



SPATIAL FORMS AND FUNCTIONS IN ISINDEBELE: A 3D-STIMULUS FIELD STUDY

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In this article, we give an overview of the spoken practices of spatial grammar in the South African Bantu language isiNdebele. Based on field data obtained through elicitation using three-dimensional stimuli, we demonstrate how verbal and adnominal spatial marking are used in isiNdebele to encode basic, semantically determined spatial functions, both static and dynamic. We show that spoken isiNdebele features strategies of both typological types of satellite-framed and verb-framed languages, with the clear division of reserving prepositional marking to encode types of positions (localisations), and verbal semantics to encode boundaries in the trajectories of movement (local roles). We also note that inherent verb semantics and complex syntactic clause-linking strategies compensate for the lack of semantic information expressed by the primary Locative case marker *e-...-ini* in the expression of motion events, making isiNdebele typologically a representative of so-called role-indifferent languages. Finally, the data gives new evidence on how the secondary Locative case *nga-* expresses the function of non-contact, but the notable variation in the use of the prefix leaves room for further study about its degree of grammaticalisation. In broader terms, our study seeks to fulfil three goals: describing a significant semantic and grammatical domain of the heretofore understudied language isiNdebele; bringing the resulting typological case study into dialogue with wider typological and variationist discussions related to spatiality; and highlighting the significance of developing innovative and practical methodologies for the empirical study of spatial conceptualisation and expression.

1. INTRODUCTION

Theoretical aspects of spatial expressions in language have received much attention since the seminal studies by Leonard Talmy (e.g. 1985; 2000) and Stephen Levinson (e.g. 1996; 2003). Since the initial mapping of the theoretical foundations, the literature has seen the development of ever broader and more detailed typological profiles and types of spatial systems (see, for instance, Levinson & Wilkins 2006; Wälchli & Zúñiga 2006, among others). An increase in typological understanding helps us, in turn, to describe spatial systems in previously understudied languages more systematically. This article takes a close-up look at the system of spatial expressions in such a language, namely, isiNdebele.

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Our article has two objectives, the primary one being to broaden our understanding of spatial grammar and vocabulary in present-day spoken isiNdebele (South Africa, Bantu).¹ The grammar of isiNdebele's close relative isiZulu has been described in some detail (e.g. Doke 1961; Gaines 2001), and there is a cursory grammar sketch of Zimbabwean Ndebele (Bownen & Lottridge 2002). Grammatical studies on isiNdebele, however, are still a work in progress, and are the topic of several ongoing research projects (see the Introduction to this volume). The spatial syntax and semantics of isiNdebele have barely been touched upon, except for the very detailed and insightful treatment of the expressions of the UPPER SPACE local domain given in Fleisch (2005). That article's scope is limited as well, however, and leaves open questions concerning the broader syntactic, semantic, and typological properties of isiNdebele's system of spatial expressions. We aim to fill these gaps to some extent, while acknowledging that a comprehensive treatment remains to be written.

Our secondary goal is to test and evaluate a three-dimensional elicitation method, in its pilot phases, as an instrument for the collection of linguistic data in the field.² Methodologically, spatiality has proven to be a challenging topic due to the three-dimensional nature of our surroundings and the variation in our conceptualisations of this mobile environment. The reduction of our perceptibly complex real-life surroundings and kinetic realities into simple depictions brings with it some difficulties for any researcher of spatiality who is aiming to implement natural and relevant research designs; we therefore also raise these methodological considerations in our article's discussion.

We opted for a functionally and semantically oriented approach to answering the questions posed in our study, differing thus from the more form-based corpus method of Fleisch (2005). Instead of trying to locate and elicit specific spatial lexemes and morphemes, we chose the above-mentioned stimulus method, accompanied by functionally motivated, formally unspecified questions. By employing this semantic approach, and by directing the questions to a larger group of speakers, we hoped to trigger the use of the most essential and prototypical forms and expressions in the language, and to make it easy to separate common expressions from the more infrequent ones.

We will start our own treatment by first describing our field data and reflecting on the method of elicitation (Section 2), and will then move on to

1 This study belongs to the findings of the Helsinki Area and Language Studies (HALS) field excursion of 2016, and continues the HALS fieldwork series begun in 2013. See Introduction to this volume.

2 Our particular method design was piloted in Arjava (2016), in a spatial field study of the Uralic language Erzya.

discuss the adnominal, verbal, and semantic aspects of the basic spatial grammar of isiNdebele (Section 3). We will base these analyses on some basic typological parameters given in the works of Talmy (2000), Fillmore (1971), and Wälchli & Zúñiga (2006). Previous theoretical assertions about isiNdebele (and, to an extent, wider Nguni) spatial expressions are re-evaluated in the light of our new field-elicited data.

2. FIELD DATA: SAMPLE AND METHOD

Our present study is based both on existing theoretical literature along with known, but not fully synthesised, facts about isiNdebele spatial grammar, and on empirical field data. An introduction to our data and method are thus in order. In the following, we will both describe our data sample, and evaluate how our toy stimulus method worked as an elicitation tool.

2.1 *Gathering of data*

Like the other groups of the 2016 HALS field expedition, we collected our data by interviewing native speakers of isiNdebele in the district of Emthambothini near the town of Siyabuswa. Our stay in the area yielded 16 recorded interviews and approximately 900 sentences produced by twenty speakers, whose basic demographic profiles are detailed in Table 1. A more detailed sociolinguistic study on the people of the Siyabuswa area can be found in Grünthal, Honkasalo, and Juutinen (this volume). Our ELAN-annotated data consists of over four hours of discussions, which are based on a modifiable question template (see Appendix I) and questions made with the help of a set of stimulus toys.

Table 1 Demographics of the informants

| | | |
|------------|-----------------------------------|-------------|
| Age Groups | Children (8 to 15 years) | 5 (persons) |
| | Young adults (20-30 years) | 6 |
| | Middle-aged and above (40+ years) | 9 |
| Sex | Women | 13 |
| | Men | 7 |

Spatial relations are traditionally described as a relationship between two different entities, **Figure** and **Ground**, where the Figure is positionally related to the Ground serving as the background, for instance ‘a *person*’ (Figure), running ‘into a *house*’ (Ground). Both static and mobile relationships between Figures and

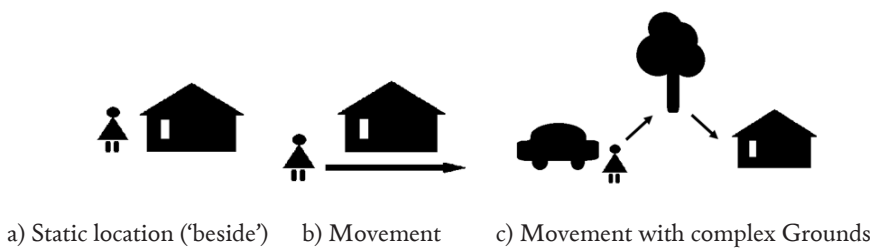


Figure 1 Elicitation settings with spatial relations

Grounds were included in our study, and examples of our settings, taking into account both positions and movement, are pictured in Figure 1.

Table 3 in Appendix I summarises all the spatial settings that we used in our experiment. We did not aim to achieve a perfectly symmetric table with a consistent set of semantic minimal pairs. Instead, we focused on contexts which, in our estimation, represented many of the most typical and salient types of spatial relations. In addition, some unnatural settings (such as a horse sitting on the top of a tree) were also included, in order to provide room for variation and the use of potentially unpredictable expressions.

The **elicitation method** used in our study involved interviewing the speakers with the aid of a toy-based stimulus set. Our set consisted of toy figures obtained mainly from Lego and Playmobil kits, part of which can be seen in Figure 2, and included animals, persons, clothing, vehicles, plants, and buildings. The objects

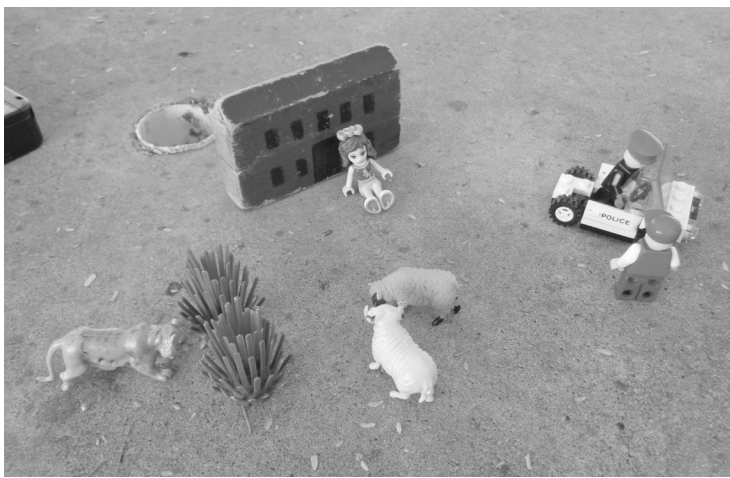


Figure 2 Parts of the toy stimulus kit

were arranged on a flat surface between the interviewer and the informant, and the questions were restricted to the simple static questions *Uphi/iphi?* ‘Where is (s)he/it?’, and the movement-related questions *wenzani/yenzani?* ‘What is (s)he/it doing?’. The only fixed framing that we thus allowed in these questions was placing the Figure in the grammatical subject position.

In addition to the elicitation method described above, we also asked four speakers to **evaluate** the grammaticality and semantic differences of fifteen sentences, consisting of five groups of three sentences each, and testing the use of the verbs *-ya* ‘go’, *-zomba* ‘go around’, *-suka* ‘leave by the side of’, *-phuma* ‘exit’, and *-yeqa* ‘jump’. Each group of sentences in this acceptability test was composed of the same subject and predicate, plus a noun that was tested for transitivity (1a), and two different Locative forms (1b & 1c), (described in more detail in following sections):

Intended meaning:

- (1a) (*) *Indoda isuka ikoloyi.* ‘The man is walking away from the car.’
- (1b) *Indoda isuka ekoloyini.* ‘The man is walking away from the car.’
- (1c) *Indoda isuka ngekoloyini.* ‘The man is (getting off the car and) walking away.’

