additional consideration with potential grammatical ramifications is the internal structure of phases. Croft’s (2012) treatise on verbal aspectual and causal structure argues that aspectual structure must be understood as two-dimensional: the phases as they are instantiated across time, (*t* dimension) and the internal qualitative structure of the phases, including a qualitative change in state (*q* dimension).

For example, Croft distinguishes two types of activities: “directed” and “undirected” (or cyclic) activities. Directed activities (also known as “degree achievements”; see, e.g. Dowty 1979) such as ‘the soup cooled’ have a “continuous” or “incremental” qualitative change across time, while undirected activities like ‘the girls chanted’ do not have a directed qualitative change over time (Croft 2012: 60–61; see Croft’s text for visual depiction of the differences).

Accomplishments are analogous to activities, except that they are bounded by a completion phase. Croft argues that accomplishments “profile” three phases: “the inception and the completion phase as well as the directed change phase” (Croft 2012: 62). Some accomplishments (in Croft’s terms, “incremental accomplishments”, e.g. ‘I ate an apple pancake’) involve continuous change towards the result phase; others (“runup achievements” or “nonincremental accomplish-

ments”, e.g. ‘Harry repaired the computer’) profile an undirected activity leading to the result state (Croft 2012: 62).

States and achievements have similarly analogical structure; some qualitative distinctions in evidence include whether the state (or result state) is the result of a state change or not, and whether the state change is permanent or reversible.

Verbs in isiNdebele may be sensitive to the contrast between incremental and non-incremental coming-to-be phases. This can be seen in the contrast between two senses of the verb *-phola*, which can mean both ‘cool down’ and ‘recover’ (13). It is compatible with persistive marker *-sa-* ‘still’ in the present tense only with the meaning ‘cool down’. Whether this contrast has to do with incrementality – cooling down being incremental and recovery non-incremental – or some other, yet-to-be-identified quality feature is still under investigation, but the need to distinguish quality within coming-to-be phases is clear.

- (13a) *USipho u-ya-phol-a*
 1A.Sipho 1.SM-DJ-get.well-FV
 ‘Sipho is recovering’

- (13b) *Umratha u-ya-phol-a*
 3.porridge 3.SM-DJ-cool.down-FV
 ‘The porridge is cooling’

- (13c) *#USipho u-sa-phol-a*
 1A.Sipho 1.SM-PERS-get.well-FV
 Intended: ‘Sipho is still recovering’

- (13d) *Umratha u-sa-phol-a*
 3.porridge 1.SM-PERS-cool.down-FV
 ‘The porridge is still cooling’

The permanency or irreversibility of the result state similarly makes a semantic difference, and it is also testable with *-sa-*. COS verbs with a temporary result state are compatible with *-sa-* and an *-ile* ending (14).

- (14a) *U-sa-lamb-ile*
 1.SM-PERS-be.hungry-PFV
 ‘S/he is still hungry’

(14b) *U-sa-phakam-ile*

1.SM-PERS-rise.up-PFV

‘S/he is still standing / in a place of prominence / angry’

Verbs that do not allow targeting of a result state – both non-COS verbs and COS verbs without lexically encoded result states – are incompatible with *-sa-* and perfective *-ile*, at least with a current-state reading. An example is the semelfactive-like *-khohlela* ‘cough’ (15).

(15) *#U-sa-khohlele*

1.SM-PERS-cough.PFV

Intended: ~ ‘S/he has still coughed’

Also infelicitous are irreversible COS verbs, where the result state is permanent (16).

(16) *#?Inja i-sa-f-ile*

9.dog 9.SM-PERS-die-PFV

Intended: ‘The dog is still dead’ (only allowed if a resurrection is expected; this predicate is possible with idiomatic uses of *fa* to indicate e.g. flat batteries)

Note that the result state need not be linked to a process leading to that state, at least not as such processes are typically construed in human understanding (17). Jerro (2017) suggests that the (non-)requirement of reference to the state change preceding the result state may also be an important behavioural distinction between types of COS verbs.

(17a) *Ilitje li-qin-ile*

5.stone 5.SM-be(come).strong-PFV

‘the rock is hard / solid / strong’

(17b) *Umntwana u-beleth-iwe a-hlubule*

1.child 1.SM-give.birth-PASS.PFV 1.SM.SUBORD-undress.PFV

‘the child was born naked’

Croft’s inventory of aspectual types applies at the level of utterances, while we take a radical selection approach (see Sasse 2002) and are therefore more

concerned with the aspectual potential of particular lexical items.⁶ Despite this important difference in approaches, we take from Croft the important insight that the internal qualitative structure of phases plays a significant role in the interaction between lexical and grammatical aspect.

3. A BRIEF RESEARCH HISTORY OF LEXICAL ASPECT IN BANTU

As noted in the introduction, Bantu languages frequently have a large class of verbs that (in the unmarked case) receive a present state interpretation when marked with perfect(ive) (/anterior) aspect; that is, they describe a resultant state. Literature on Bantu tense and aspect has therefore had to reckon with these kinds of verbs, and various approaches have been taken to account for their behaviour. This section details, briefly, several of the more recent descriptions of lexical aspect in Bantu languages, and the approaches they take.⁷

An explicit description of change-of-state verbs is given by Botne & Kershner (2000: 165), who characterise isiZulu “inchoative” verbs as “express[ing] a change of condition or location of the experiencer or patient, many expressing the change or transition from one state to another”. In this classificatory system, inchoative verbs contrast with non-inchoative verbs, the latter of which correspond to “Vendler’s activities, accomplishments, and states” (Botne & Kershner 2000). Other work (e.g. Botne 2008; Persohn 2017) groups some COS verbs with Vendlerian achievements (Botne & Kershner 2000) and other COS verbs with accomplishments, thereby mirroring more closely the widely assumed telic/atelic dichotomy where achievements and accomplishments group together in contrast to activities and states. An important and seldom explicitly asked question is whether COS verbs comprise subtypes of one or more Vendlerian categories, or whether they have some crucial property that both groups them together and separates them from the more prototypical accomplishment and

6 Croft also approaches this question through a computational analysis of the interplay of “lexical aspectual potential” and grammatical aspect, using multidimensional scaling (Croft 2012). Such an approach may ultimately prove enlightening in isiNdebele and other Bantu languages.

7 See also Crane & Persohn (2019a; 2019b) for further discussion along the lines of this section; a portion of the contents of this section are similar to the contents of those references.

achievement lexical types.⁸ If the former is true, then we can (at least in this instance) maintain Vendlerian categories and simply argue for subcategorisations within them. If the latter turns out to be true, the Vendlerian framework cannot be applied to languages with COS verbs.

Regardless of what is assumed or argued regarding their relationship to Vendler's categories, most work on lexical aspect in Bantu languages has focused on understanding and subcategorising COS verbs. One of the most rigorous studies is Kershner (2002). Kershner's work is based on a framework outlined in Botne (1983) and Botne & Kershner (2000), which in turn takes inspiration from Freed (1979). Kershner systematically investigates approximately 200 verbs in Sukwa (M301 in Maho's 2009 classification of the Bantu languages). Kershner proposes three overall categories of lexical aspect (states, punctives, and duratives), including four major categories of "punctive" COS verbs, the latter of which may differ on whether an onset and/or coda phase is encoded in addition to the point of state change. As noted in Section 2.1, Botne (2003) shows that Kershner's four-way classification of COS verbs (which he subsumes under "achievements") has cross-linguistic relevance.

Botne & Kershner's system is adopted, modified, and expanded upon in Seidel (2008), who collapses Kershner's tripartite basic distinction into a two-way distinction between "durative" and "change-of-state" verbs in Yeyi (R41). Seidel uses tests similar to those set out in Kershner, and finds evidence for a somewhat different sub-classification of COS verbs. Crane's (2011) study of Totela (K41) also adopts the bipartite "durative" vs. "change-of-state" distinction and illustrates that these macro-categories have distinct sub-classes within them, but does not offer a maximal set of possible lexical aspectual types. After a detailed comparison of various classifications of lexical aspect in Bantu, Lusekelo (2016) echoes Kershner (2002) and Botne (2003) in proposing for Swahili (G42) three macro-categories (stative, inchoative, and activity) and four subcategories of inchoative verbs, based on whether the onset and coda phases are lexically encoded.

Following in part Botne (2008), Persohn (2017: 117–140) proposes seven lexical aspectual classes in Nyakyusa (M31), the last two of which are somewhat putative, as each class has only one member in Persohn's sample of fifty verbs: activity, simple accomplishment (as in Vendler, extended nucleus with inherent

8 A rigorous answer to this question will have to take into account the role of participant structures. For example, are 'Jack baked a cake' and 'The cake cooled to room temperature' fundamentally different apart from the affected object in the former and the affected subject in the latter? We do not attempt to address this question in this paper, but see Crane (in prep.) for an approach to this and similar questions in isiNdebele, and Croft (2012) for an extremely thorough treatment of aspect and causal structure in English.

terminal point), transitional accomplishment (extended nucleus phase plus result (coda) state), transitional achievement (extended onset phase, punctual nucleus, and result state), resultative achievement (punctual nucleus plus result state), inceptive achievement (extended onset phase plus punctual nucleus), and acute achievement (punctual nucleus only). Recent work by Kanijo (2019b) on Nyamwezi (F22) also employs the Botne and Kershner framework, while noting that language-specific properties require some modifications to it. Kanijo (2019b) is exemplary in employing a rigorous battery of tests to a fairly large number of lexical verbs, and in including detailed information on how each verb responds to each test.

