Analysing comparative and superlative constructions in Ndebele: A Bantu language spoken in Zimbabwe, Southern Africa

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Contents

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List of Glossing Abbreviations

1-18	Noun classes
1ST	First person
2ND	Second person
3RD	Third person
ADJ	Adjectival concord
APP	Applicative
CAUS	Causative
CMPR	Comparative operator
COP	Copula
DEM	Demonstrative
ENUM	Enumerative concord
FOC	Focus
FUT	Future
FV	Final vowel
IMM	Immediate
INF	Infinitive
LOC	Locative
NEG	Negative
OM	Object marker
PASS	Passive
PERS	Personal pronoun
PFV	Perfective
PL	Plural
POSS	Possessive
PRON	Pronoun
PST	Past
PTCL	Particle
REL	Relative concord
RS	Relative suffix
SG	Singular
SM	Subject marker
TOP	Topic

Abstract

Ndebele is a Bantu language, spoken in Southern Africa. It is fairly under-researched and not well-documented, especially in the area of comparison. The main aim of this dissertation, therefore, is to begin to document the inventory of comparison constructions in Ndebele, looking at how the structure of these constructions interacts with the semantics.

Comparison constructions typically establish an ordering relation between two individuals (the comparee and the comparison standard), making reference to a kind of measurement scale, such as age (Hohaus & Bochnak 2020). Encoding these constructions varies cross-linguistically, and is the topic of much linguistic research (see Stassen 1985, Kennedy 2009, Beck et al. 2009 among others).

Before examining the data from Ndebele (which was collected through a variety of translation, production and elicitation tasks), I overview some of the research literature on the grammar of comparison, specifically looking at the comparative and superlative constructions.

In Ndebele, the comparative is encoded by way of two strategies: the exceed comparative and the locative comparative. The exceed comparative uses a verb *ukwedlula* 'exceed' or 'pass' to compare both individuals. I argue that the locative comparative makes use of a covert comparative operator, and introduces the comparison standard via a locative particle, *ku-*. The locative comparative can be used in both greater-than and less-than constructions, whereas the exceed comparative is dispreferred in less-than constructions.

The superlative is formed similarly to the comparative. The comparee is selected from a group that is encoded as a universal standard of comparison, 'than everyone'. Both the exceed and the locative comparative are suitable for use in greater-than and less-than superlative constructions.

Declaration

No portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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The author is currently studying for a BA (Hons) degree in Linguistics.

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1 Introduction

Examining how languages encode comparison has been an extensive research area of cross-linguistic variation, especially over the past 20 years (see Hohaus & Bochnak 2020 for a recent overview). The comparative places two entities, or individuals, in a greater-than or less-than ordering relation with reference to some kind of measurement scale (Hohaus & Bochnak 2020). It typically has three key components: the comparee (what is being compared), the comparison standard (what the comparee is compared with) and the comparative predicate, which is the gradable property (Stassen 1985). Within comparison, there is considerable cross-linguistic variation, and yet there has not been much documentation of this area in under-researched languages.

Ndebele (Bantu; Zimbabwe, Southern Africa) is one of these languages; it is not well-researched, especially in the area of comparison. I aim, therefore, to contribute to the wider typology of comparison constructions by beginning to develop an inventory of these constructions in Ndebele; analysing their structure, and examining how this interacts with the meaning.

I argue that Ndebele encodes comparison under the explicit strategy (with degree-based morphosyntax) by way of two comparatives: the exceed and the locative comparative. When encoding greater-than comparative constructions, both the exceed and the locative comparative are available, but the exceed comparative is dispreferred in less-than constructions.

Within the domain of the superlative construction, however, both strategies are available whether the ordering relation is greater-than or less-than. Furthermore, I suggest that Ndebele primarily differentiates between the absolute reading and the relative reading of the superlative through morphological means.

The structure of the dissertation is as follows: I start in §2, which provides some background on the Ndebele language. First I look at its status and vitality, and

then briefly overview its main linguistic features.

In §3, I survey some of the available research literature, focusing mainly on the comparative proper and superlative constructions. The literature offers an inventory of cross-linguistically common strategies for forming comparatives and superlatives, and provides some discussion of their semantics. I include a full semantic composition of the comparative in English and additionally explore the ambiguity found in the superlative construction; a further significant area of research within cross-linguistic variation.