It turned out that the speakers largely agreed on the (un)grammaticality of the sentences, but their semantic interpretations showed a less clear-cut picture, which will be commented to some extent in the main part of our article.

2.2 Evaluation of the toy stimulus method

A few words are in order to review how the toy elicitation method worked in the study of isiNdebele spatial expressions. As the method was partly in its pilot phases, we find it important to direct the attention of the reader to any gaps that may have been left by the incompleteness of the experiment. Simultaneously, we wish to promote the benefits of this stimulus method in field studies of spatiality.

By interviewing our informants with the aid of a movable toy stimulus kit, we aimed to avoid many of the typical challenges that can impede a study of this kind. The first challenge, as we argued in the Introduction, is that visibility, three-dimensionality, and versatility are necessary prerequisites for stimuli in the study of spatial relations; movable toys naturally fulfil these requirements.

Secondly, the visual method enables the researcher to avoid the problem of non-monolingual, translation-based elicitation, in which the metalanguage and the information structure of the original sentences risk substantially affecting the speakers’ choices. Even monolingual elicitation sometimes yields unnatural expressions or long explanations when speakers are asked to produce contexts

for pre-specified words or structure. On the other hand, non-verbal elicitation using stimuli leaves room for the emergence of unexpected expressions, especially useful at the early stages of grammatical research.

The semi-spontaneous experimental method also leaves the speakers free to choose the foci and syntactic structure of their answers, which may lead to interesting observations of the effects of deixis, animacy, or information structure, illustrated by the spontaneous variation in our data (2). Our data also showed that 3D stimuli may trigger interesting variation regarding animacy and information structure, illustrated by the verbal-adnominal variation which occurred uncontrolled by the researchers (see Section 3.3).

- (2a) *Umntazana uhlele ngaphandle kwendlu* ‘A girl is sitting outside a house.’
- (2b) *Indlu uhlele umntazana ngaphandle* ‘Outside a house, a girl is sitting.’

Finally, as noted in Arjava (2016), a modifiable three-dimensional research setting has the additional advantage of engaging and keeping the interest of informants by asking them to process a visual medium in their own words. This is especially useful when working with children, and our field study gave further proof of the effectiveness of toys in overcoming shyness amongst the youngest speakers. The possibility of conducting field research with only elementary knowledge of the language may also be of assistance to an aspiring fieldworker.

There is, of course, an ample tradition of using non-verbal stimuli in linguistics. Previous stimuli-based studies include, for instance, Bowerman & Pederson’s (1992) classic “Topological relations picture series”; Levinson et al.’s (1992) “The Man and Tree Games” picture series; the “Pear story” films by Wallace Chafe (1980); and Skopeteas et al. (2006), with their pictures of movement resulting from physical contact.

We argue that, in contrast to these mostly photograph-based studies, the three-dimensionality of the toy stimuli enables the researcher to replicate actual dimensions and deictic realities better than two-dimensional pictures. Moreover, the modifiability of the toy stimuli enables the researcher to control the questions for different parameters, such as topology, deixis, or animacy; offers methodological room for experimentation; and makes it possible to locate fine-grained differences through slight alternations of the settings. Three-dimensional stimuli have also been used by, for instance, Zajceva (1991), Hickmann (2007), Danziger (2011), and Birjuk & Usačeva (2012).

The challenges that we encountered over the course of our field study included the occasional difficulty of getting informants to spontaneously include Grounds in their answers. A surprising result of the experiment was also the overall lack of deictic demonstratives: demonstratives are generally expected in spontaneous

descriptions of visual stimuli. These problems can, of course, be avoided by a slight increase in directions from the researcher.

It is important to systematically include many different Figures and Grounds, as well as possible combinations of localising and directional spatial relations, in the test settings (Appendix I). The Figures and Grounds can be controlled based on animacy, deixis, form, and other secondary parameters of the general spatial template. It is also useful to video-record the interviews in order to check for unintentional variations on the part of the researches, a possible by-product of the modifiable method.

3. SPATIAL MORPHOSYNTAX AND SEMANTICS OF ISINDEBELE: FORMS, FUNCTIONS, AND VARIATION

Talmy's (2000) classic syntactic classification of spatial structures narrows down motion predicate structures to so-called **satellite-framed** and **verb-framed** strategies, based on their constituent structures. In broad terms, satellite-framed strategies encode most of the locational or directional marking in adnominal constituents (3a), and verb-framed strategies encode the main spatial information in the semantic frame of the verb (3b). Both of these strategies can be found in isiNdebele:

- (3a) *um-ntazana u-khamba ngemva kw-e-ndlu*
 1-girl SM1-go behind 17-POSS.9-house
 'The girl is going behind the house.'

- (3b) *um-ntazana u-zomba i-ndlu*
 1-girl SM1-go.around 9-house
 'The girl is going around the house.'

Fleisch (2005: 144, 153) argues that classifying isiNdebele either as a clearly verb-framed or as a definitively satellite-framed language is inaccurate, because a lot of positional and directional information is encoded both in verbs and in their adnominal and adverb complements. Our data support this general claim, and we assume that some ostensible differences of interpretation between Fleisch and ourselves are mainly due to differences in the terminology used.³

3 For instance, Fleisch points out a scarcity of path-coding verbs in isiNdebele. Given that there are, in fact, verbs expressing actual direction of movement, we assume he can only refer to the positional relationship between Figure and Ground and full trajectories rather than just general path verbs.

Other key concepts of spatial relations are *localisation* (connected to types of contact) and *local role* (connected to movement and directions), which will be described in more detail in their respective subsections. In this section, we will give an overview of isiNdebele's morphological and syntactic spatial categories in the light of our data and previous literature. Following Wälchli & Zúñiga (2006), we consider in turn adnominal and verbal loci of expression. We will also make some brief selected comparisons between the isiNdebele forms and those of its Nguni relative, isiZulu.

3.1 Adnominal spatiality

We will start our grammatical overview by discussing the main strategies of encoding spatial relationships in nominal constituents. As will be argued in the sections below, all specialised adnominal spatial marking in isiNdebele is restricted to the expression of spatial **localisations** (a term introduced by Fillmore 1971), which conceptualise different types of contact between the Figure and the Ground, such as INSIDE, ABOVE, UNDER, or NEAR (4).

- (4) *u-jame* (*nga*)*phambu*⁴ *kw-e-ndlu*
 SM1-stand.PFV (LOC2)in.front.of 17-POSS.9-house
 '(S)he is standing beside the house.'

In contrast, all specialised encoding of directional meanings in isiNdebele is expressed on verbs, as illustrated by (5) and discussed in Section 3.2.

- (5) *i-khuru* *i-ngena/-dlula/-phuma* *ngaphasu* *kw-e-bhlorho*
 9-turtle SM9-enter/-pass/-exit under 17-POSS.9-bridge
 'The turtle is going/passing/coming from under the bridge.'

Nevertheless, there is also an adnominal form with directional functions, namely, the Locative case *e-...-ini*, which we will introduce in the beginning of this section.

3.1.1 Locative case *e-...-ini*

IsiNdebele nouns are marked for general unspecified location by the Locative form *e-...-ini* (glossed as LOC1 in our examples), which can synchronically be analysed as a circumfix. Morphophonologically, the prefix *e-* replaces the first

⁴ For discussion of the unusual morphophonological shape of *-phambu* in (4) and *-phasu* in (5), see p. 102.

vowel of the class prefix augment, while the first vowel of the suffix *-ini* coalesces with the last vowel of the noun (6):

- (6) *isikolo* ‘school’ > *esikolweni* ‘at school’

When a subject concord marker is prefixed to the locative noun (7), the Locative *e-* becomes *se-*, thereby avoiding vowel hiatus (the so-called prelocative *-s-*, Fleisch 2005: 141):

- (7) *u-se-si-kep-eni*
SM1-LOC1-7-boat-LOC1
‘(S)he is in the boat.’

Some nouns form the locative just by prefixing *e-*, without the suffix *-ini*. Examples from isiNdebele include *ekhaya* ‘at home’ from *ikhaya* ‘home’ and *ehloko* ‘on the head’ from *ihloko* ‘head’. A large group of similar nouns is also found in isiZulu (Doke 1961: 235).

A corresponding Locative form *e-...-ini* exists in other Nguni languages as well, and it has been variously called a “locative noun class” (Fleisch 2005: 140), a “locative case” (Bowerman & Lottridge 2002: 21), and a “locative adverb” (Doke 1961: 232). Because its relationship to the noun classes is mainly historical, we prefer to call it a case for the purposes of this article. Contrary to productive class concord agreement, the *e-...-ini* Locative does not replace the main class prefix of the head word (*e-m-th-ini* ‘LOC1-3-tree-LOC1’), nor does it trigger pronominal or possessive agreement (*e-hlangoth-ini l-endlu* ‘at the side of the house’, where the possessive Class 5 prefix *l-* agrees with the word *hlangothi*, Class 5, not the locative prefix).

Syntactic and semantic functions of the Locative case

The Locative case *e-...-ini* behaves as a very general locative marker in isiNdebele (cf. isiZulu where the same form stands for the meaning “with respect to something” Doke 1961: 232). The isiNdebele case is used in most locative constructions as a compulsory adverbial marker if the spatial complement is not specified for localisation with prepositions. The Locative case can feature independently in static expressions (8a), or in motion events (8b). Conjoined with the other synthetic Locative form, the *nga*-prefix (see next section), it can form extended locational meanings (8c).

- (8a)
- isehlathini / usekoloyini / usesikepeni*

i-se-hlath-ini / u-se-koloy-ini / u-se-si-kep-eni

SM9-LOC1-wood-LOC1 / SM1-LOC1-car-LOC1 / SM1-LOC1-7-boat-LOC1

'It is in the forest / He is in the car / He is in a boat.'

- (8b)
- u-tjbinga e-taful-eni*

SM1-go.towards LOC1-table-LOC1

'She is going to(wards) the table.'

- (8c)
- u-jame nge-ndl-ini / u-nge-ndl-ini*

SM1-stand.PFV LOC2.LOC1.9-house-LOC1 / SM1-LOC2.LOC1-house-LOC1

'She is standing/is inside the house.'

In the Nguni languages, the Locative case marked on a Ground complement is not sufficient to express the direction of movement, only its presence (9a-b).