Ongoing work (see Crane & Persohn 2019b) suggests that extended onset and nucleus phases may not necessarily be ontologically distinct, but may instead be distinguished by other features (e.g. dynamicity and participant roles). Tests therefore need to take such factors into account, as well. For the purposes of this paper, we will use the onset-nucleus-coda structure, as this is most frequently employed in recent descriptions of lexical aspect in Bantu (Persohn 2017; 2018; Lusekelo 2016; Seidel 2008; Kanijo 2019a; 2019b). However, we recognize that several assumptions of this theory still require further investigation, including, for example, whether there is a need to distinguish between extended onset and extended nucleus phases (see Crane & Persohn 2019b). In the present article, with COS verbs, extended “onset” phases can be understood as encoding the coming-to-be phase; “codas”, the resultant state; and the “nucleus”, the (sometimes subjectively construed) point of change itself.

Although most works on Bantu lexical aspect have followed the Botne and Kershner model, there are a few important exceptions (see Crane & Persohn 2019a for more detailed discussion). For example, Fleisch (2000) bases his classifications on the categorizations in Sasse (1991) and Breu (1984; 1994), along with insights from Dik (1989). Fleisch proposes that the classification of verb types in Lucazi (K10, Angola) is based not only on phases and their boundaries (following Sasse and Breu), but also on the characteristics of those phases, such as dynamicity and subject control. Fleisch posits three major classes in Lucazi: Actions, which are dynamic events that are usually controlled by their logical subjects (this class includes motions, activities, and verbs of communication, along with weather events); Processes, which do not have an agentive/controlling subject, and depict telic events leading to a result state, which Fleisch claims is not lexically encoded but rather pragmatically implicated (this class includes verbs of perceptions, of mental faculties and attitudes, and physical conditions; modal expressions also belong to this class); and Situations, a small, atelic class with verbs that encode a subject’s physical position, or character or some other

quality. These classes, Fleisch argues, are confirmed by their divergent behaviour with various tense/aspect forms and partially regular interactions with derivative verbal extensions, the latter leading to a situation where in some cases formal properties strongly suggest the verbal lexical item is of a particular lexical aspect type.

The classifications discussed in this section are some of the few significant exceptions to the general tendency in Bantu language descriptions of either making no mention of lexical aspect, or merely noting the distinction between change-of-state and other verbs. This lack of attention is unfortunate for several reasons, but especially because the semantics of grammatical aspect cannot be fully understood without a clear picture of how grammatical aspectual forms interact with lexical event types. Furthermore, as suggested by Nichols' (2015) pilot typological study of resultative constructions, inchoative (state-change) forms, rather than the corresponding states, are basic (less morphologically marked) in many languages and language families. Nichols (2015: 25) concludes that "the received view of event structure may be Eurocentric", and that "transitions", rather than "states", may be "basic to lexical meaning" (note that not all the languages in question necessarily have the kind of complex lexical structures as Bantu, which seems to lexically encode both the coming-to-be phase and the result state in the same lexical verb). Nichols (2015: 24) further tentatively suggests that languages in which inchoative forms are more basic may also tend to have restrictions on the adjective word class; this is certainly the case for many Bantu languages.

4. DEVELOPING AND APPLYING TESTS FOR LEXICAL ASPECT, THE ROLE OF THE RESEARCHER, AND TRACTABILITY

In this section, we describe our preliminary research on lexical aspect in isiNdebele, and, more broadly, the kind of research methodologies we think are called for in investigating this intersection of finite grammar and infinite meaning.

In developing models of lexical aspect, logical considerations have led theoreticians to formulate models intended to have universal applicability and to cover the maximal set of possible situation types (Vendler 1957; Smith 1997; Croft 2012). However, just as Smith (1997) added a category of "semelfactives" overlooked by Vendler (1957) and Croft (2012) showed that the internal nature of phases (and not just phase length or inherent boundaries) also leads to crucial differences between types of situations, we suspect that these "maximal" sets may still be missing significant ingredients (see also Bar-el 2015). Even more, we consider it

likely that different languages may have different and incommensurate systems of categorising lexical aspectual types (see, e.g. Nichols 2015 for a typological study pointing in that direction). The interaction of lexical and grammatical aspect is surely language specific. Current theoretical debate on aspect therefore provides us with a range of conceptual tools for understanding the mechanics of lexical-grammatical aspect interactions, but not for testing these interactions straightforwardly. In our fieldwork, we thus turned to an inductive-empirical approach, aiming to avoid imposing theoretical moulds too early and thereby missing important insights.

The only way to approach our research, then, was to engage in in-depth interviews. This high-resolution process of semantic understanding is time consuming and data driven, and is, in some ways, closer to ethnographic work than to traditional linguistic elicitation, because – in addition to necessitating careful elicitation techniques – it requires us to attempt to gain a relatively deep understanding of cultural assumptions underlying the concepts behind verbs.⁹

The insights gained through the interview process then require systematic framing, so that natural categories of lexical aspect become apparent. We believe that lexical aspectual types are more like prototype categories than clear-cut classes (Croft 2012). Even so, general categories do emerge, and making predictions about behaviour regarding grammatical tense and aspect becomes reasonably possible.

Once this point is reached, we believe that one can more confidently propose an empirically substantiated and accurate view of lexical aspectual categories in an individual language, and, furthermore, frame it in a way that allows for a rich contrastive and even comparative analysis of lexical aspect across languages, especially, as in our study, across geographically and genetically proximate languages.

9 A reviewer rightly points out that much of our discussion is framed around better elicitation techniques, rather than reflecting a genuinely ethnographic approach. We appreciate this note and believe that semantic elicitation and ethnographic work are not only both important, but also intertwined. Copland & Crease (2015: 27) describe linguistic ethnography as “investigating the linguistic sign as a social phenomenon open to interpretation and translation but also predicated on convention, presupposition and previous patterns of social use”. We believe that the deepest research on lexical aspect therefore incorporates not only speakers’ reactions to a set of tests, but also speakers’ cultural knowledge and usage intuitions related to the lexemes in question. Such information cannot be gleaned simply by going through a rote battery of tests; freer conversation is also needed. Ultimately, coarser-grained classifications may be needed to make broad cross-linguistic comparison feasible, but an overly superficial investigation of how lexical items are used within a particular language risks missing the very contrasts that make the lexemes interesting. We certainly have not yet achieved such a deep understanding of every lexical item we looked at in isiNdebele or Sindebele – nor do we expect others to do so in the languages they investigate – but we nevertheless view this type of approach as ultimately more meaningful, even, perhaps, in forming broadly construed classifications, than straightforwardly test-based methods.

The remainder of this section mirrors the process described in the preceding paragraphs. We first discuss the considerations that went into developing our tests, interwoven with some results that helped us both to refine our understanding of what we were testing for in each instance, and to develop further tests. We then describe our fieldwork interviews, showing that our most interesting results were obtained when we went beyond a checklist-style interview and took a more ethnographic approach. Throughout, we attempt to integrate our narrative with discussion of what we believe is needed for a broader framework for eliciting lexical aspect, and for achieving a balance between research tractability and completeness.

4.1 Avoiding circularity and other pitfalls

Most studies of lexical aspect that aim to examine separately the contributions of lexical and grammatical aspectual meaning are plagued by a serious problem. Because lexical and grammatical aspect always interact, and each is hardly interpretable without reference to the other, the question of circularity is – or should be – always at the forefront. That is, lexical aspectual structure is determined through lexical items' interactions with grammatical morphemes, and the functions of the grammatical morphemes are in turn analysed in terms of how they interact with various lexical aspectual types. In fact, we do not believe that the lexical and grammatical aspect exist as purely independent systems, so in a sense, this kind of circularity in understanding each is necessary, and does not preclude trying to extrapolate the nature of each through observing their systematic interactions. We also attempted to avoid the worst kind of circularity by making our tests both rich and redundant, and by employing tests from outside of the verbal tense/aspect system.¹⁰ See also Tatevosov (2002: 345–347) for discussion of a framework for avoiding circularity by defining grammatical tense, aspect, and mood categories separately from the lexical aspectual characteristics of verb classes.

The richness of the tense-aspect systems in isiNdebele and Sindebele led to some useful redundancies in testing: in many cases, more than one aspectual marker targets the same phase or transition in verbs' lexical aspectual structures. For example, in (18), the past perfective form of an *-ile*-marked COS verb describes a state that held at a particular time in the past.¹¹

¹⁰ As noted by Sasse (2002) and others, aspect is not merely made up of the interactions between lexical and grammatical systems, but comprises many layers and dimensions, and communication of aspect is also built up across discourse.

¹¹ The prefix *be-*, grammaticalized from the perfective form of 'be', selects a reference time in the past of the utterance time; we gloss it here as "imperfective" as a type of shorthand, because

(18) isiNdebele

- a. *Abantu be-ba-hlangene*
 2.person be.PFV-2.SM-come.together.PFV
 ‘People were meeting’
- b. *Be-ka-lamb-ile*
 be.PFV-1.SM-be.hungry-PFV
 ‘S/he was hungry’

With verbs that are not as clearly COS, such forms seem only to be licit if a relevant result state can be construed. In such cases, they translate best as pluperfects, as in (19). Speakers tend to reject these forms with many verbs, or at least struggle to provide a reasonable context (19b–d).

(19) isiNdebele

- a. *USipho be-ka-wu-dl-ile umengo*
 1A.Sipho be.PFV-1SG.SM-3.OM-eat-PFV 3.mango
 ‘Sipho had (already) eaten the mango’
- b. *?Be-ka-tlol-e incwadi*
 be.PFV-1SG.SM-write-PFV 9.letter
 ‘S/he had written a letter’
 (Speaker comment: “Maybe you’re reading an obituary. Before he killed himself, he wrote a letter explaining why he died. *Bekatlole incwadi ethi “Ndidiniwe!”* ‘He wrote a letter saying, *I’m tired/fed up!*’”) (isiNdebele)
- c. *?#Be-ka-khohlele*
 be.PFV-1SG.SM-cough.PFV
 Intended: ‘S/he had coughed’
 (Speakers attempted to construe a context but were not able to imagine a rich enough scenario.)

the forms in which it occurs can encode the typical range of imperfective meanings. However, imperfective-type meanings are really derived from the full constructions, rather than being encoded by this single morpheme.