The data from Ndebele is presented and analysed in §4, and follows a brief explanation of methodology for semantic fieldwork. The comparative in Ndebele is analysed in §4.2, where I look at its form and meaning, then take a closer look at its underlying structure. I move to the superlative in §4.3, examining how it is encoded in Ndebele, and show how the two readings are differentiated. I conclude in §5, and propose some ideas for further research on Ndebele, and the wider cross-linguistic inventory of comparison constructions.

2 Background on Ndebele

In this chapter, I offer some background on the Ndebele language, looking first at its status and vitality, before presenting its most prominent linguistic features: the noun class system and its interaction with the morphology and syntax of Ndebele.

2.1 Language Background

Ndebele (also called Northern Ndebele, isiNdebele) is an Nguni language spoken mainly in Zimbabwe, Southern Africa (Figure 1) by around 1,610,000 speakers (Eberhard, Simons & Fennig 2020).

Figure 1: Zimbabwe, Southern Africa.
Source: © OpenStreetMap contributors

The Nguni language family is primarily made up of Zulu and Xhosa (spoken in South Africa), Swati (spoken in Eswatini—labelled as Swaziland on the map) and Ndebele, and these are part of the wider language family, Narrow Bantu; Niger-Congo (Hurskainen 2011). Ndebele is recognised as an official language of Zimbabwe, and is distinct from Southern Ndebele which is spoken in South Africa.

2.2 Linguistic Features

2.2.1 Noun Classes

One major linguistic feature in Ndebele, and in the wider Bantu family, is the presence of noun classes. These are found in most—if not all—Bantu languages (Hurskainen 2011). In Ndebele (and other Bantu languages), these are indicated by prefixes on the noun itself, and on the elements governed by the noun (Hurskainen 2011). An example is in (1) where the prefix *isi-* marks class seven on the noun. The prefix *esi-* on the adjectival concord also shows class seven, corresponding to the governing noun's class.

(1) *isi-lwane esi-khulu*
7-lion 7.ADJ.big
'the big lion'

These noun class markers are thought to have formed from demonstratives which then became 'non-generic' articles and attached to a noun in all contexts, thus developing into markers of nominality (Greenberg, 1977 as cited in Hurskainen 2011:667). These classes are semantically motivated, but not many are clear in what they detail (Hurskainen 2011). Classes one and two, for example, are almost exclusively human (singular and plural, respectively) and are attested in many Bantu languages (Hurskainen 2011). This singular-plural pattern is regularly found in alternating noun classes; for example, class six contains the plural forms of the nouns in class five. Taraldsen (2010) argues that although each noun class is associated with a unique set of semantic properties, this is no longer transparent. He holds that the current noun class system has evolved from a system where the membership of a class had a meaning that was more transparently derived (Taraldsen 2010).

The noun classes of Ndebele have not been thoroughly researched, but noun classes 1–10 and 14–16 are thought to be present, excluding classes 11–13 (Skhosana 2010).

Sibanda (2004), however, provides details for noun classes 1-11 and 14-18, showing that these are not clearly defined in the literature. On a surface level, the affixes on nouns that show class membership appear similar, thus looking at a noun's plural affix and its concords can be a more reliable way to determine class membership (Taraldsen 2010). As shown below in §2.2.2, these classes affect the affixes on the verb, and have a reflex on adjectival and relative concords.

2.2.2 Morphology and Syntax

The surface word order of Ndebele is subject-verb-object (SVO), as demonstrated in (2).

(2) *Umu-ntu u-ya-si-bon-a isi-lwane.*
1-person 1SM-FOC-7OM-see-FV 7-lion
'The person sees it, the lion.'

(based on Sibanda 2004:24)

The verb is formed of a root and a final vowel (typically *-a*), for example *phek-a* 'cook', which then gains affixes to show tense, aspect, modality etc. Verbs can be seen as having an SOV-internal order as subject and object markers are prefixed to the verb. In (2), *u-* indicates a class one subject marker and *-si-* refers to the lion, and is a class seven object marker. The *-ya-* can be glossed as a focus morpheme, and indicates the present tense.