- (9a) Source:

u-suka e-ndl-ini

SM1-leave LOC1-house-LOC1

'(S)he is going away from the house.'

- (9b) Goal:

u-ya e-ndl-ini

SM1-go LOC1-house-LOC1

'(S)he is going to(wards) the house.'

This similar adnominal treatment of Source and Goal above makes isiNdebele a representative of a spatial strategy called **indifferent Source-Goal marking**, introduced by Wälchli & Zúñiga (2006). Areally, isiNdebele may be a particularly interesting case of the indifferent type, as all other sub-Saharan African languages in Wälchli and Zúñiga's sample are represented as members of a separate, Mixed system. (It is noteworthy that isiZulu appears in their data as a Mixed language on the grounds that it features a "weakly grammaticalised secondary verbal Source marker" *vela* '(lit.) appear, emerge' (Wälchli & Zúñiga 2006: 293, 299); any such auxiliaries are unattested in our data, however, and the status of the directional auxiliary in isiNdebele is undefined so far.)

As can be seen in the examples above, all directional (NB! not localising) information must be encoded in the verb. We will therefore continue our discus-

sion of the semantic and syntactic effects of Source-Goal indifference when we discuss verbs in Section 3.2.2.

As for the general unspecified locative sense of the Locative case, a small but possibly telling observation rises from our data, in contradiction to what is reported in Fleisch (2005: 151). We had very few instances of the Locative case marking the static localisation ‘on the table’, and Grounds with inanimate Figures (such as a cup, a teapot, and a carrot) were not marked with the Locative case. According to Fleisch, this would be expected from pragmatically unmarked Figures on a table. Instead, almost all attested expressions for these settings were formed with analytic construction *phezu kwa-* ‘on, over’. The form *etafuleni* ‘table(LOC1)’ did occur four times in the motion setting ‘woman puts teapot onto the table’, but ten speakers still produced the expression *phezu kwetafula*.

The Locative was nevertheless the predominant choice for ‘table’ in movement clauses such as *uya etafuleni* ‘she goes to(wards) the table’. As the bare Locative is chiefly excluded from the expressions of localisations and restricted mostly to the expression of local roles (Place, Source, Goal, or Path), we argue that the Locative may be becoming adnominally and semantically less independent, and more dependent on the syntax and semantics of the verb.

3.1.2 Relational nouns functioning as spatial prepositions

The prepositional phrase

Like other Nguni languages, isiNdebele has various spatial relational nouns that can be combined with locative-possessive nouns. Many of the spatial relational nouns are fossilized from the nowadays largely unproductive Locative classes 16 *pha-*, 17 *ku-*, and 18 *mu-*. These lexicalised constructions can work as phrasal prepositions and adverbs in modern isiNdebele (Fleisch 2005: 140). Examples of resulting prepositional phrases include *ngaphasi* (*kwa-*) ‘under’ (from *iphasi* ‘earth’), and *ngemuva* (*kwa-*) ‘behind’ (from *umuva* ‘back part’). The degree of grammaticalization of these words varies; for example, *phambili* ‘in front’ is historically but no longer synchronically related to *ibele* ‘(female) breast’ (Fleisch 2005: 140), whereas *ngeqadi* ‘at the side’ still has a plural form *ngemaqadi* ‘on both sides’. In this article, we will call the relational nouns simply phrasal prepositions (or shortly, prepositions) for the sake of brevity and convenience.

When functioning as phrasal prepositions, the majority of spatial nouns in isiNdebele – similarly to in isiZulu (cf. Doke 1961: 243–244) – require a possessive construction with the locative possessive prefix *kwa-* (10). Note that the possessive marker *-a-* coalesces with the class prefix *i-* of *itafula* ‘table’ to give *e-*:

- (10) *um-sana u-lele ngaphasu kw-e-tafula*
 1-boy SM1-lie.PFV under 17-POSS.9-table.

‘The boy is lying under the table.’

Another set of prepositions requires the noun following the preposition to be preceded by the comitative prefix *na-* ‘with’, for instance *hlangana* ‘between’ (see 11) and *kude* ‘far away’.

- (11) *i-komo i-dlula hlanguana n-ezim-vu*
 9-cow SM9-pass between with-8-sheep

‘The cow is passing between the sheep.’

For some prepositions, however, this case valency is more inconsistent. In our data, the preposition *eduze* ‘near’, was used with both prefixes, though slightly more often with the locative possessive *kwa-* than with the comitative *na-* (12a–b).

- (12a) *u-jame eduze kw-en-dlu*
 SM1-stand.PFV near 17-POSS.9-house

‘She is standing near the house.’

- (12b) *u-seduze n-en-dlu*
 SM1-near COM-9-house

‘She is near the house.’

It may be noteworthy that *eduze kwa-* was the only choice in the story-telling exercise, the most spontaneous part of our interviews, whereas *eduze na-* featured in most of the shorter elicited sentences. Doke (1961: 244) reports similar variation for *eduze* in isiZulu, although, interestingly, *na-* seems to be more frequent in isiZulu.

Morphophonologically, several prepositions in our spoken data exhibit more or less free alternation between *-i* and *-u* as their last vowel, for example *ngaphasi* ~ *ngaphasu kwa-* ‘under’ and *phambi* ~ *phambu kwa-* ‘in front of’. As the labial *u*-final prepositions in our data were often (but not always) followed by the labial-initial locational prefix *kwa-*, this may be a result of analogy triggered by assimilation.

Most isiNdebele locational nouns can also function as adverbs. Some of them have the same form, such as *ngaphakathi* ‘inside’; others are slightly different, such as *phambi* (preposition) vs. *phambili* (adverb) ‘in front’, or *ngemuva* (adverb) vs. *ngemva* (preposition) ‘behind’. The shorter forms of prepositions are easy to explain by loss of syntactic and phonological independence. In our data, spatial

adverbs featured only in passing, and their deeper syntactic and semantic analysis falls out of the scope of this study.

Phrasal prepositions expressing localisations

In the following, we will present some of the main functions of phrasal prepositions attested in our data. In general, it is noteworthy that prepositions were used widely in all syntactic and semantic contexts alongside the Locative case, and in a number of occurrences they were clearly the preferable choice over the semantically vaguer Locative marking. As the expression of localisation (as opposed to motion or its direction) was found to be the only semantic function of the prepositions, we present them according to their respective semantic domains.

INSIDE SPACE

Of all the localisations, INSIDE SPACE was the only one clearly favouring case marking in addition to prepositional marking. In the static INSIDE setting ‘inside the house’ (13a), both synthetic Locative forms and the preposition *ngaphakathi kwa-* ‘inside’, were attested multiple times. In motional constructions, however, no prepositional adjuncts were attested for INSIDE SPACE (13b):

- (13a) *ujame ngendlini/ngaphakathi kwendlu* ‘She is standing in the house.’
 (13b) *ungena ngendlini/*ngaphakathi kwendlu* ‘She is entering the house.’
 (*unattested in our elicited data)

Combined with the disputability of the INSIDE meanings of the *nga*-Locative, discussed in the next section, this incompatibility of the verbs expression motion into an interior space (such as *-ngena* ‘enter’) with the INSIDE preposition – but not with the *nga*-Locative form, nor other prepositions – gives comparative material, currently only partially understood, regarding the analysis of the inherent ‘inside’ meanings of the isiNdebele spatial map. INSIDE SPACE is also discussed in the context of the Locative *nga*-prefix in 3.1.3, and of motion verbs in 3.2.1 below.

BETWEEN/IN THE MIDDLE OF

The two prepositions with the meaning ‘between’, *hlangana na* (derivationally related to the verb *-hlangana* ‘meet, unite, be in close contact, etc.’), and (*nga*) *phakathi kwa-* ‘inside, between’, occur in free variation with almost all BETWEEN-related Grounds of our study. (See also Fleisch 2005: 142, who mentions “some overlapping contexts” for these prepositions.) The forms *hlangana na-* and *phakathi kwa-* were usually used interchangeably, whether the Ground consisted of two or several bushes or animals, but it is noteworthy that for the static setting

‘standing among several bushes’, speakers almost exclusively used the preposition *phakathi kwa-*.

This distribution is compatible with the formal difference distinguishing the INSIDE and BETWEEN functions of *phakathi*: the variant *ngaphakathi* was not used in the meaning ‘between’, clearly being reserved to the meaning ‘inside’. It should also be noted that in the study stimuli involving bushes, the use of *phakathi* seems to express the idea of being among several individual plants, but not inside a forest. The more general Locative form *isehlathini* ‘it is in the forest’ was also commonly used, presumably to indicate location in an actual forest setting.

The INSIDE–BETWEEN prepositions in our data thus possibly indicate a semantic continuum, summarised in the Table 2.

Table 2 The prepositions of the INSIDE–BETWEEN continuum

| | INSIDE | BETWEEN/AMONG | |
|----------|-------------------------|-------------------------------------|--------------|
| | | SEVERAL (BUSHES) | TWO (BUSHES) |
| STATIC | <i>ngaphakathi kwa-</i> | <i>phakathi kwa-</i> | |
| MOVEMENT | - | <i>phakathi kwa- / hlangana na-</i> | |

IN FRONT OF *and* BEHIND

As a localisation, being or moving in front of a Ground seems to be a fairly salient relation in isiNdebele. Particularly in connection with a house, a Ground with clearly distinguishable sides, most informants used the specific prepositions *ngaphambu kwa-* or *phambu kwa-* ‘in front of’, instead of ‘beside’ or ‘outside of’. Although the localisation may have been emphasised in the house settings by the use of a toy house with an uneven width-length ratio which directs the focus on the front side, it must be noted that *ngaphambu* was also attested several times in connection with a tree or trees. The opposite of *ngaphambu kwa-*, the preposition *ngemuva kwa-* ‘behind’, was used consistently as well, both in static and in motional settings.

BESIDE

A striking feature of the semantically diverse localisation BESIDE is the amount of different adnominal forms (and verbs) used in this function in our isiNdebele data. The most frequent of these prepositions, *(ng)eqadi*, is derivationally related to *iqadi* ‘side’, while *(ng)ehlangothini* is directly derived from another word for ‘side’, *ihlangothi*. The prepositions *eduze* ‘near’, *ekhoneni* ‘at the corner of’,

and *ngaphandle kwa-* ‘outside’ were also attested several times; *ngceleni* (from *umngcele* ‘boundary’), which is a frequent word in isiZulu, featured as well, but only a few times.