- d. ?#*Be-ka-buye* *ikukhu*
 be.PFV-1SG.SM-slaughter.PFV 9.chicken

Intended: 'S/he had slaughtered a chicken' (isiNdebele)

(Speakers reject this example but in attempting to construe a construct, muse that this could perhaps be an answer if the subject killed a chicken by accident, and you ask, "Why is he running away?")

Therefore, this form seems to test for a result coda state in COS verbs, and the possibility of construing or coercing a reasonably relevant post-nuclear phase in other verbs.

Another form, discussed briefly in Section 2.1 above, tests more explicitly for a (non-permanent) lexically entailed coda phase (20). (Note that the test only works in the context of the present stative 'still' reading; other readings may be possible with some predicates, as discussed in Section 4 below.)

(20) isiNdebele

- a. *Ba-sa-hlangene*
 2.SM-PERS-come.together.PFV
 'They are still together / in the meeting'
- b. *U-sa-lamb-ile*
 1.SM-PERS-be.hungry-PFV
 'S/he is still hungry'
- c. *USipho u-sa-khamb-ile*
 1A.Sipho 1.SM-PERS-go-PFV
 'Sipho is still out there'
- d. #*U-sa-yi-tlol-ile incwadi*
 1.SM-PERS-9.OM-write-PFV 9.letter
 Intended: ~'S/he has still written the letter'¹²
- e. #*U-sa-khohlele*
 1.SM-PERS-cough.PFV
 Intended: ~'S/he has still coughed'

12 Note that these examples are also awkward in their English translations. In fact, we did not have an "intended" meaning in mind, and the translations of these infelicitous examples merely show one possible, fairly literally translated interpretation.

- f. #U-sa-bulal-e ikukhu
 1.SM-PERS-slaughter-PFV 9.chicken

Intended: ~‘S/he has still slaughtered a chicken’

Thus, the *-sa-...-ile* form and the past perfective *-ile* form seem to be in a nearly implicational relationship, where the former requires a lexically entailed coda state, while the latter strongly prefers one, but can also construe such a phase given a rich enough contrast. The relationship is not totally implicational, however, because the *-sa-...-ile* form requires that the coda state be temporary, or at least potentially so, while the past perfective *-ile* form seems to allow any coda state (21).

(21) isiNdebele

- a. ?#Inja i-sa-f-ile
 9.dog 9.SM-PERS-die-PFV

Intended: ‘The dog is still dead’
 (only allowed if a resurrection is expected)

- b. Inja be-yi-f-ile na-si-fik-a-ko
 9.dog be.PFV-9.SM-die-PFV SIT-1PL.SM-arrive-FV-REL

‘The dog was dead when we arrived’

Another way to mitigate the circularity of lexical and grammatical aspect is by using other types of tests, including adverbials (such as ‘slowly’ or ‘yesterday’) and verbal constructions that specifically target either phases or phasal transition, for example, ‘start to X’, ‘finish X-ing’, ‘nearly X’, ‘stop X-ing’, or ‘when we arrive(d), he X(ed)’. These, too, are subject to the circularity criticism. Adding adverbials or inserting verbs into more complex constructions may indeed change the aspectual interpretation of the utterance. But together with grammatical aspectual forms, such tests can at least strongly suggest the aspectual structure of a lexical form. See Crane & Fleisch (2016) for more detailed descriptions of some of the tests we used and their outcomes. We will not treat them in greater detail here because of their language specificity, but many examples can be seen in Section 5 below, which describes adapting the tests to Sindebele.

Circularity is not the only issue in investigating lexical aspect. We also needed, for example, to carefully distinguish lexical entailments from implicatures (see, e.g. Smith 1997; Bar-el 2015). We did so by attempting to cancel or defease the implicatures in cases of doubt. We also needed to pay careful attention to quantized vs. non-quantized subjects and objects (Croft 2012) and interpret results accordingly. For the most part, we tried to constrain our tests to singular subjects

and objects, but such a condition is not easy to fulfil with all verbs (e.g. *-hlangana* ‘gather, come together, become mixed up, meet’), and, as seen in (5c) above, singular nouns are not always inherently quantized. Therefore, we also had to pay close attention to the effects of (non-)quantization, especially when working with transitive verbs.

We also had to take care that our own language intuitions, paired with English translations of isiNdebele forms, did not interfere with our interpretation of isiNdebele verbal semantics. Our thesis that lexical aspectual classifications are not purely based on world knowledge necessarily means that translations cannot always be exact. To some extent, the issue of researcher-native-language interference is mitigated by the redundancies in tests. We further attempted to avoid this pitfall by (à la Matthewson 2004; Bar-el 2015) making our discussions rich in contextual information, and, when possible, incorporating simple visual props (movable “characters” as participants, drawings) or physically acting out situations. Other clues of significant semantic differences between isiNdebele and English came in the form of awkwardly phrased English forms as our consultants tried to capture the meaning of isiNdebele sentences. For example, we think that *-khamba* ‘leave, walk’ lexically encodes a coda phase on the ‘leave’ meaning. The speaker translated a relevant example as in (22).

(22) isiNdebele

USipho be-ka-khamb-ile

1A.Sipho be.PFV-1.SM-leave-PFV

Most natural-sounding English translation: ‘Sipho had left’

Translation by speaker: ‘Sipho was already left’

The use of a stative ‘be’ form in the English translation, rather than the pluperfect, suggests that the construction targets a stative coda phase. This finding is confirmed by other tests (see, e.g. 14–16 above).

We also had the fortunate research situation of having two different mother tongues ourselves: Axel is a native speaker of German, and Thera of American English. In cases in which our intuitions about isiNdebele verbs differed, we took it as an indication that our native intuitions might be interfering, and that we should take another look at the isiNdebele data and frame our elicitation questions more precisely.

4.2 The interview process

An important first note about the interview process is that it is, at least initially, quite time consuming. A discussion of a particular verb could easily last an hour or more – a fascinating, but mentally exhausting, time. We believe that such lengthy interviews are a necessity at the beginning of the research process. With time, the researchers will come to understand what the important contrasts (or, in Bar-el's 2015 terms, the “building blocks” of lexical aspect) are in the language being investigated, and the elicitation process can be streamlined. To attempt to streamline the system too soon is risky, because pre-conceived notions of what is important can act as significant blinders and result in a partial or even faulty understanding of the system.¹³

Some streamlining will happen naturally as the researchers and consultants deepen their understanding of the material and the process. Since we started with an imperfect knowledge of tense and aspect in isiNdebele, streamlining also happened for us as we corrected our misperceptions about the system. For example, we initially spent a great deal of time attempting to elicit past-tense forms in the frame *nasifikileko*, which we took to be a situative perfective form meaning something like ‘when we had arrived’ (cf. untensed *nasifikako* ‘when we arrived / regularly arrive / arrive (in the future)’). Our polite consultants did their best in trying to make sense of these confusing forms, until we finally realised that *nasifikileko* (like other situative-marked perfectives) always has a non-past orientation, meaning ‘when we have arrived’. We were subsequently able to eliminate these examples from our tests, saving both time and needless frustration.

In our experience, the most productive elicitation sessions in the early stage take the form of “semi-structured interviews”. The researcher’s goal is to hold the thread of the elicitation goal and make sure that all of the test frames are elicited, while also allowing for conversational detours, which are likely to provide additional insights.

One particularly vivid example of this came in a discussion with a Sindebele-speaking consultant, Jerry, who is a professional actor and community organiser. The target sentence was (23), which Jerry eventually judged as infelicitous.

¹³ Of course, all understanding will inevitably be partial; the goal is to be initially as open as possible to the range of potential contrasts, and especially to welcome surprises.

(23) Sindebele

#U-les-e ku-tsh-a / #U-les-ele ku-tsh-a
 1.SM-stop-PFV INF-burn-FV 1.SM-stop-PFV INF-burn-FV

Intended: 'S/he stopped burning'

Jerry spent some time mulling this example over, at one point evoking the image of a religious person engaging in self-immolation, but decided that even in this case, (23) would be infelicitous. Two important insights came out of our somewhat tangential discussion. First, the verb *-lesa* 'stop', at least when used with agents, conveys a sense of intentionality: you can only stop doing something you are intentionally doing. Second, *-tsha* 'burn (intr.)' is in a sense analogous to a door's opening: once the door has opened even a bit, it is open, although it might continue to open further. In Jerry's words, "Once you're burned, you're burned."

This kind of elicitation is cognitively hard on the interviewer, who has to allow for genuine and interesting conversation, while also keeping constant track of things like the theoretical ground that still needs to be covered, and of instances in which verb meanings and uses do or do not match with our hypotheses. Without this kind of record keeping, the interviews stop being meaningful. Without genuine conversation, though, the interviews can quickly revert to a rote exercise in filling out a paradigm, which are far less engaging and risk losing the crucial focus on real-life meaning and usage.¹⁴ When the researcher and consultants can maintain both strands, the results are often fantastic. Everyone can work longer, the work is more interesting, and, despite many double-checking questions and requests for repetition, all parties remain alert.

The conversational interview style can be augmented when more than one linguistic consultant is involved. Many new meanings, and meaning nuances, emerge when consultants converse with each other, and such conversations can be a rich source of semi-targeted, naturalistic language data, as well. Consultants also can serve as a check on each other's potential natural tendencies to be either too literal or too liberal in their interpretations (for example, one of our consultants might say to another, "Well, *you* might say that, but normal people wouldn't!"), and, working together, they frequently come up with contexts where initially rejected forms would be felicitous.

The following excerpt (24) is roughly transcribed from an interview between Axel (A) and Sindebele consultants Jerry (J) and Mmadi (M). Although the inter-

¹⁴ We do believe there is a place for this kind of interview, even in investigating lexical aspect, but especially in the initial stages, the more elicitation sessions can be like a natural conversation, the better.

action is very simple, it illustrates several important advantages to working with two consultants at a time.

Axel's goal was to find out whether the persistive perfective form of *-hlonipha* 'respect' is felicitous, and what it means. First, Jerry gives an example of a context in which the form might be used, and then Jerry and Mmadi enact the scene described by Jerry. In line 25, Mmadi produces the present persistive form *usahlonipha* rather than the target form *usahloniphile*. He is subsequently corrected by Jerry (line 26) and the ensuing discussion shows that the two forms have at least some overlap in their usage domains. Further investigation was necessary to start to pin down the subtle differences in usages, but even this small interchange is of significance. In a more traditional one-on-one elicitation setting, the investigator might also suggest a correction such as Jerry's in line 26, but the consultant's response is far more likely to be ambiguous or confusing; for example, the consultant might agree to the correction out of politeness, or more easily misinterpret the investigator's intent. In contrast, a second native speaker's correction is less intrusive, and shows that the construction in question is, in fact, felicitous in this context, a judgment that is reinforced by the discussion in lines 29–33. Additionally, several interesting constructions are introduced (e.g. *abakuhloniphi nokuhlonipha* in line 24) that might have been less likely to surface in one-on-one elicitation between a non-native investigator and a native speaker.

(24) Sindebele

1. A: *Usahloniphile*.
2. J: Same situation, you know, there are three boys, and yeah, and then...maybe someone generalizes. He says, "those boys don't respect. they just enter the house and they...don't take their hats off". And you would say *Lisiba usahloniphile*. You know, because, once again, you know, he took off his hat.¹⁵
3. A: Can you try, now I'm asking you to become actors. Can you try to enact that? Because basically I think what you did...
4. J/M: Okay, alright
5. A: I think what you just suggested is that
6. J/M: Yeah
7. A: Uh, one person complains,
8. J: Yeah
9. M: Mm
10. A: that that these three guys

¹⁵ Note that here, Jerry also potentially invokes another reading of the *-sa-...-ile* construction, namely, of doing something again (see example 25 below).

11. M: that they're rude (?)
12. A: They didn't respect
13. J/M: Yes
14. A: And then the other person says, well, there was one of them who did, right
15. J/M: Yeah
16. A: So Lisiba did.
17. J: Yeah.
18. A: Can you do, let me just check the vo...the noise...
19. ...
20. A: ...Okay, now I try...I would like you to become actors.
21. J: Okay
22. A: And try to enact this particular situation.
23. J: Alright
24. J: Okay. *Batlhangana laba abaphumekala. Abakuhloniphi nokuhlonipha.*
[‘Those boys aren’t successful(?). They don’t respect you’]
25. M: *Kodwa Lisiba usahlonipha.*
[‘But Lisiba is still respectful’]
26. J: *Usahloniphile.*
[‘He is still being respectful’]
27. M: *Usahloniphile.*
[‘He is still being respectful’]
28. J: Yeah.
29. A: You preferred the other one in this sentence...
[J&M indicate visually that they don’t prefer one or the other.]
30. A: Both work.
31. M: Yeah both
32. J: Yeah they [both work.
33. M: [they are interchangeable.
34. A: Can you do it once again?
35. J: *Batlhangana laba abaphumekala. Abasahloniphi nokuhlonipha.*
[‘Those boys aren’t successful(?). They don’t respect anymore’]
36. M: *Kodwa Lisiba usahloniphile.*
[‘But Lisiba is still being respectful’]
37. A: Okay, thank you so much.

5. ADAPTATION TO SINDEBELE AND RESULTS

Since testing for lexical aspectual structure is so fraught with difficulties even within a particular language, attempts to compare structures across languages must be made with even greater care. Potential problems are obvious: if we take seriously the possibility that lexical aspectual categories do not map one-to-one across languages, we must certainly also recognize that lexical aspect tests may function differently, and that markers of grammatical aspect, even if superficially similar, may in fact “target” different phases of the verb. Simply translating tests from one language to another and expecting speaker judgments to produce reliable results is foolhardy.

Still, as we said in the introduction, we believe that cross-linguistic studies of lexical aspect are both feasible and valuable. The so-called “Southern” and “Northern” Ndebele languages (isiNdebele and Sindebele, respectively) are particularly well suited to comparative study. They are relatively closely related, although their genetic status is far from settled, and therefore have many cognate forms and fairly similar verbal morphology. On the other hand, they have significant differences in the size of their speaker communities, their official recognition, and their contact situations, as discussed in several other papers in this volume. Therefore, if contact-induced change can influence the semantics of lexical aspectual structures, we might reasonably expect to see differences between isiNdebele and Sindebele.

As a starting point in adapting the isiNdebele tests to Sindebele, after exploring basic Sindebele TAM morphology, we attempted – with the above caveats in mind – to directly translate the isiNdebele tests to Sindebele. Because the tests had proved useful in exploring lexical aspectual structure in a closely related language, we wanted to see how (and if) they would work in translation.

5.1 Tests with similar morphology

In most cases, adapting morphological tests involved similar or identical morphology. Examples are shown in Table 2.

Table 2 Comparative TAM morphology in isiNdebele and Sindebele

isiNdebele	Sindebele
USipho....	Sipho....
<i>u-ya-phakam-a</i> 1.SM-DJ-rise.up-FV 'he stands/is standing up' 'he gets/is getting angry' 'he rises / is rising to prominence'	<i>u-ya-jam-a</i> 1.SM-DJ-stand.up-FV 'he stands up'
<i>u-ya-khohlol-a</i> 1.SM-DJ-cough-FV 'he is coughing'	<i>u-ya-khohlol-a</i> 1.SM-DJ-cough-FV 'he is coughing'
<i>u-phakam-ile</i> 1.SM-rise.up-PFV 'he is standing / angry / prominent'	<i>u-jam-ile</i> 1.SM-stand.up-PFV 'he is standing'
<i>u-khohlol-ile</i> / <i>u-khohlele</i> 1.SM-cough-PFV 1.SM-cough.PFV 'he coughed'	<i>u-khohlol-ile</i> / <i>u-khohlole</i> 1.SM-cough-PFV 1.SM-cough.PFV 'he coughed'
<i>be-ka-phakam-ile</i> be.PFV-1.SM-rise.up-PFV 'he was standing / angry / prominent'	<i>ube a-jam-ile</i> 1.SM.be.PFV 1.SM.SUBORD-stand.up-PFV 'he was standing'
<i>#be-ka-khohlol-ile</i> / <i>#be-ka-khohlolele</i> be.PFV-1.SM-cough-PFV IPFV-1.SM-cough.PFV	<i>#be-ka-khohlol-ile</i> / <i>#be-ka-khohlole</i> / <i>#ube a-kholole</i> etc. (all forms are variations on be.PFV-1.SM-cough-PFV)
<i>u-sa-phakam-a</i> 1.SM-PERS-rise-up-FV 'he still stands up / gets angry / is rising in prominence'	<i>u-sa-jam-a</i> 1.SM-PERS-stand-up-FV 'he is still getting up / he still stands (is able to stand)'
<i>u-sa-khohlol-a</i> 1.SM-PERS-cough-FV 'he still coughs / is coughing'	<i>u-sa-khohlol-a</i> 1.SM-PERS-cough-FV 'he still coughs / is coughing'

However, there were also cases in which the same morphology had the potential for slightly different meanings in the two languages, at least for some speakers. For example, *-sa-* still + final *-ile* (see Section 4 above) in Sindebele was interpreted by at least one speaker as meaning 'did X again' (25).

(25) Sindebele

- a. *Jabu u-sa-tjh-ile*
 1A.Jabu 1.SM-PERS-burn-PFV
 ‘Jabu got burned again’ (Oh, that Jabu!) [does not mean: he is still burned]
- b. *Jabu u-sa-bulele nyoka?*
 1A.Jabu 1.SM-PERS-kill.PFV 9.snake
 ‘Has Jabu killed yet another snake?’

Several other Sindebele speakers did not seem to arrive at this reading with similarly non-COS predicates, such as *-gula* ‘get sick’, which – despite also having an inchoative sense – has a present state reading with imperfective, and not perfective morphology; and *-thenga* ‘buy’, which does not seem to lexically encode a result state (26).

(26) Sindebele

- a. *#Lindiwe u-sa-gul-ile*
 1A.Lindiwe 1.SM-PERS-get.sick-PFV
 Intended: ‘Lindiwe got sick again’
- b. *#Malose u-sa-theng-e tibhanana*
 1A.Malose 1.SM-PERS-buy-PFV 10.banana
 Intended: ‘Malose bought (yet) more bananas’

This difference may either reflect a semantic extension of the use of *-sa-* (from ‘still’ to ‘again’) for some speakers, or its lack of availability to other speakers may indicate that the ‘again’ meaning was simply not salient enough to be triggered for this latter group of speakers in the context of our elicitation situations.

In isiNdebele, speakers identified a different reading for similar constructions: the notion that something has ‘only’ occurred to a certain extent. The two readings are not entirely unrelated, although their effects seem to be somewhat opposite. ‘Only’ cancels the presupposition that something happened more frequently, or to a greater extent (although it maintains the presupposition that the event is expected to occur more, or again, in the future; see Poulos & Msimang 1998 for similar examples). In contrast, ‘(yet) again’ cancels the presupposition that something would *not* occur any more. Examples from isiNdebele are given in (27).

(27) isiNdebele

- a. *U-Jabu u-sa-bulele inyoka #(eyodwa)*
 1A-Jabu 1.SM-PERS-kill.PFV 9.snake 9.one

‘Jabu has only killed one snake’ (Maybe he’s going to kill another one.)

- b. *Umnganami uJohn ngi-sa-m-bon-e kabili*
 1.my.friend 1A.John 1SG.SM-PERS-1.OM-see-PFV twice

‘My friend John, up to now, I’ve seen him (only) twice’ (I expect to see him again.)

- c. *Ngi-sa-dl-e kancani nje*
 1SG.SM-PERS-eat-PFV little now

‘I’ve just eaten a little portion for now’ (I expect to eat more.)

The ‘again’ reading may also be available in isiNdebele, but does not appear to be as salient, at least to the speakers we interviewed.