Some of the variation can perhaps be explained by the fact that compared to some of the other basic localisations, being near – but not attached to – something in the horizontal domain provides a vast number of potential everyday contexts. Room for variation may also result from Grounds that have no clear inherently dominant side, such as geometrically symmetric houses or trees, both of which featured in many of our questions.

UNDER *and* OVER

There was virtually no formal and lexical variation in the expression of the localisations UNDER and ON/OVER in our data, which. To start with ‘under’, the settings ‘under the table’, ‘under the tree’, and ‘under the bridge’ all featured the preposition *ngaphasu kwa-*. This form was consistent irrespective of the verbs or the semantics of Figure and Ground.

As mentioned in the Introduction of our article, the most detailed description of the notion of UPPER SPACE in isiNdebele has been given by Fleisch (2005). Among other fine-grained observations, Fleisch (2005: 145) connects the bare form *phezu kwa-* strongly with the two-dimensional shape of the Ground. In our data, *phezu kwa-* certainly occurred with flat surfaces, such as tables and bridges, but it was equally frequent with clearly three-dimensional and pointed surfaces, such as vehicles, animals, tree-tops, pots, and body parts.

In contrast, our data contained only a few casual instances of the (supposed) non-contact variant *ngaphezu*, none of them in non-contact situations. The limitedness of our spatial settings, lacking positions of hanging or flying, makes the comparison difficult, but the overall lack of *ngaphezu* is telling, and may indicate that *phezu kwa-* is the dominant variant, at least in all the basic UPPER SPACE settings featured in our data.

Diversity of localising prepositions, overview

In conclusion to this section on prepositions, some of the variation of the prepositions used for each main localisation by the speakers of our study, partly discussed above, is summarised and illustrated in Figure 3.

A perhaps overly bold, but nonetheless tempting form–function connection suggests itself here: In isiNdebele, at least, the horizontal dimension and open space have both greater potential for mobility and greater variability of linguistic forms associated with them. In contrast, the vertical dimension and inside space

are more restrictive both in potential mobility and in the linguistic forms available to describe spatial relations.

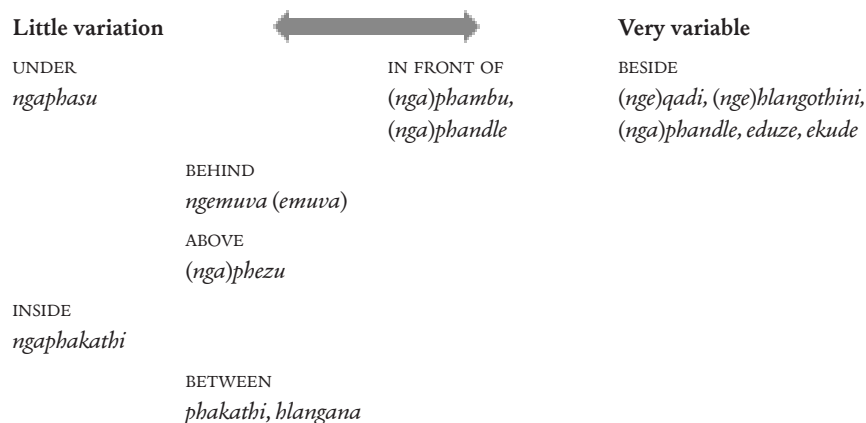


Figure 3 Variation of prepositions in the localising functions of the elicited data

3.1.3 The *nga*-Locative

Another productive and synthetic locational marker in isiNdebele is the prefix *nga-* (glossed in our examples as LOC2), which can be attached to both nouns (e.g. *ngendlini* ‘in(to) a house’) and prepositions/adverbs (e.g. *ngaphasi* ‘under’). The coalescence in isiNdebele of *nga-* and *e...* into *nge-* is a morphological difference from isiZulu, in which *nga-* requires the prelocative *-s-* when prefixed to a Locative form (e.g. *ngasecaleni kwendlu* ‘at the side of the house’, Doke 1961: 250). A shorter prefix *n-* is used in isiNdebele with a limited number of nouns which begin with the consonant *kh-* (e.g. *nkhaya* ‘at home’, Skhosana 2009: 305–307).

There is also a homonymous instrumental case *nga-* in isiNdebele, likewise found in isiZulu (Doke 1961: 247) and Zimbabwean Ndebele (Bower & Lotridge 2002: 22). Our data contains a few examples of the *nga-* form for which it is difficult to tell if the prefix stands for locative or instrumental meaning; these include *ukhamba ngepera* ‘rides with/on a horse’, and *ngesandla* ‘in/with [her] hand’. As Fleisch (pers. comm.) points out, it is possibly exactly through such bridging concepts that one of the meanings derives from the other.

In isiZulu, the definition of the *nga-* prefix is that of *approximate space* (towards, roundabouts, vicinity, etc.) (Fleisch 2005: 141; Taljaard & Bosch 1988: 48). In isiNdebele, the functions of this locative prefix have so far been less clear-cut. Fleisch (2005), among others, states that the default function of the isiNdebele

nga-Locative, when prefixed to the plain locative, is the expression of INSIDE SPACE (14a), as opposed to OUTSIDE localisations (14b–c) (the examples are from our data):

- (14a) *u-ng-e-ndl-ini* / *u-nga-phakathi kw-e-ndlu*
 SM1-LOC2-LOC1.9-house-LOC1 / SM1-LOC2-inside 17-POSS.9-house
 ‘She is in(side) the house.’

- (14b) *u-ya e-m-th-ini* Localisation: BESIDE
 SM1-go LOC1-3-tree-LOC1
 ‘She is going to the tree.’

(**u-ya ng-e-m-th-ini*)
 (SM1-go.to LOC2-LOC1-3-tree-LOC1)

- (14c) *u-dlula e-ndl-ini*
 SM1-pass LOC1.9-house-LOC1
 ‘She is passing the house.’

Many nouns and prepositional phrases containing the *nga*-Locative, however, are not saliently related to the INSIDE dimension at all, for instance *ngaphasu kwa*- ‘under’, *ngaphambu kwa*- ‘in front of’, and *ngaphandle kwa*- ‘outside’, which all featured abundantly in our data. This accords with the observation by Fleisch (2005: 143) that in addition to the localisation of INSIDE SPACE, *nga*- sometimes encodes also non-contact localisations in connection with the relational word *phezu(lu)*, possibly showing “the initial development of a more entrenched contact/non-contact distinction associated with *phezu* and *ngaphezu*” (Fleisch 2005: 148–149).

Of the *nga*-prefixed prepositions in our data, *phasu kwa*- ‘under’ was almost without exception preceded by the *nga*-prefix, whereas for instance *phambu* and *ngaphambu* ‘in front of’ occurred in seemingly free variation. This flexibility in the use of *nga*- with the isiNdebele *pha*- prepositions is comparable to the optional use of *nga*- with *pha*- words in isiZulu (Taljaard & Bosch 1988: 49). There is, however, also some evidence of the above-mentioned non-contact function of the *nga*-Locative. Compare, for instance, how the four settings UNDER/ON TABLE OR TREE differ in detachment between Figure and Ground (15): the detached UNDER localisation was always marked with *nga*-, the undetached ON localisation always without it (see also example 29b below).

- (15a) *u-nga-phasu* *k-omu-thi* / *kw-e-tafula*
 SM1-LOC2-under 17-POSS.3-tree / 17-POSS.9-table

‘She is under the tree / the table.’

- (15b) *u-phezu* *k-omu-thi* / *kw-e-tafula*
 SM1-above 17-POSS.3-tree / 17-POSS.9-table

‘She is on the top of the tree / the table.’

It seems to us that the *nga*-Locative is especially integral to the general marking of the word *indlu* ‘house’. On the one hand, the house is the clearest case in our elicitation toolkit of a Ground with a bounded interior space, that is, a prototypical container; on the other hand, the extensive use of the *nga*-Locative in almost all contexts connected to it makes it very difficult to tell if the default meaning of the prefix is that of INSIDE, or if the use of the affix is simply conventionalised or has another meaning.

Although both *nga*-Locatives and bare Locative forms were attested with ‘house’, the *nga*-Locative clearly dominated the marking of this lexeme, both with INSIDE meanings (16a) and without them (16b–d). Moreover, even in the INSIDE context the *nga*-Locative is actually redundant in this meaning, as the INSIDE localisation belongs to the inherent semantic frame of the two default verbs *-ngena* ‘enter’ and *-phuma* ‘exit’.

- (16a) *u-ngena* / *u-phuma* *nge-ndl-ini*
 SM1-enter / SM1-exit LOC2.LOC1.9-house-LOC1

‘She is entering / exiting the house.’

- (16b) *u-ya* / *u-suka* *nge-ndl-ini*
 SM1-go / SM1-leave LOC2.LOC1.9-house-LOC1

‘She is going to / leaving the house (standing beside it).’

- (16c) *u-yame* *nge-ndlu*
 SM1-lean.PFV LOC2.9-house

‘She is leaning against the house.’

- (16d) *zi-cale* *nge-ndl-ini*
 SM1O-look.PFV LOC2.LOC1.9-house-LOC1

‘They looked towards the house.’

In contrast to the *nga*-augmented forms of ‘the house’, the bare Locative form *endlini* was barely attested, against expectations (cf. Fleisch 2005: 141). *Endlini*, governed by the approximative verbs *-ya* ‘go to’ and *-suka* ‘leave from’ was accepted by three speakers in evaluation (though deemed “isiZulu” by one of them), but spontaneously it was produced only a handful of times in total. Even then it was optional, and always belonged to a clause-linking chain (see Section 3.2.2). In the independent sentences ‘go beside / leave the house’, a prepositional phrase seemed to be preferred (17):

- (17) *u-suka / u-ya hlan’ kw-e-ndlu*
 SM1-leave / 1-go beside 17-POSS.9-house
 ‘She is leaving / going to the (side of the) house.’