5.2 Translating morphological markers to lexical items, and other non-cognate forms

Some morphological markers in isiNdebele can only be translated as full lexical items in Sindebele. For example, isiNdebele has a situative marker *na-(...-ko)*, best translated as ‘when’ (and sometimes ‘if’) in English. Situatives form a temporal subordinate clause. The situative-marked eventuality is not marked for tense (although it can have an *-ile* ending as in 28e–f), and derives its tense interpretation from the main-clause, as seen in the examples below. We used this context to select a single point in time against which the temporality of the main clause could be evaluated. Present-tense main clauses are evaluated as habitual/generic or futurate (as in 28a–b and 28e–f); perfective main clauses (28e) are evaluated as commencing at the time of arrival (and, generally speaking, being completed within a reasonably short time thereafter); imperfective clauses (including those with resultative-like perfective interpretations) are interpreted as ongoing at the time of arrival (28d).

(28) isiNdebele

- a. *Abantu na-ba-hlangan-a-ko, ba-ya-phumelel-a*
 2.person SIT-2.SM-come.together-FV-REL 2.SM-DJ-succeed-FV

‘When people come together, they succeed’

- b. *USipho na-ka-phol-a-ko, si-y-a ePitori*
 1A.Sipho SIT-1.SM-get.well-FV-REL 1PL.SM-go-FV LOC.Pretoria
 ‘When Sipho recovers, we’re going to Pretoria’
- c. *Na-wu-fik-a-ko ngi-wahl-e izandla*
 SIT-2SG.SM-arrive-FV-REL 1SG.SM-clap-PFV 8.hand
 ‘When you arrived, I clapped my hands’
- d. *Na-wu-fik-a-ko be-ngi-ku-lind-ile*
 SIT-2SG.SM-arrive-FV-REL be.PFV-1SG.SM-2SG.OM-wait.for-PFV
 ‘When you arrived, I was waiting for you’
- e. *Na-si-thuthumb-ile-ko, si-ya-nuk-a*
 SIT-1PL.SM-explode-PFV-REL 7.SM-DJ-smell-FV
 ‘When it has exploded, it smells bad’
- f. *Na-ka-lamb-ile-ko, a-ka-cabang-i*
 SIT-1.SM-be.hungry-PFV-REL NEG-1.SM-think-FV.NEG
 ‘When he is hungry, he doesn’t think’

Although Sindebele lacks this situative marking, it forms if/when clauses in a similar fashion, with the subordinating conjunction *lokhwa* ‘if, when’ and an untensed verb in the participial form (29).

(29) Sindebele

- a. *Lokhwa Sipho a-khohlol-a, u-phum-a tinyembeli*
 when 1A.Sipho 1.SM.SUBORD-cough-FV 1.SM-come.out-FV 10.tear
 ‘When Sipho is coughing, tears come out’
- b. *Lokhwa Jabu a-fik-a, banrwana eba-dlaluk-a*¹⁶
 when 1A.Jabu 1.SM-arrive-FV 2.child 2.SM.IPFV-play-FV
 ‘When Jabu arrived, the children were playing’

¹⁶ This form seems like it may be a shortened form of *babe badlaluka* (2.SM.be.PFV 2.SM.play.FV), but we do not yet fully understand its morphology or its complete range of functions.

- c. *Lokhwa Jabu a-bulele nyoka, ku-lung-ile*
 if 1A.Jabu 1.SM-kill.PFV 9.snake 17-be(come).good-PFV
 'If Jabu has killed a snake, it's fine'

Although the 'when/if' forms in Sindebele are lexical rather than morphological, the constructions are similar and no meaning differences were observed, so the test was easily translatable. That is, the functional equivalence of testing frames is more significant than their formal correspondence.

Some lexical items (such as auxiliary verbs) are non-cognate, but nevertheless exhibit no significant differences in meaning. For example, in tests involving 'start to X' we substituted isiNdebele *-thoma* 'begin, start' with Sindebele *-kxwala* 'begin, start' and obtained comparable results. Other lexical non-cognates reflected significantly different grammaticalization histories. For example, in isiNdebele 'almost do X' is expressed with an adverbial form *pheze* 'nearly, almost' inflected with a subject marker, followed by a consecutive-marked main verb, as in (30).

(30) isiNdebele

- U-pheze wa-gul-a*
 1.SM-nearly 1.SM.CONS-get.sick-FV
 'he almost got sick'

Sindebele expresses the concept of 'almost do X' quite differently, using a perfective form of the lexical verb *-funa* 'want, look for, need' followed by an infinitive verb, as in (31a); compare with (31b–c).

(31) Sindebele

- a. *Lucky u-fun-e ku-gwal-a ligwalo*
 1A.Lucky 1.SM-want-PFV INF-write-FV 5.letter
 'Lucky nearly wrote a letter' (never started)
- b. *Lucky u-fun-a ku-gwal-a ligwalo*
 1A.Lucky 1.SM-want-FV INF-write-FV 5.letter
 'Lucky wants to write a letter'
- c. *Bull e-fun-e ku-f-a*
 1A.Bull 9.SM-want-PFV INF-die-FV
 'Bull [a dog] nearly died'

Although the above ‘almost’ constructions can also have the meaning ‘wanted to X’ but didn’t, there are clear signs of semantic bleaching; for example, the form can also be used with non-agentive subjects. There is at least one other way of expressing ‘almost’ in Sindebele, illustrated in (32). Further investigation is needed to determine whether, and how, the forms differ in their semantics and pragmatics.

(32) Sindebele

<i>Lucky</i>	<i>u-phos-e</i>	<i>a-gwal-e</i>	<i>ligwalo</i>
1A.Lucky	1.SM-throw?-PFV	1.SM-write-PFV	5.letter

‘Lucky nearly wrote a letter’ (same as *ufune* – almost started but didn’t)

There were also cases in which different lexical items introduced significant complications in the tests. For example, we used the adverb *buthaka* ‘slowly’ in isiNdebele to test whether there was a (non-coda) phase that could be construed as both extended in time and non-stative, that is, involving activity or change. (Which phase is targeted is a – sometimes pragmatic – function of the interaction between tense/aspect marking and lexical aspectual structures.) With non-COS states, *buthaka* is infelicitous (33).

(33) isiNdebele

a. # <i>USipho</i>	<i>u-gul-a</i>	<i>buthaka</i>
1A.Sipho	1.SM-get.sick-FV	slowly

Intended: ‘#Sipho is sick slowly’ (state)

b. # <i>USipho</i>	<i>u-gul-e</i>	<i>buthaka</i>
1A.Sipho	1.SM-get.sick-PFV	slowly

Intended: ‘Sipho was/got sick slowly’ (state)

With active, temporally extended nuclear phases, *buthaka* is licit and has the meaning that the active phase is carried out slowly (34).

(34) isiNdebele

a. <i>USipho</i>	<i>u-cul-a</i>	<i>buthaka</i>
1A.Sipho	1.SM-sing-FV	slowly

‘Sipho sings slowly’ (active, extended nuclear phase)

- b. *U-tlol-e* *incwadi* *buthaka*
 1.SM-write-PFV 9.book slowly

‘S/he wrote a book slowly’ [he took a long time to write it] (active, extended nuclear phase)

- c. *U-bulele* *ikukhu* *buthaka*
 1.SM-kill.PFV 9.chicken slowly

‘S/he killed the chicken slowly’ [the knife wasn’t sharp, so s/he really had to saw] (active, extended nuclear phase)

Similarly, with COS verbs, if the onset phase is extended, *buthaka* is licit, as in (35a–b). Without extended onset phases, *buthaka* is infelicitous or more difficult to construe (35c–d), although with some verbs, it may be used in certain contexts such as the habitual (35e–f).

(35) isiNdebele

- a. *U-phakam-e* *buthaka*
 1.SM-rise.up-PFV slowly

‘S/he stood up slowly’ [like an old man] (extended, active onset/coming-to-be phase)

- b. *U-lele* *buthaka*
 1.SM-sleep slowly

‘It took him time to sleep [fall asleep]’ (extended, non-active onset/coming-to-be phase)

- c. *#U-lamb-a* *buthaka*
 1.SM-be.hungry-FV slowly

Intended: ‘S/he gets hungry slowly’ (apparently, no extended onset (or nuclear) phase)

- d. *#U-fik-e* *buthaka*
 1.SM-arrive-PFV slowly

Intended: ‘S/he arrived slowly’ (apparently, no extended onset or nuclear phase)

- e. *U-ya-dan-a* *buthaka* *na-wu-m-beth-a-ko*
 1.SM-DJ-become.disappointed slowly SIT-2SG.SM-1.OM-beat-FV-REL
 ‘S/he takes a long time to become disappointed when you beat him/her’
 (possibly indicating an extended onset/coming-to-be phase, at least when
 used iteratively)
- f. *#U-dan-e* *buthaka* *na-wu-m-beth-a-ko*
 1.SM-become.disappointed-PFV slowly SIT-2SG.SM-1.OM-beat-FV-REL
 Intended: ‘S/he took a long time to become disappointed when you beat
 him/her’ (no access to extended onset/coming-to-be phase in single event)

The nearest equivalent we found to *buthaka* in Sindebele was *kugasigenge* ‘(do) a little (bit), little by little’, which extends to mean ‘slowly’ with certain unbounded predicates. (This adverbial is sometimes possible as *gasigenge*, with a meaning more like ‘slowly’ than ‘a little’.) This difference in meaning produced significantly different results. With some unbounded predicates, the meaning ‘slowly’ is licit and salient (36a–b). With states, ‘a little’ can be interpreted as ‘for a short period’ (36c); compare to (35c) above. With bounded predicates and many COS verbs (36g), only the meaning ‘a little’ is possible, making the adverb truly infelicitous with fully quantized predicates (36e–h).