Evidence for possible lexical fixedness between *nga*-Locative and ‘house’ may also be seen in the comparison of *indlu* ‘house’ to the words *ihlathi* ‘forest’ and *ikoloyi* ‘car’. The latter two could theoretically be expected to behave like the house as clearly outlined structures, but they typically appeared without the *nga*-Locative in the data (18):

- | | |
|--|--|
| <p>(18) Attested:</p> <p><i>usekoloyini</i> ‘she is in a car’</p> <p><i>usehlathini</i> ‘she is in a forest’</p> <p><i>ungena ehlathini</i> ‘she is going into the forest’</p> | <p>Unattested:</p> <p>*<i>usendlini</i></p> <p>*(<i>u</i>)<i>ngehlathini</i></p> <p>*<i>udlula ngehlathini</i> (-<i>dlula</i> ‘pass’)</p> |
|--|--|

Note also that evaluating different sentences, three of four speakers did not report any semantic differences between the two Locative-marked variants of *ihlathi* ‘forest’, in (19):

- (19) *um-sana u-zomba (ng-)e-hlath-ini*
 1-boy SM1-go.around (LOC2)-LOC1.9-forest-LOC1
 ‘The boy is going around in the forest.’

In conclusion, we note that there is a good deal of wavering in the semantic functions of the *nga*-Locative, and we suggest that the substantial variation in the data at hand may lend tentative support to the theory that the semantic INSIDE dimension of the *nga*-Locative is only marginal, and may be restricted to closed hollow structures, or partly governed by lexical and stylistic factors. On the other hand, determining the exact functional paradigm of LOC2 requires further research.

3.2 Spatial verbs: Semantic and syntactic functions

Discussing dynamic and directional aspects of spatiality requires also considerations of the **semantic make-up of spatial verbs**. Following Wälchli & Zúñiga (2006), we use Tesnière's (1959) term **displacement verb** to refer to motion verbs denoting a change of location, often, but not always, including a reference to its direction (cf. 'enter', vs. 'pass'). It should be emphasised that Talmy (2000) and Fleisch (2005) use the slightly less transparent but more established term *path* when referring to displacement; we, however, make our terminological choice in order to avoid confusion between Talmy's very general directional *path* and Fillmore's (1971) descriptively more explicit local role Path (see below).

Wälchli and Zúñiga (2006: 286) point out that, in some languages, the directionally vaguer *light movement verbs* 'go' and 'come' behave in a manner that differs from other motion verbs. Unfortunately, they are often ignored in the literature discussing motion verbs in specific languages. In isiNdebele, the default 'come' and 'go' verbs *-za* and *-ya* behave in most ways like the other displacement verbs, not warranting a light verb class of their own, but the verb *-khamba* 'go, walk', shows features that distinguish it from the other displacement verbs; we will comment on these features in Section 3.2.3.⁵

The **local roles** Place, Source, Goal, and Path (e.g. *through*, *along*, or *over* the Ground) introduced by Fillmore (e.g. 1971) are directional terms used mainly to analyse adnominal spatial semantics, but we will use the role terms also to describe **verbs** if displacement meanings are encoded in their respective semantic frames. We thus classify the displacement verb *-jama* 'stand' as a Place verb, *-phuma* 'exit' as a Source verb, *-ngena* 'enter' as a Goal verb, and *-dlula* 'pass' as a Path verb. We also include 'going around something' in the Path relations, as such motion lacks a clear starting or ending point of movement.

3.2.1 INSIDE SPACE *localisation in verbs*

The difference between inner or outer space in the horizontal domain is the only attested distinction of localisation made by spatial verbs in our data. The verbs *-phuma* 'exit' and *-ngena* 'enter', were for the most part used to describe leaving or entering the inside of a house, or leaving or entering a group of bushes or a forest (20a), but they were also occasionally used to encode swimming under a bridge (20b) or crawling under a table. The INSIDE verbs in isiNdebele seem thus to be

5 Note that *-khamba* also belongs to a third important class of motion verbs, those of manner, which encode types of movement, such as 'run', 'swim', or 'fly' (see, e.g. Talmy 2000; Slobin 2006). These verbs are not the focus of the present article.

used to denote crossing the boundaries of a clearly defined area, even if that area is not physically enclosed.

- (20a) *u-ngena* *e-hlath-ini*
 3SG-enter LOC1-forest-LOC1
 ‘She is going into the forest.’

- (20b) *i-phuma* *nga-phasu* *kw-e-bhlorho*
 SM9-emerge LOC2-under 17-POSS.9-bridge
 ‘It is appearing from under the bridge.’

The INSIDE localisation is sometimes curiously emphasised in some isiNdebele expressions (see example 14a above). Despite the INSIDE localisation belonging inherently to the semantic frame of the verbs *-phuma* ‘exit’ and *-ngena* ‘enter’, their nominal complements were often reinforced by the *nga*-prefix, resulting in a double-marked spatial construction with the literal meaning ‘enter inside’.

In the most prototypical closed INSIDE settings, this redundant double-marking seems to be present, however, only with the adnominal *nga*-prefix. The prepositional use of the prefix with (*nga*)*phakathi kwa*- ‘inside, in the middle of’ was virtually unattested with the two INSIDE verbs. With the additional lexical enforcement provided by the preposition, this is not very surprising; the localisation is already denoted twice in these clauses, making the *nga*-prefix even more redundant. However, this behaviour additionally shows that the prefix has not grammaticalised into all contexts.

3.2.2 Source and Goal verbs: semantics and syntax

Inherent semantics of Source and Goal verbs

A direct consequence of indifferent adnominal role marking (see 3.1.1) is that – despite the presence of overt adnominal spatial marking – most of the displacement-relevant information must be encoded in the *semantic frame of the verb*. Due to the adnominal vagueness discussed above, this information can be expected to be consistent, and we argue that our data shows that verbs in this group belong to either the Source or to the Goal class, but not to both.

The verbs of this group (examples listed in 21) are semantically inherently connected with either the Source or the Goal role, because they govern no obligatory adnominal marking of their own (as opposed to, e.g. English ‘come out of’). A shared syntactic feature of these verbs is that they always govern their Ground complement with the Locative case *e-...-ini*.

(21) Attested inherent Source/Goal verbs

| | | |
|--------|------------------|--------------------------------|
| Source | <i>-phuma</i> | 'go out of' |
| Source | <i>-suka</i> | 'go from (the vicinity of)' |
| Source | <i>-tjhida</i> | 'move away from' |
| Goal | <i>-ngena</i> | 'go inside' |
| Goal | <i>-ya</i> | 'go (to)' |
| Goal | <i>-za</i> | 'come (to)' |
| Goal | <i>-buyela</i> | 'return back to' |
| Goal | <i>-tjhidela</i> | 'come closer, move towards' |
| Goal | <i>-tjhinga</i> | 'go to a particular direction' |

Wälchli & Zúñiga (2006: 290) point out that Source is typically the more marked of the two roles; in other words, it is linguistically less relevant and more often implied without overt marking than Goal. This may be the reason for the greater number of different Goal than Source verbs in our data. Markedness may also explain why the Goal-focused verb *-ya* 'go' was dominant in our data, although the speakers have no overt impediment to use the semantically more Source-focused *-za* 'come', and it was attested at least once.

Complex Grounds: Verbs compensating Source-Goal ambiguity

In settings where there are several Grounds in the same displacement setting, such as a girl going from a car to a house via a tree (Figure 4), the syntactic structure of the spatial clause may also increase in complexity. In isiNdebele, the indifferent Source-Goal marking affects and restricts how Ground complements can be combined in a sentence.

IsiNdebele features a syntactic behaviour attested in other languages with indifferent Source-Goal marking (Wälchli & Zúñiga 2006: 289–290). In languages with adnominal Source-Goal differentiation such as English, it is natural to produce one-verb sentences such as 'She walked from the tree to the house', where the verb does not need to be repeated even when the displacement role

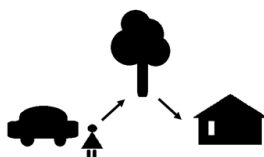


Figure 4 Movement with complex Grounds (1c revisited)

changes from Source to Goal, and a new motion event starts. But in a language like isiNdebele where adnominal marking does not encode directions, such a verbal ellipsis with a non-directional verb easily leads to ambiguity (22):

- (22) **uya emthini endlini*
 walk tree.LOC house.LOC
 (Intended meaning) ‘to walk from the tree to the house’
 (Lit.) ‘to walk in the direction of the tree in the direction of the house’

Source-Goal indifferent languages can avoid this ambiguity with a clause-linkage strategy (Wälchli & Zúñiga 2006: 289) where every change of direction or displacement is indicated by a new verb. This strategy was used systematically by our isiNdebele informants, as well, as illustrated in examples (23a-b) below.

Sentence structures associated with the use of multiple verbs, however, were far from consistent in our data, showing that only the general strategy of clause-linking, rather than its particular structure, is grammaticalised in isiNdebele. In the complex displacement setting *Starting point without a Ground* > *B* > *C* (where the letters stand for concrete Ground objects), the middle element on the path (*B*) was treated as a Source by some speakers (23a), and a Goal by others (23b).

- (23a) *u-suka e-mth-ini, u-ya ng-e-ndl-ini*
 3SG-leave LOC1-tree-LOC1 3SG-go LOC2-LOC1.9-house-LOC1
 ‘She is going from the tree to the house.’ [The speaker omits the clearly shown start of the walk and begins from the middle, focusing on the Source Ground.]

- (23b) *u-ya e-mth-ini, u-ya e-taful-eni*
 3SG-go LOC1-tree-LOC1 3SG-go LOC1-table-LOC1
 ‘She is going to the tree (and then) to the table.’

That speakers of isiNdebele may parse complex motion events according to the actual movement (verbs), and not their endpoints (nouns), might be indicated by the fact that motion events that had starting points without actual Ground objects behaved basically in the same way as the events having a Ground of departure. Note how similar examples in (24) are to the ones in (23) above. The examples in (24) were produced to describe the slightly more complex setting *A* > *B* > *C*, where the additional Ground *A* was included as a starting point. Under this scenario, the variations attested included structures like Source > Goal > Goal (24a), and Source > Goal = Source > Goal (24b).