(36) Sindebele

- a. *Sipho* *u-dl-a* *kugasigenge*
 1A.Sipho 1.SM-eat-FV slowly
 ‘Sipho eats slowly’
- b. *Sipho* *u-gidim-a* *kugasigenge*
 1A.Sipho 1.SM-run-FV slowly
 ‘Sipho runs slowly’
- c. *Lindiwe* *u-gul-e* *kugasigenge*
 1A.Lindiwe 1.SM-be/get.sick-PFV slowly
 ‘Lindiwe was sick for just a short period’
- d. *Sipho* *u-nyam-e* *kugasigenge*
 1A.Sipho 1.SM-get.disappointed-PFV slowly
 ‘Sipho is a little bit disappointed’

- e. #Sipho u-jam-a kugasigenge
1A.Sipho 1.SM-stand.up-FV slowly

Intended: 'Sipho stands up slowly'

- f. #Jabu u-bulele nyoka kugasigenge
1A.Jabu 1.SM-kill.PFV 9.snake slowly

Approximate meaning: 'Jabu killed the snake, but he didn't kill it enough'

- g. #Jabu u-fik-e kugasigenge
1A.Jabu 1.SM-arrive-PFV slowly

Intended: 'Jabu arrived slowly'

(Speaker comment: "You can't arrive a little – you arrive!")

- h. #Lucky u-gwal-e ligwalo kugasigenge
1A.Lucky 1.SM-write-PFV 5.letter slowly

Intended: 'Lucky wrote a letter slowly'

(Speaker comment: "You can't write *kugasigenge*")

One speaker offered what may have been a closer equivalent to isiNdebele *buthaka* 'slowly'. *Gegunyana* is a Sesotho sa Leboa borrowing meaning 'slowly' (37).

(37) Sindebele

- Jabu u-bulele nyoka gegunyana
1A.Jabu 1.SM-kill.PFV 9.snake slowly

'Jabu killed the snake slowly'

However, because speakers frequently had strong feelings against using known borrowings from Sesotho sa Leboa and other languages, we did not conduct extensive testing with *gegunyana*. Instead, we added a test with *gambila* 'quickly, early' which – while still not behaving identically to *buthaka* – gave more comparable results. In many cases, interpretation as 'quickly' or 'early' gave clues as to whether a targeted phase was active and extended (38).

(38) Sindebele

- a. Jabu u-fik-e gambila
1A.Jabu 1.SM-arrive-PFV early

'Jabu arrived early / #quickly' (no extended phase)

- b. *Sipho u-jam-a gambila*
 1A.Sipho 1.SM-stand.up-FV quickly
 ‘Sipho stands up quickly / #early’ (active, extended onset phase)
- c. *Sipho u-bin-e gambila*
 1A.Sipho 1.SM-dance-PFV quickly/early
 ‘Sipho danced quickly / early’ (active, extended nuclear phase)
- d. *#Lindiwe u-gul-e gambila*
 1A.Lindiwe 1.SM-get/be.sick-PFV quickly/early
 Intended: ‘Lindiwe got/was sick quickly’ (NB: this utterance would be possible in unusual situations, e.g. if you planned to make Lindiwe sick at 4 pm., but she already got sick at 1 PM and had already recovered by 4 pm.: ‘Lindiwe got/was sick early’) (state: no active phase)

Although neither test was a perfect match for the isiNdebele *buthaka* test, using both (*ku*)*gasigenge* and *gambila* allowed us to test similar facets of a verb’s lexical aspectual structure, and also gave us additional insights into Sindebele verbal (and adverbial) semantics.

5.3 Discarded tests

Finally, no direct Sindebele equivalent could be found for at least one TA marker in isiNdebele. The “inceptive” prefix *se-* in isiNdebele has a strong contrastive sense (as in ‘this situation holds now, and it did not hold previously’; 39). Speakers sometimes also translate it as ‘already’, especially for non-COS verbs in non-present tenses (39d–f). Both isiNdebele and Sindebele have a longer preverbal form *sele* (from *-sala* ‘remain behind’) with related ‘already’ semantics, but it is not clear whether the meanings of the prefix and the auxiliary form are completely mappable.

- (39) isiNdebele
- a. *Se-ka-ya-cul-a*
 INC-1.SM-DJ-sing-FV
 ‘S/he is now singing’ (s/he wasn’t before)
- b. *Se-ka-ya-gul-a*
 INC-1.SM-DJ-get.sick-FV
 (S/he wasn’t sick, but) ‘s/he’s now sick’

- c. *Se-ka-ya-dan-a*
INC-1.SM-DJ-become.disappointed-FV
'S/he now becomes sad/disappointed' (as a habit – s/he previously didn't have this habit)
- d. *Se-ka-cul-ile*
INC-1.SM-sing-PFV
'S/he has already sung'
- e. *#?Se-ka-gul-ile*
INC-1.SM-get.sick-PFV
Intended: 'S/he has already been/become sick'
- f. *Se-ka-dan-ile*
INC-1.SM-become.disappointed-PFV
'S/he's now/already sad' (she wasn't sad the last time you saw her)

The semantics of *se-* marking and their interactions with lexical aspect are complex and interesting. However, because we found no equivalent marker in Sindebele, we had to abandon this test as a comparative tool.

5.4 Summary and initial results

As noted above, it is important not to assume that cognate forms have identical meanings and identical interactions with lexical aspect. To mitigate this possibility, we tried to test with enough verbs that at least some redundancies would be introduced, so that we could see whether differences were due to different meanings of specific lexical items, or whether they were systematic. Conversely, the built-in redundancies of our tests (see Section 4.1) helped to test for the possibility that there could be systematic differences between lexical aspectual classes. That is, if lexical aspectual classes are systematically different between isiNdebele and Sindebele, we would expect lexical items in that class to behave in the same way (and differently between the two languages) with all tests that target a certain facet of lexical aspect. If, on the other hand, adverbial tests give similar results in both languages, but a morphological TA marker gives systematically different results between the two languages, we can assume that the cognate TA marker has different semantics in isiNdebele and Sindebele, but that the lexical aspectual types themselves are similar.

It should be noted that we had not previously conducted extensive research into the meaning of tense and aspect forms in Sindebele. An experienced researcher of a language would presumably already have a good understanding of the meanings of tense and aspect morphemes in that language, and could therefore avoid some of the potential pitfalls in adapting the tests. On the other hand, systematic testing of lexical aspectual contrasts at the beginning of a study of tense and aspect will likely prove invaluable in developing a robust understanding of the roles of TA forms. Many of a TA form's meanings emerge naturally through this kind of testing, so we contend that extensive previous study of the tense/aspect system a language – while valuable – is not an absolute prerequisite, especially in languages like these, where the interactions between lexical aspectual type and grammatical aspectual forms such as the perfective are so striking.

The methodology we followed proved useful for investigating semantic differences and potential contact-induced changes between two closely related languages. Although investigations involving more distantly related languages, or languages from different families, would likely encounter far greater challenges regarding translatability, we believe that following the general principles described in this study – introducing redundancies in testing; developing tests that incorporate (at least) adverbial constructions, auxiliary verbs, and tense/aspect marking; and testing for both temporal phases (and boundaries) and qualitative changes – will provide insights into contrasts in lexical aspectual structures and lexical aspectual classes even between quite different languages. (See also Bar-el 2015 for further ideas about contrasts that can be tested.)

Indeed, when we compared the two languages, several subtle but basic differences in lexical aspectual structures emerged. Two will be illustrated here.

First, consider the COS verbs meaning expressing 'get/be hungry' in the two languages (40)–(41).

(40) isiNdebele

U-lamb-ile

1.SM-be.hungry-PFV

'S/he is hungry'

(41) Sindebele

U-phethwe

ndlala

1.SM-hold.PASS.PFV

9.hunger

'S/he is hungry'

As discussed above, the isiNdebele word *-lamba* '[get/]be hungry, starve' does not, in general, seem to encode an extended onset phase. When used in the present tense, it receives a habitual reading which in isiNdebele has been conventionalized with the metaphorical meaning 'be poor, be lacking' (42).

(42) isiNdebele

USipho u-ya-lamb-a
 1A.Sipho 1.SM-DJ-be.hungry-PFV
 'Sipho is poor'

One speaker suggested that (42) could also mean 'Sipho is getting hungry', but this reading is marginal at best; some speakers reject it outright.

In Sindebele, in contrast, the onset phase seems to be accessible in common usage, as seen in the default reading of (43).

(43) Sindebele

Frans u-phath-w-a ndlala
 1A.Frans 1.SM-hold-PASS-FV (?COP.)9.hunger
 'Frans is getting hungry (lit. "is getting held by hunger")'

The isiZulu form *-lamba* 'get hungry' is cognate to the isiNdebele form, while it seems that the Sindebele form is most likely a calque from Sesotho *sa Leboa -swarwa ke tlala* 'be held by hunger' (*-swara* 'hold'). With the adoption of a different form came also a different aspectual structure.

Differences in aspectual structure can also be observed with the stem *-khamba*, which is cognate in both languages. The isiNdebele dictionary (Iziko lesiHlathululi-mezwi sesiNdebele 2006) translates *-khamba* as 'go, travel, walk'. Speaker interpretations suggest that it has at least two different aspectual construals, depending on which meaning is intended. One is that of a durative, activity-like verb (walking, going, traveling) with an extended nucleus. This use is seen with the persistive *-sa-* marker (44).

(44) isiNdebele

USipho u-sa-khamb-a
 1A.Sipho 1.SM-PERS-GO-FV
 'Sipho is still walking'

In another construal of *-khamba* 'leave', there is no onset phase, but rather a punctual nucleus and an extended coda phase (45).

(45) isiNdebele

USipho u-sa-khamb-ile
 1A.Sipho 1.SM-PERS-go-PFV
 ‘Sipho is still gone’

-khamba in Sindebele behaves quite differently. Although the nuclear phase can also be construed as either punctual or extended (46a), the *-sa-* form can only target a pre-nuclear phase (46b), while the *-sa...-ile* form is illicit, at least in the ongoing-state context (46c); the form does not seem to allow for an extended coda phase.