- (24a) *u-suka e-koloy-ini u-ya e-mth-ini wa-ya e-taful-eni*
 3SG-leave LOC1-car-LOC1 3SG-go LOC1-tree-LOC1 3SG.CONS-go LOC1-table-LOC1

‘She is goes from the car to the tree, and then goes to the table.’

- (24b) *u-suka hlango motoro u-ya e-mth-ini, u-suka*
 3SG-leave beside car 3SG-go LOC1-tree-LOC1 3SG-leave
e-mth-ini u-ya hlango i-ndlu
 LOC1-tree-LOC1 3SG-go beside 9-house

‘She goes from the car to the tree and from the tree to the house.’

Interestingly, only one speaker produced clauses without Source/Goal repetition, using instead the structure Source > Path > Goal (25). As can be seen, this strategy is, from a grammaticality perspective, entirely possible in isiNdebele. However, it was not favoured by most of the speakers.

- (25) *u-suka e-koloy-ini ya-ma-polisa, u-dlula e-mth-ini*
 3SG-leave LOC1-car-LOC1 9.GEN-6-police 3SG-pass LOC1-tree-LOC1
u-ya ng-e-ndl-(ini)
 3SG-go LOC2-LOC1.9-house-(LOC1)

‘She goes from the police car, passes the tree and goes to the house.’

The Source and Goal appear thus to be the default role choices for spatial clause-linkage in isiNdebele, Path being a secondary option. Explaining this preference, however, requires further research.

3.2.3 Transitive spatial verbs with a complete trajectory

Spatial verbs that can be used transitively in isiNdebele (i.e. verbs that encode their Ground complement as a direct object) typically denote movement **around** or **over** something. As they are not defined by any specific localisation, nor a single inherent edge point, we assign these verbs to the local Path domain.

The transitive spatial verbs denote the complete trajectory that the Figure uses to overtake the Ground as a whole, more or less following its contours (cf. Svorou 1994: 19), either with or without direct contact between Figure and Ground. More tests would help to elaborate the strictness of these conditions; meanwhile, some of the consistently used transitive spatial verbs in our data are listed in (26):

- (26) Attested inherent Path Verbs with a completed trajectory and Direct Object valence

| | |
|--------------|------------------------|
| -zomba | 'go around' |
| -zombe(le)za | 'go around, surround' |
| -bhoda | 'go around' |
| -ronta | 'go around' |
| -khwela | 'go over, ride, climb' |
| -eqa | 'jump' |
| -yama | 'cross a river' |

The classification of the group of verbs above is based on their grammatical valence: all of them govern their Ground complement with an unmarked Direct Object (27). Semantically, they cover motion actions with both a clear starting point and a clear ending point, that is, with a completed trajectory.

- (27) *in-doda i-zomba umu-thi*
 9-man 9-circle 3-tree
 'The man is going around the tree.'

On the other hand, both the elicited data and acceptability tests showed that the transitive use of inherent Source/Goal verbs such as *-ya* 'go', *-suka* 'come/go from', or *-phuma* 'come/go out of' is ungrammatical (28). The clearly differentiated marking shows that in isiNdebele there are not only semantic but also syntactic differences between the Path category and the Source and Goal notions.

- (28) **in-doda i-suka i-koloyi*
 9-man SM9-leave 9-car
 (Intended:) 'The man is walking away from the car.'

It is striking that in the motion expressions, our data contained chiefly transitive verbs and extremely few applicative derivatives. One possible explanation is that Applicatives abound in verb-adverb constructions (29a), which encode motion events without Grounds (cf. Fleisch 2005: 144), whereas in our study adnominally expressed Ground elements were prominent. Only one speaker in our study used the Applicative combined with an adverb (i.e. not an adnominal adverbial) (29b). As noted above, most displacement notions were expressed by verbs having adnominal complements with transitive or Locative marking.

- (29a) ... *na-yi-phaph-el-a* *phezulu*
 ... when-9-fly-APP-FV up
 ‘... when it (the bird) is flying high (in the sky)’
 (constructed from Fleisch 2005: 144)

- (29b) *eq-el-a* *ngale*
 jump-APP-FV over/to the other side
 ‘[the horse] jumps over to the other side’

All the same, it is noteworthy that applicative derivatives featured as interchangeable variants to the transitive Path verbs in our data. The examples of attested occurrences include a few instances of partly or completely lexicalised applicative derivatives in the AROUND verbs *-zombezeza* ‘circle’ (< *-zomba* ‘circle, go around’) and *-bhodela* (< *-bhoda* ‘go around’) (30). Other lexicalised applicatives attested were *-buyela* ‘return’ and *-tjhidela* ‘move closer’.

- (30) *u-bhod-el-a* *ng-emva* *kw-e-ndlu* (single occurrence)
 1-go.around-APP-FV LOC2-behind 17-POSS.9-house
 ‘He is going behind the house.’ [He is going round to the back of the house, in a paraphrase that represents the event structure more literally.]

These rare occurrences of the Applicative did not notably add semantic or syntactic information to the clause, and they were attested mainly in the speech of educated young adults, whom we knew to be sensitive to grammatical nuances and thus likely to aim for officially maximally correct language. Consequently, we suggest that spatially, the use of applicative forms with adnominal phrases may be simply an example of hypercorrective usage (cf. similar findings in Schulz et al., this volume).

The transitive spatial verbs may also change their valency. The Path verbs *-zomba* ‘go around’ and *-eqa* ‘jump’, for instance, could be used with a Locative adjunct (e.g. *ehlathini* ‘LOC1.forest.LOC1’, *etafuleni* ‘LOC1.table.LOC1’) but interestingly, speakers disagreed on the meanings of these constructions.

Inherent transitivity implies that the directional local roles (Source, Goal, or Path) are firmly implemented in the semantic frame of the verb. The inner structure of this semantic frame, however, is not always straightforward. Three speakers translated the phrase *yeqa etafuleni* with ‘jumps down from the table’ (Source), while the fourth connected the sentence with the meaning ‘jumps onto the table’ (Goal). This indicates that the local roles are not explicitly fixed in the semantic frame of the Path verb *-eqa*, unlike the Source verb *-suka* ‘go from’

or the Goal verb *-ngena* ‘go inside’. The lack of firmly established orientation, combined with the Source-Goal indifference, creates some semantic confusion in the use of this less frequent verb, and possibly of other similar but unattested verbs, as well.

Another syntactically versatile verb of the Path class with slightly inconsistent semantic interpretations is *-zomba* ‘go around’. In addition to the Transitive-Applicative alternation described above, the three sentences in (31) below were interpreted differently by speakers in the acceptability test:

(31a) *Umsana uzomba ihlathi.*

‘The boy is walking around the forest.’ (outside the forest)

(31b) *Umsana uzomba ehlathini.*

(31c) *Umsana uzomba ngehlathini.*

‘The boy is going around in(side) the forest.’ (31b–c)

For two speakers, (b) and (c) conveyed the same meaning; for one speaker (a) and (b) were identical; and the last speaker considered all three synonymous. However, the first three speakers stated that the difference in meanings between (a) and (c) was clear: the verb in (a) meant ‘go around the (whole) forest’, while the verb in (c) stood for ‘going around inside/in the middle of the forest’. This shows that at least the semantic difference between transitive and LOC2-marking is clear-cut for most speakers.

Another verb varying in its valency, *-khwela* ‘climb, ride’, is used transitively for ‘riding a horse or vehicle’, whereas when used with the spatial meaning ‘climb or sit on top of a tree’, it governs an adnominal adjunct (typically *phezu kwa-*). More interestingly, however, in the meaning ‘cross a bridge’, the government of *-khwela* varied between a direct object *ibhlorho* ‘bridge’ (32a) and the prepositional adjunct *phezu kwebhlorho* ‘over the bridge’ (32b). Note that with the very similar vertically oriented verb *-eqa* ‘jump’ (32c), such variation was unattested, and in other contexts *-eqa* was used consistently with a Direct Object.

(32a) *u-khwela i-bhlorho*

1-climb 9-bridge

‘She is passing over the bridge’

(32b) *u-khwela phezu kw-e-bhlorho*

1-climb over 17-POSS.9-bridge

‘She is passing over the bridge’

(32c) (unattested)

?i-eqa phezu kw-e-ngolovani
 ?9-jump over 17-POSS.9-wheelbarrow

(Intended meaning:) ‘It is jumping over the wheelbarrow.’

The spatial verbs denoting definite Path trajectories discussed in this section thus show a continuum of syntactic variation from strictly transitive constructions and optional lexicalised derivative extensions to prepositional adverbial adjuncts. At the same time, it is clear that Path is a semantic category like the other local roles Source and Goal, as evidenced by the bare transitive marking and the lack of adnominal expressions specifically marking Path.

Drawing broader conclusions from the discussions of Section 3 above, it may be relevant to comment on Fleisch (2005: 144, 153), who argues that the orientational Applicative derivations of some displacement verbs on the one hand, and the existence of adnominal spatial phrases on the other, show that isiNdebele uses a mixture of verb-framed and satellite-framed strategies, and is possibly in the process of becoming increasingly satellite-framing. While we agree that both verbs and adnominal phrases are indeed important in expressing displacement, we would place isiNdebele closer to the verb-framing languages on the basis that verbs carry a light syntactic, but heavy directionally oriented, semantic load (‘leave from’, ‘going around’), while no directional information is encoded by adnominals, which only express static localisations (‘under’ and ‘beside’, but not ‘over’ or ‘around’).

3.2.4 *Inherent Path verbs with an indefinite trajectory: cases of -dlula and -khamba*

The verb *-dlula* ‘pass’ and *-khamba* ‘walk, go’ differ from the other verb groups discussed above. Semantically, they represent unspecified movement: displacement detached from Grounds (*-dlula*), or versatile general movement (*-khamba*). Of all the verbs in the data, they are the ones most often used with a specifying spatial preposition (as in 33a), although for *-dlula*, a couple of instances with the Locative case *e-...-ini* were also attested (33b–c).

(33a) *u-dlula phambu kw-e-ndlu*
 1-pass in.front.of 17-POSS.9-house

‘(S)he is passing [the front of] the house.’

- (33b) *u-dlula e-ndl-ini*
 1-pass LOC1.9-house-LOC1
 ‘(S)he is passing the house.’

- (33c) *u-dlula e-bhlorho-ini*
 1-pass LOC1.9-bridge-LOC1
 ‘(S)he is crossing the bridge.’

The strong (speaker) preference for using prepositions to add localising information implies that the only semantic function of *-dlula* is that of the combined approaching and leaving of a Ground (Path), and all other relations, even the easily implied ‘by, beside’, is preferably expressed with prepositions.

The verb *-khamba* ‘go, walk’ has even less specialised directional content: in our data, it only governs prepositional adjuncts. Despite encoding ‘walking’, however, it is clearly not restricted semantically only to the manner of motion, but, based on its frequency in the data, behaves like a very general displacement verb without inherent directional roles, comparable to ‘go’ in English. If *-khamba* is used with a Ground, it requires a specifying preposition of role or localisation (34), except for some occurrences in the Place role (e.g. *-khamba ehlathini* ‘walk in the forest’).

- (34) *u-khamba ng-emva kw-e-ndlu*
 1-walk LOC2-behind 17-POSS.9-house
 ‘He is going behind the house.’

On the other hand, *-khamba* appears to be an example of a generic motion verb with multiple functions, combining both manner and displacement features (35). In our data, it could be used independently as the only (displacement) motion verb (see 34 above), but it was also very typical for speakers to provide a comment regarding manner in the form of a seemingly redundant additional *-khamba* before or after the main displacement verb (cf. English ‘She came running into the house’).

- (35) *u-ya-khamba* [without a pause] *u-suka e-ndl-ini*
 1-DJ-walk 1-leave LOC1-house-LOC1
 ‘She is walking [and] leaving the house.’

The verb *-khamba* was attested in most of the displacement contexts of our study, interchangeably with more specialised verbs (36a), but never adopting their argument structure (36b).

- (36a) *u-zomba / u-khamba e-m-th-ini*
 1-circle / 1-walk LOC1-4-tree-LOC1

‘She is walking around among trees.’

- (36b) *uzomba imithi (tree.DO) usuka etafuleni*
**ukhamba imithi *ukhamba etafuleni*

The manner-displacement continuum, expressed by syntactically and semantically vague light motion verbs such as *-khamba*, could offer further interesting syntactic insights if looked at in more detail, in isiNdebele as well as in other languages (as pointed out by Wälchli & Zúñiga 2006).

3.2.5 Reciprocal movement

Another example of movement without a clear-cut Figure-Ground dichotomy is reciprocal movement. When two (or more) people move simultaneously, it is possible to treat one of them as Figure and another as Ground (e.g. ‘A boy is walking behind his sister’), or both of them reciprocally as simultaneous Figures and Grounds (e.g. ‘The children are following each other’). All main verbs of reciprocal movement shown in our data (i.e. verbs expressing people moving in relation to each other) contain the typical Bantu reciprocal suffix *-an-* (see, e.g. Mchombo 1999):

- (37) Attested reciprocal verbs:

| | | |
|-----------------------------|-------------------|---------------------|
| Walking one after the other | <i>-landelana</i> | ‘follow each other’ |
| Passing each other | <i>-dlulana</i> | ‘pass each other’, |
| | <i>-phambana</i> | ‘cross each other’ |
| Meeting each other | <i>-hlangana</i> | ‘meet, assemble’ |

Variation in lexical choices occurred only in the setting ‘pass each other’, with a slight preference for *-dlulana* over *-phambana*. Overall, isiNdebele encodes reciprocal movement almost exclusively in verbs; adnominal expressions, like in the sentence *Umma ukhamba phambi kwendoda* ‘Mother is walking ahead of the man’, only occurred three times in the context of ‘following each other’.

This scarcity of adnominal expressions in reciprocal movement underlines the verb-centred displacement role profile of isiNdebele. As the specific Reciprocal verbal marker is readily available in isiNdebele, its use is hardly surprising, but its integral role in isiNdebele spatial grammar is further supported by the fact that it was used spontaneously, without formal triggers, by all speakers to encode reciprocal movement.

3.3 Variation in the encoding of culture-specific Figures and Grounds: accessories and vehicles

After the more formally and functionally oriented sections on spatiality above, we conclude our examples and analysis with a few selected semantic domains regarding features of interest other than the basic formal or functional spatial parameters. Expressions that relate clothing and vehicles spatially to people are more culture-specific than the more universal spatial orientations, and they tend to be lexicalised in different ways across languages (Choi & Bowerman 1991).

Accessories: hat and handbag, attested forms

- Hat on head: *e-hloko* ('LOC1-head'), *phezu kwehloko* (on 17.POSS.9.head), Verb + Object ('wear a hat')
- Bag in hand ~ on shoulder: *e-sandle-ni* ('LOC1-hand-LOC1'), *e-mahlombe* ('LOC1-shoulder'), *ng-esandla* (INSTR/LOC2-hand), Verb + Object (*-phatha* 'carry')

The spatial expressions connected with body parts merit separate notice for two reasons. First, placing focus on an inanimate Figure on an animate Ground creates a marked information structure, as human agents are more prototypical than inanimate agents (see, e.g. Nichols, Peterson & Barnes 2004). Therefore, many speakers expressed the human Ground as an agent with a transitive verb, although we asked about the location of the accessory with the trigger question, "Where is the hat/bag?"

Additionally, human topology is universal on the one hand, and irregular on the other, which may be reflected by the variation of attested expressions above (see these settings also in Erzya, as detailed in Arjava 2016). Morphologically, the expressions attested in our data stand out because of their occasional omission of the latter part of the Locative circumfix *e-...-ini*, a phenomenon typical of isiZulu as well (Doke 1961: 235). It should also be noted that the simple Locative was used interchangeably with the heavier analytical form *phezu kwehloko* 'on head'.

Persons in vehicles, attested forms

- Person in a car: Verb + Object (various verbs meaning driving or riding), (LOC2)-LOC1 (*nge-...-ini*), *ngaphakathi kwa-* ('LOC2.inside'), *phezu kwa-* ('on')
- Person(s) in a boat: *ngaphakathi kwa-* ('LOC2.inside'), Verb + Object (verbs of driving), (LOC2)-LOC1
- Person on a bicycle: Verb + Object (*-khwela/-reya* 'ride'), *phezu kwa-* ('on')

- Person on horseback: Verb + Object (*-khwela* ‘ride’), (rare:) *phezu kwa-* (‘on’)
- Teapot in a plane wagon: *phezu kwa-* (‘on’), LOC2-LOC1, *ngaphakathi*, (once:) *ngaphezu kwa-* (‘LOC2.on’)

It is notable that out of the various means of transport, the spatial expressions used for the rare, animate one – sitting on horseback – were the most uniform, while the spatial expressions connected with everyday motor vehicles featured a lot of variation in both lexical and syntactic choices.

We introduced all settings featuring vehicles with the question *Uphi?* ‘Where is (s)he?’, but the speakers interpreted the agency of the Figure in different ways. People sitting in a boat triggered verbless adnominal expressions the most often, possibly because they were more easily attributed a non-agentive passenger status (38a). Sitting in a car produced more variation between the Verb + Direct Object type (‘ride a car’) and adnominal (‘be in, inside’) marking, indicating a spatially more complex situation (38b).

(38a) *u-nga-phakathi kw-e-sikepe*
 1-LOC2-inside 17-POSS.9-boat
 ‘He is in a boat.’

(38b) *u-khwela i-motoro / u-se-koloy-ini*
 1-ride 9-car / 1-LOC1.9-car-LOC1
 ‘He is riding a car.’ / ‘He is in a car.’

Finally, expressions of sitting on a bicycle showed a very similar profile compared to those of sitting on horseback, except that the speakers opted exclusively for the verb *-khwela* ‘ride, climb’ for the horse, but varied between the verbs *-khwela* and *-reya* for the bicycle.⁶

4. CONCLUSIONS

In this article, we have discussed the spatial grammar and lexicon of isiNdebele, considering in turn adnominal marking, verbal semantics and constituent structures, as well as how the formal constructions encode the main functional domains of spatiality. We now move on to draw together some of the main threads of our empirical, field-based study.

6 *-reya* is likely borrowed from Afrikaans < *ry* (*‘n fiets*) ‘ride a bicycle’ (Fleisch, pers. comm.).

Adnominal spatial marking in isiNdebele includes the general **Locative case** *e-...-ini*, the more specialised but semantically slightly unpredictable **Locative** *nga-*, and **phrasal prepositions** grammaticalised from old relational nouns. The spatio-semantic functions of these constructions are clearly differentiated: all **localisations** (i.e. types of static relation between Figure and Ground) are expressed by prepositions, which are used productively in all kinds of spatial contexts. In contrast, the general Locative *e-...-ini* is closely connected to **local roles** (i.e. types of dynamic directional positions), **motion events** and verbal **constituent structure**, having in reality more syntactic than semantic functions (of which the local role Place is the chief one). The *nga*-Locative falls functionally somewhere in between; prototypically, it is thought to encode INSIDE localisations, but what the ‘inside’ entails is not clear-cut, and the functions of the *nga*-Locative also extend to other domains, such as presence or absence of contact between Figure and Ground in some cases, and conventionalised uses with certain nouns and *pha*-prepositions in others. The full functional scope of the *nga*-Locative is a subject for future research.

The spatial verbs of isiNdebele cannot express localising contact meanings; instead, they encode all the displacement information of spatial relations (i.e. the directional local roles Source, Goal, and Path) in their semantic frame (e.g. *-phuma* ‘exit’, *-ngena* ‘enter’, and *-dlula* ‘pass’). The vague semantic content of adnominal marking in the encoding of motion events is reflected in the rich semantic specialisation of motion verbs and makes isiNdebele a representative of a **Source-Goal indifferent** language. Adnominal role indifference also contributes to complex verb-repetition strategies in the expression of multiphase motion events. Moreover, the spatial verbs of isiNdebele also vary in their valency and argument structure.

In broader typological terms, isiNdebele thus shows features of both traditional **satellite-framed** and **verb-framed** strategies. The interesting point is that the formal domains are functionally clearly differentiated into localising (satellite-marking) and displacement (verb-marking) functions.