(46) Sindebele

- a. *Madimedja u-khamb-a kahle*
 1A.Madimedja 1.SM-go-FV well
 ‘Madimedja is going well’ (e.g. on foot, by car, or on a bicycle)
- b. *Madimedja u-sa-khamb-a*
 1A.Madimedja 1.SM-PERS-go-FV
 ‘Madimedja will still go’ (i.e. he hasn’t left yet)
- c. *#Madimedja u-sa-khamb-ile*
 1A.Madimedja 1.SM-PERS-go-PFV
 Intended: ‘Madimedja is still gone’ (Sindebele)

While further study of the relevant verb in Sesotho sa Leboa is needed to establish semantic borrowing, the dictionary translations are also suggestive. A Northern Sotho–English dictionary translates *sepela* as ‘walk, leave/go’.¹⁷ It may be, then, that the ‘leave’ sense is more salient in Northern Sotho and Sindebele, while isiNdebele construes *-khamba*’s departure sense as the beginning of a coda state of being away.

6. CONCLUSION

We hope that as more detailed investigations of lexical aspect are carried out across a variety of Bantu (and non-Bantu) languages, the investigative toolkit will grow both in size and robustness, and that we can deepen our understanding of

¹⁷ <nso.oxforddictionaries.com/translate/northernsotho-english/sepela>, accessed 26 Feb. 2018.

lexical aspectual structures both within languages and as a phenomenon subject to contact-induced change. Our study attempted to increase the set of possible contrasts to examine when investigating lexical aspectual contrasts, but we are surely overlooking important criteria, and we hope that further research will bring more of these to light.

We also want to take seriously the possibility that different tense/aspect categories might not only interact differently with lexical aspectual types, or target different features in their conceptual architecture, but might rather “conceptualize” the entire system of lexical aspect differently. Nichols (2015) noted that some languages privilege “transitions” and others “states” in their lexical aspectual systems; we wonder whether, somewhat akin to languages with split ergativity, some tense/aspect forms even within a single language could interact with a transition-based system of lexical aspect, and others with a state-based system. This is both a question for future research and an important starting point in investigations of lexical aspect: one should not assume *a priori* that a language’s system will behave totally uniformly in context.

One final, non-theoretical point that we would like to make is that our methodology did not require that we work with the stereotypical fieldwork of “ideal” (near-)monolingual native speakers. In fact, in the populations that speak isiNdebele and Sindebele (and most other languages of South Africa), such speakers are virtually non-existent. Rather than attempting to reify a language and explore it in a sterile, unnatural context, we hope that methodologies like these (along with many described in, e.g. Bochnak & Matthewson 2015) allow for the exploration of languages in their beautiful complexity, without losing the ability to draw generalizations and identify meaningful patterns.

We are encouraged that a number of systematic studies of lexical aspectual systems in Bantu languages are currently underway, and we hope that the experiences and ideas we describe in this paper will be helpful in stimulating continued research, both within particular varieties and comparatively, on this important but understudied topic.

ABBREVIATIONS

1A	Noun class 1a (referring to personal names)	OM	Object marker
CJ	Conjoint	PASS	Passive
CONS	Consecutive	PERS	Persistent marker (“still”)
COP	Copula	PFV	Perfective
DJ	Disjoint	PL	Plural
FV	Final vowel	PST	Past
INC	Inceptive	REL	Relative
INF	Infinitive	SG	Singular
IPFV	Imperfective	SIT	Situative marker (“when”)
LOC	Locative	SM	Subject marker
NEG	Negation, negative	SUBORD	Subordinative

Single numbers indicate Bantu noun classes.

REFERENCES

- BAR-EL, Leora 2015. Documenting and Classifying Aspectual Classes Across Languages. In: M.R. BOCHNAK & L. MATTHEWSON (eds): 75–109.
- BASTIN, Yvonne 1983. *La finale verbale -ide et l'imbrication en bantou*. Tervuren: Musée Royal de l'Afrique Centrale.
- BOCHNAK, M. Ryan & Lisa MATTHEWSON 2015. *Methodologies in Semantic Fieldwork*. Oxford: OUP.
- BOTNE, Robert D. 1983. On the Notion “Inchoative Verb” in Kinyarwanda. In: F. JOUANNET (ed.), *Le Kinyarwanda: études linguistiques*: 149–180. Paris: SELAF.
- BOTNE, Robert 2003. To Die Across Languages: Toward 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 & Tiffany L. KERSHNER 2000. Time, Tense, and the Perfect in Zulu. *Afrika und Übersee* 83: 161–180.
- BREU, Walter 1984. Handlungsgrenzen als Grundlage der Verbalklassifikation. In: W. LEHFELDT (ed.), *Slavistische Linguistik 1984: Referate des X. Konstanzer Slavistischen Arbeitstreffens* (Slavistische Beiträge 184): 9–34. München: Otto Sagner.
- BREU, Walter 1994. Interactions between Lexical, Temporal and Aspectual Meanings. *Studies in Language* 18(1): 23–44.
- BUELL, Leston 2006. The Zulu Conjoint/Disjoint Verb Alternation: Focus or Constituency? *ZAS Papers in Linguistics* 43: 9–30.

- COPLAND, Fiona & Angela CREESE 2015. *Linguistic Ethnography: Collecting, Analysing and Presenting Data*. London: SAGE.
- CRANE, Thera Marie 2011. *Beyond Time: Temporal and Extra-Temporal Functions of Tense and Aspect Marking in Totela, a Bantu Language of Zambia*. Berkeley: University of California at Berkeley.
- CRANE, Thera Marie *in prep.* 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. Paper presented at the 6th International Conference on Bantu Languages, Helsinki, Finland.
- CRANE, Thera Marie & Axel FLEISCH *forthcoming*. Constituency, Imbrication, and the Interpretation of Change-of-State Verbs in IsiNdebele. To appear in a special issue of *Studia Orientalia Electronica*.
- CRANE, Thera Marie & Bastian PERSOHN 2019a. What's in a Bantu Verb? Actionality in Bantu Languages. *Linguistic Typology* 23(2): 303–345.
- CRANE, Thera Marie & Bastian PERSOHN 2019b. A Model-Theoretic Discussion of Bantu Actionality. *Africana Linguistica* 25: 27–63.
- CROFT, William 2012. *Verbs: Aspect and Causal Structure*. Oxford: OUP.
- DIK, Simon 1989. *The Theory of Functional Grammar, I: The Structure of the Clause*. Dordrecht: Foris.
- DOWTY, David R. 1979. *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ*. Dordrecht: Reidel.
- FLEISCH, Axel 2000. *Lucazi Grammar: A Morphosemantic Analysis*. Cologne: Rüdiger Köppe.
- FLEISCH, Axel 2005. A Cognitive Semantic Approach to the Linguistic Construal of UPPER SPACE in Southern Ndebele. *Southern African Linguistics and Applied Language Studies* 23(2): 139–154.
- FREED, Alice F. 1979. *The Semantics of English Aspectual Complementation*. Dordrecht: Reidel.
- Iziko lesiHlathululi-mezwi sesiNdebele 2006. *IsiNdebele–English/English–isiNdebele: IsiHlathululi-mezwi/Bilingual and Explanatory Dictionary*. Cape Town: Phumelela.
- 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 2019a. The Interactions of *-ø-...-ile* with Aspectual Classes in Nyamwezi. In: S. LOTVEN, S. BONGIOVANNI, P. WEIRICH, R. BOTNE & S.G. OBENG (eds), *African Linguistics across the Disciplines: Selected Papers from the 48th Annual Conference on African Linguistics*: 281–308. Berlin: Language Science Press.
- KANIJO, Ponsiano Sawaka 2019b. Aspectual Classes of Verbs in Nyamwezi. PhD dissertation, University of Gothenburg.
- KERSHNER, Tiffany L. 2002. The Verb in Chisukwa: Aspect, Tense, and Time. PhD dissertation, Indiana University.
- 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.

- MAHLANGU, Katjie Sponono 2016. The Growth and Development of IsiNdebele Orthography and Spelling (1921–2010). University of Pretoria.
- MAHO, Jouni Filip 2009. *NUGL Online: The Online Version of the New Updated Guthrie List: A Referential Classification of the Bantu Languages*. Available at <brill.com/fileasset/downloads_products/35125_Bantu-New-updated-Guthrie-List.pdf>, accessed 25 Nov. 2019.
- MATTHEWSON, Lisa 2004. On the Methodology of Semantic Fieldwork. *International Journal of American Linguistics* 70(4): 369–415.
- NICHOLS, Johanna 2015. State-Based vs. Transitional-Based Lexical Event Structure. Paper presented at Workshop on Resultative Constructions, Stockholm University, November 2015.
- NURSE, Derek 2008. *Tense and Aspect in Bantu*. NY: OUP.
- PERSOHN, Bastian 2017. *The Verb in Nyakyusa: A Focus on Tense, Aspect and Modality*. Berlin: Language Science Press.
- PERSOHN, Bastian 2018. Aspectuality in Bantu: On the Limits of Vendler's Categories. *Linguistic Discovery* 16(2): 1–19.
- POULOS, George & Christian T. MSIMANG 1998. *A Linguistic Analysis of Zulu*. Cape Town: Via Africa.
- SASSE, Hans-Jürgen 1991. Aspekttheorie. In: H.-J. SASSE (ed.), *Aspektsysteme* (Arbeitspapier Nr 14 N.F.): 1–35. Cologne: Institut für Sprachwissenschaft, Universität zu Köln.
- SASSE, Hans-Jürgen 2002. Recent Activity in the Theory of Aspect: Accomplishments, Achievements, or Just a Non-Progressive State? *Language Typology* 6: 199–271.
- SEIDEL, Frank 2008. *A Grammar of Yeyi: A Bantu Language of Southern Africa*. Cologne: Rüdiger Köppe.
- SMITH, Carlotta S. 1997. *The Parameter of Aspect*. 2nd edn. Dordrecht: Kluwer Academic Publishers.
- TATEVOSOV, Sergej 2002. The Parameter of Actionality. *Linguistic Typology* 6(3): 317–401.
- VAN VALIN, Robert D. 2006. Some Universals of Verb Semantics. In: R. MAIRAL & J. GIL (eds), *Linguistic Universals*: 155–178. Cambridge: CUP.
- VENDLER, Zeno 1957. Verbs and Times. *The Philosophical Review* 66: 143–160.
- WILHELM, Andrea 2007. *Telicity and Durativity: A Study of Aspect in Dëne Sųłiné (Chipewyan) and German*. (Outstanding Dissertations in Linguistics Series) NY: Routledge.