In addition to grammatical generalisations, we observed a good deal of lexical and structural variation in the utterances of the speakers of our study. We attested free variation in the use of, for instance, *nga*-forms, applicative derivations, and prototypical spatial prepositions. Such variation may help us to pinpoint possible diachronic processes such as depth of grammaticalisation, but it often remains unobserved in the more theoretical and standardised treatments frequently found in dictionaries and grammars.

Finally, the use of a three-dimensional stimulus set has shown that semi-spontaneous elicitation can result in an abundance of the formal, functional, and

semantic variations mentioned above, and their interactions, all in one simple study setting. At the same time, we accept that some crucial pieces of comparative information may have been overlooked, which could have been found in a formally more meticulous research design. In addition to the basic spatial mapping we conducted, the similar stimulus set could also be used, with some adjustments, to study deictic forms and categories, such as demonstratives, and could also be complemented by more traditional elicitation methods.

Although our article on its surface presents a case study of a local South African language variant, broader perspectives regarding spatial relations can and should be drawn. Besides offering insights into expedient methodologies of spatial study in general, we also wish to emphasise the importance of a good theoretical and typological background when considering language-specific research frames. Typology can illuminate the relevance of observed micro-variation, and language-specific micro-variation can in turn feed constructively into typological and theoretical studies.

ABBREVIATIONS

| | | | |
|-------|---------------|------|--------------------------------|
| APP | Applicative | LOC1 | Locative case |
| COM | Comitative | LOC2 | <i>nga</i> - relational marker |
| CONS | Consecutive | PFV | Perfective |
| DJ | Disjoint | POSS | Possessive |
| DO | Direct object | SG | Singular |
| FV | Final vowel | SM | Subject Marker |
| INSTR | Intransitive | | |

Single numbers indicate Bantu noun classes.

REFERENCES

- ARJAVA, Heini 2016. Experimenting on Spatiality: Three-Dimensional Toy Elicitation in a Field Study of Erzya. In: K. SHAGAL & H. ARJAVA (eds), *Mordvin Languages in the Field* (Uralica Helsingiensia 10): 319–338. Helsinki: Finno-Ugrian Society.
- BIRJUK Olga L. & Maria N. USAČEVA 2012. Diskursivnye faktory, vlijajuščije navybor meždu posleložnoj I posleložno-padežnoj formoj v besermjanskom dialekte udmurtskogo jazyka [Discourse Factors Influencing the Choice between the Case Form and the Postpositional Construction in Beserman Udmurt]. In: A.I. KUZNECOVA (ed.), *Finno-ugorskije jazyki: fragment grammatičeskogo opisanija: Formalnyj i funkcionalnyj podhody* [Finno-Ugric Languages: The Fragments of Grammatical Description: Formal and Functional Approaches]: 607–646. Moscow: Russkije slovari.

- BOWERMAN, Melissa & Eric PEDERSON 1992. Topological Relations Picture Series. In: S.C. LEVINSON (ed.), *Space stimuli kit* 1.2: November 1992: 51. Nijmegen: Max Planck Institute for Psycholinguistics.
- BOWERN, Claire & Victoria LOTRIDGE (eds) 2002. *Ndebele*. Munich: Lincom Europa.
- CHAFE, Wallace (ed.) 1980. *The Pear Stories: Cognitive, Cultural, and Linguistic Aspects of Narrative Production*. Norwood, New Jersey: Ablex.
- CHOI, Soonja & Melissa BOWERMAN 1991. Learning to Express Motion Events in English and Korean: The Influence of Language-Specific Lexicalization Patterns. *Cognition* 41(1–3): 83–121.
- DANZIGER, Eve 2011. Distinguishing Three-Dimensional Forms from Their Mirror-Images: Whorfian Results from Users of Intrinsic Frames of Linguistic Reference. *Language Sciences* 33(6): 853–867.
- DOKE, Clement M. 1961. *Textbook of Zulu Grammar*. 6th edn. Johannesburg: Longmans Southern Africa.
- FILLMORE, Charles J. 1971/1975. *Santa Cruz Lectures on Deixis, 1971*. Bloomington: Indiana University Linguistics Club.
- 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.
- GAINES, Richard 2001. On the Typology of Directional Verbs in Bantu. In: R. BOTNE & R. VONDRASEK (eds), *Explorations in African Linguistics* (Indiana University Working Papers in Linguistics 3): 1–12. Bloomington: Indiana University Linguistics Club.
- HICKMANN, Maya 2007. Static and Dynamic Location in French: Developmental and Cross-Linguistic Perspectives. In: M. AURNAGUE, M. HICKMANN & L. VIEU (eds), *The Categorization of Spatial Entities in Language and Cognition*: 205–231. Amsterdam: John Benjamins.
- LEVINSON, Stephen C. 1996. Frames of Reference and Molyneux's Question: Crosslinguistic Evidence. In: P. BLOOM, M.A. PETERSON, L. Nadel & M.F. GARRETT (eds), *Language and Space*: 109–169. Cambridge: MIT Press.
- LEVINSON, Stephen C. 2003. *Space in Language and Cognition: Explorations in Cognitive Diversity*. Cambridge: CUP.
- LEVINSON, Stephen C., Penelope BROWN, Eve DANZIGER, Lourdes DE LEON, John B. HAVILAND, Eric PEDERSON & Gunter SENFT 1992. Man and Tree & Space Games. In: S.C. LEVINSON (ed.), *Space Stimuli Kit* 1.2: November 1992: 7–14. Nijmegen: Max Planck Institute for Psycholinguistics.
- LEVINSON, Stephen & David WILKINS (eds) 2006. *Grammars of Space: Explorations in Cognitive Diversity*. Cambridge: CUP.
- MCHOMBO, Sam A. 1999. Quantification and Verb Morphology: The Case of Reciprocals in African Languages. *Linguistic Analysis* 29: 182–213.
- NICHOLS, Johanna, David A. PETERSON & Jonathan BARNES 2004. Transitivity and Detransitivizing Languages. *Linguistic Typology* 8(2): 149–211.

- SKHOSANA, Philemon Buti 2009. The Linguistic Relationship between Southern and Northern Ndebele. PhD dissertation, University of Pretoria.
- SKOPETEAS, Stavros, Ines FIEDLER, Sam HELLMUTH, Anne SCHWARZ, Ruben STOEL, Gisbert FANSELOW, Caroline FÉRY & Manfred KRIFKA 2006. *Questionnaire on Information Structure: Reference Manual*. (Interdisciplinary Studies on Information Structure 4) Potsdam: Universitätsverlag.
- SLOBIN, Dan Isaac 2006. What Makes Manner of Motion Salient? Explorations in Linguistic Typology, Discourse, and Cognition. In: M. HICKMANN & S. ROBERT (eds), *Space in Languages: Linguistic Systems and Cognitive Categories* (Typological Studies in Language 66): 59–81. Amsterdam: John Benjamins.
- SVOROU, Soteria 1994. *The Grammar of Space*. (Typological Studies in Language 25) Amsterdam: John Benjamins.
- TALJAARD, P.C. and Sonja E. BOSCH 1988. *Handbook of Isizulu*. Pretoria: J.L. van Schaik.
- TALMY, Leonard 1985. Lexicalization Patterns: Semantic Structure in Lexical Forms. In: T. SHOPEN (ed.), *Language Typology and Syntactic Description, III: Grammatical Categories and the Lexicon*: 57–149. Cambridge: CUP.
- TALMY, Leonard 2000. *Toward a Cognitive Semantics*, I & II. Cambridge, MA: MIT.
- TESNIÈRE, Lucien 1959. *Éléments de syntaxe structurale*. Paris: Klincksieck.
- WÄLCHLI, Bernhard & Fernando ZÚÑIGA 2006. Source-Goal (In)Difference and the Typology of Motion Events in the Clause. *Sprachtypologie und Universalienforschung* 59(3): 284–303.
- ZAJCEVA Galina L. 1991. *Daktilologija: Žestovaja reč* [Cheirolology: Sign speech]. Moscow: Prosveshchenie.

APPENDIX I: THE SPATIAL SETTINGS USED IN THE STUDY

The experiment additionally included two complex static scenes with multiple Figures and Grounds; in order to include questions with no predetermined foci in the study, we asked the informants to describe these scenes in their own words.

| Localisation | | Local role | | | |
|-----------------|---------------|------------|--------|------|------|
| Ground | Figure | Place | Source | Goal | Path |
| IN(SIDE) | | | | | |
| House | Person | x | x | x | |
| Bushes | Person/animal | x | | | x |
| Hand | Bag | x | | | |
| IN FRONT OF | | | | | |
| House | Person | x | x | x | x |
| BEHIND | | | | | |
| House/table | Person | x | x | x | x |
| BESIDE | | | | | |
| House/table | Person | x | x | x | |
| Tree | Person/animal | x | | | |
| ON/OVER | | | | | |
| Bicycle | Person | x | | | |
| Bridge | Bicycle | x | | | |
| | Person | | (x) | | x |
| Wheelbarrow | Horse | | | | x |
| Table | Carrot | x | | | |
| | Person | x | | | |
| | Teapot | x | | x | |
| Teapot on table | Cup | x | | | |
| Tree | Person/animal | x | | | |
| Horse | Person | x | | | |
| Head | Hat | x | | | |

| Localisation | | Local role | | | |
|-----------------------------------|---------------|------------|--------|------|------|
| Ground | Figure | Place | Source | Goal | Path |
| UNDER | | | | | |
| Table | Cup | x | | | |
| | Person | x | | | |
| Bridge | Turtle | | | | x |
| Tree | Person/animal | x | | x | |
| BETWEEN | | | | | |
| Bushes | Animal(s) | x | | | |
| Lambs | Cow | x | | | x |
| AROUND | | | | | |
| Tree/house | Person/animal | | | | x |
| Bushes | Person/animal | | | | x |
| IN/ON VEHICLES | | | | | |
| Car | | x | | | |
| Boat | | x | | | |
| Plane wagon | | x | | | |
| COMPLEX GROUNDS | | | | | |
| A > B | Person | — | x | x | |
| A > B > A | Person | — | x | x | (x) |
| > B > C | Person | — | | x | x |
| A > B > C | Person | — | x | x | x |
| NO GROUND, RECIPROCAL MOVEMENT | | | | | |
| Persons walking one after another | | x | | | |
| Persons passing each other | | | | | x |
| Persons meeting each other | | | | x | |