APPENDIX: INITIAL LIST OF TESTS

Below is a list of the initial tests we developed for checking the interactions of lexical aspect with grammatical aspect and adverbials in isiNdebele, along with their approximate equivalents in Sindebele. As noted in the main body of this paper, not all tests produced the expected results, and not all were straightforwardly translatable into Sindebele. However, all were enlightening, both for a deeper understanding of isiNdebele and Sindebele verbal systems and their grammar/lexicon interactions, and for developing a (smaller) refined set of forms for testing against a larger group of verbs.

In the table below, we list each test we used in isiNdebele, its rough equivalent in Sindebele, and a simplified “approximate target”. However, as shown in the paper, interactions with tests are complex and the listed “targets” should not be taken as comprehensive analyses or even as fully accurate descriptions of how the tests function. A more complete description of the tests and their interactions with various lexical aspectual types is in preparation, and we continue to refine our understanding of them.

Test name	Form in isiNdebele (3SG)	Form in Sindebele	Approximate target
Present disjoint	<i>u-ya-R-a</i> 1.SM-DJ-R-FV	<i>u-ya-R-a</i> 1.SM-DJ-R-FV	Extended onset / nucleus vs. punctual nucleus
Present conjoint	<i>u-R-a + _ _ _</i> 1.SM-R-FV	<i>u-R-a + _ _ _</i> 1.SM-R-FV	Extended onset / nucleus vs. punctual nucleus
Perfective disjoint	<i>u-R-ile</i> 1.SM-R-PFV.DJ	<i>u-R-ile</i> 1.SM-R-PFV.DJ	Past vs. extended coda (NB: we also tested for so-called “imbri- cated” forms of the perfective ending; see Crane & Fleisch <i>forthcoming</i>)
Perfective conjoint	<i>u-R-e + _ _ _</i> 1.SM-R-PFV.CJ	<i>u-R-e + _ _ _</i> 1.SM-R-PFV.CJ	Past vs. extended coda
Perfective + 'yesterday'	<i>u-R-e / u-R-ile</i> 1.SM-R-PFV(CJ/DJ) <i>izolo</i> yesterday	<i>u-R-e / u-R-ile</i> 1.SM-R-PFV(CJ/DJ) <i>kwitolo</i> yesterday	Phase targeted with past “container” adverbial

Test name	Form in isiNdebele (3SG)	Form in Sindebele	Approximate target
Past imperfective	<i>be-ka-R-a</i> be.PFV-1.SM-R-FV	<i>u-be</i> 1.SM-PST <i>a-R-a</i> / 1.SM.SUBORD-R-FV <i>be-ka-R-a</i> be.PFV-1.SM-R-FV	Extended onset / nucleus vs. punctual nucleus
Past perfective	<i>be-ka-R-ile</i> be.PFV-1.SM-R-PFV.DJ	<i>u-be</i> 1.SM-PST <i>a-R-ile</i> / 1.SM.SUBORD-R-PFV.DJ <i>be-ka-R-ile</i> be.PFV-1.SM-R-PFV.DJ	Presence of extended coda
Situative	<i>na-ka-R-a=ko</i> SIT-1.SM-R-FV=REL	<i>lokhwa Siph</i> when Siph <i>a-R-a</i> 1.SM.SUBORD-R-FV	see 5.2
Situative perfective	<i>na-ka-R-ile=ko</i> SIT-1.SM-R-PFV.DJ=REL	<i>lokhwa Siph</i> when Siph <i>a-R-ile</i> 1.SM.SUBORD-R-PFV.DJ	see 5.2
Persistent (“still”)	<i>u-sa-R-a</i> 1.SM-PERS-R-FV	<i>u-sa-R-a</i> 1.SM-PERS-R-FV	Extended onset / nucleus vs. punctual nucleus
Persistent perfective	<i>u-sa-R-ile</i> 1.SM-PERS-R-PFV.DJ	<i>u-sa-R-ile</i> 1.SM-PERS-R-PFV.DJ	Presence of extended coda
“Finished” (conjoint form)	<i>u-qed-e</i> 1.SM-finish-PFV.CJ <i>uku-R-a</i> INF-R-FV	<i>u-kxedj-e</i> 1.SM-finish-PFV.CJ <i>ku-R-a</i> INF-R-FV	Telicity / inherent endpoint of nuclear phase
“Finished” (disjoint form)	<i>u-qed-ile</i> 1.SM-finish-PFV.DJ <i>uku-R-a</i> INF-R-FV	<i>u-kxedj-ile</i> 1.SM-finish-PFV.DJ <i>ku-R-a</i> INF-R-FV	Telicity / inherent endpoint of nuclear phase
“Stopped” (disjoint form)	<i>u-lis-ile</i> 1.SM-stop-PFV.DJ <i>uku-R-a</i> INF-R-FV	<i>u-lis-e</i> / <i>u-lis-ile</i> 1.SM-stop-PFV(CJ/DJ) <i>ku-R-a</i> INF-R-FV	Extended onset / nucleus (see also 4.2)
“Almost” did X	<i>u-pheze</i> 1.SM-nearly <i>wa-R-a</i> 1.SM.CONS-R-FV	<i>u-fun-e</i> 1.SM-want-PFV.CJ <i>ku-R-a</i> INF-R-FV	Process preceding culmination

Test name	Form in isiNdebele (3SG)	Form in Sindebele	Approximate target
Bare temporal adverbial	<i>u-R-e</i> 1.SM-R-PFV.CJ (e.g.) <i>iimveke ezimbili</i> 10.week 10.two 'in/for two weeks'	<i>u-R-e</i> 1.SM-R-PFV.CJ (e.g.) <i>iri ganyye</i> hour one 'in/for one hour'	Telicity / inherent endpoint; also presence of onset and coda phases (NB: temporal adverbials used varied based on context)
Nga-marked temporal adverbial	<i>u-R-e</i> 1.SM-R-PFV.CJ (e.g.) <i>ngemveke ezimbili</i> LOC.10.week 10.two 'in two weeks'	N/A	Telicity / inherent endpoint; also presence of lexically encoded onset phases
'When we arrived' + perfective	<i>Na-si-fik-a=ko</i> , SIT-1PL.SM-arrive-FV=REL <i>u-R-ile</i> 1.SM-R-PFV.DJ	<i>lokhwa si-fik-a</i> when 1PL.SM-arrive-FV <i>a-R-a</i> 1.SM.SUBORD-R-FV	Activity and state-change (semi-punctual changes)
"Started to"	<i>U-thom-e</i> 1.SM-start-PFV.DJ <i>uku-R-a</i> INF-R-FV	<i>U-kxwal-ile / U-kxwal-e</i> 1.SM-start-PFV(DJ/CJ) <i>uku-R-a</i> INF-R-FV	Onset vs. nucleus (e.g. 'started to become' vs. 'started to be/do')
Past imperfective entails perfective	(various)	(various)	Inherent telicity
Inceptive present	<i>Se-ka-ya-R-a</i> INC-1.SM-DJ-R-FV	N/A	With COS verbs, can target extended onsets
Inceptive perfective	<i>Se-ka-R-ile/-e</i> INF-1.SM-R-PFV(CJ/DJ)	N/A	Verbs with coda states can have ongoing-state readings
'When we arrived, we found [him/her]' + perfective	<i>Na-si-fik-a=ko</i> , SIT-1PL.SM-arrive-FV=REL <i>si-m-thol-e</i> 1PL-1.OM-find-PFV.CJ <i>a-R-ile</i> 1.SM.SUBORD-R-PFV.DJ	<i>Lokhwa si-fik-a</i> , when 1PL.SM-arrive-FV <i>se-(mo)-fumene</i> 1PL.SM-(1.OM)-FIND.PFV. IMBR <i>a-R-ile</i> 1.SM.SUBORD-R-PFV.DJ	Verbs with coda states can have ongoing-state readings
'When we arrived, we found [him/her]' + present	<i>Na-si-fik-a=ko</i> , SIT-1PL.SM-arrive-FV=REL <i>si-m-thol-e</i> 1PL-1.OM-find-PFV.CJ <i>a-R-a</i> 1.SM.SUBORD-R-FV	<i>Lokhwa si-fik-a</i> , when 1PL.SM-arrive-FV <i>se-(mo)-fumene</i> 1PL.SM-(1.OM)-FIND.PFV. IMBR <i>a-R-a</i> 1.SM.SUBORD-R-FV	Ongoing process or change (targets temporally extended nucleus phases or lexically encoded onset phases)

Test name	Form in isiNdebele (3SG)	Form in Sindebele	Approximate target
Perfective + 'slowly'	<i>U-R-e</i> 1.SM-R-PFV.CJ <i>buthaka</i> slowly	<i>U-R-e</i> 1.SM-R-PFV.CJ <i>(ku)-gasigenge /</i> (17)-slowly/a.little.bit <i>gambila</i> quickly/early	Process or change (targets temporally extended nucleus phases or lexically encoded onset phases)
"Always"	<i>U-hlal-a</i> 1.SM-stay-FV <i>a-R-a</i> 1.SM.SUBORD-R-FV	<i>U-hlal-a</i> 1.SM-stay-FV <i>a-R-a</i> 1.SM.SUBORD-R-FV	Repeated processes / change