The earlier example in (1) demonstrated the head noun 'lion', modified by 'big' (whose adjectival concord was determined by the noun class of 'lion'). Skhosana (2010) presents 18 adjectival stems (if including quantities) for Zulu, which seem to hold across the Nguni languages. These make up the 'true set' of adjectives, which is a closed class. De Schryver (2008) states that there are about 20-30 true adjective stems in Bantu languages.

Other modifying words are derived from other lexical categories (nouns, for ex-

ample). Mngadi (1999) provides a non-exhaustive list of these in Zulu, calling them nominal relative stems. She claims that they denote the same property described by the noun and consequently the noun and the nominal relative stem have the same meaning, but occur in a different syntactic position.

As well as adjectival concords, Ndebele also makes use of relative concords as shown in (3). These can introduce relative clauses, and are also prefixed to modifiers that are not in the 'true set' of adjectives.

(3) *um-fana o-gijima-yo.*
1-boy 1.REL-run-RS
'the boy who is running.'

(based on Pietraszko 2019:88)

The noun classes of Ndebele and hence its relative and adjectival concords feature prominently in the analysis of comparison constructions as these constructions are built around a gradable property (such as the property of being tall) which is consistently modified by a class prefix.

3 The Grammar of Comparison

In the following sections, I briefly survey the inventory of comparison constructions (§3.1) and offer an overview of some of the cross-linguistic strategies used to encode these constructions (§3.2). Following this, I focus in on the comparative proper, and offer an in-depth semantic analysis of the comparative in English (§3.3). In §3.4, I provide some discussion of the superlative construction, first considering the semantics of the construction, before looking at how to account for ambiguity that arises with the superlative. After examining how this construction is encoded cross-linguistically, I conclude in §3.5 and evaluate the main areas of the grammar of comparison in preparation for the Ndebele data in §4.

Much cross-linguistic research over the last 20 years has focused on comparison constructions; see for instance Beck et al. (2009), Kennedy (2009) and Hohaus & Bochnak (2020) for a recent overview of the literature. Fundamentally, expressing comparison involves establishing an ordering relation between two individuals or, in some languages, an individual and a degree, with respect to a kind of measurement scale, such as height (Hohaus & Bochnak 2020). Languages can encode comparison via a number of strategies, but essentially each involve assigning a property to an individual or entity, and stating whether or not—or to what extent—they possess this property.

I will use the terms 'property' or 'gradable property' to refer to the element of comparison constructions which is typically expressed via a comparative form of an adjective in English, for example 'taller'. Note that this is also called the 'adjective', 'comparative predicate' 'gradable predicate' or 'parameter' in the literature (see Treis 2018, Stassen 1985 and Bochnak 2015).

3.1 A Brief Inventory of Comparison Constructions

Stassen (1985) defines the comparative as a kind of comparison construction that has the semantic function of assigning two objects to non-identical that is, graded, positions on a measurement scale. An example is in (4), which is a predicative comparative.

(4) *Peta is taller than Lynne.*

Using terminology from Stassen (1985), 'tall' in (4) is the comparative predicate, 'Peta' is the comparee, and 'Lynne' is the comparison standard. It is important to note that the comparison standard (in this case, Lynne) does not need to be overt if it can be retrieved from the discourse context, as seen in (5) (Stassen 1985). The following examples are of the different kinds of comparative, which is itself a type of comparison construction.

(5) Context: Peta and Lynne are being measured by their mother. When she has finished, she announces:
'Peta is taller!' Contextual comparative

(6) *'Lynne runs faster than Monika.'* Adverbial comparative

(7) *'Monika is a stronger gymnast than Peta.'* Attributive comparative

(8) *'Peta is five years older than Lynne.'* Differential comparative

Other comparison constructions besides the comparative proper include the equative construction (9), a measure construction (10), comparison with a degree (11) and a differential degree question (12). The superlative construction is explored in depth in §3.4, but a preliminary example is given in (13).

(9) *'Peta is as tall as Kath.'* The equative construction

(10) *'Peta is 21 years old.'* Measure construction

(11) *'Peta is taller than 165cm.'* Comparison with a degree

(12) *'How much older is Peta than Lynne?'* Differential degree question

(13) *'Ross is the tallest.'* The superlative construction

The examples above offer only some of the various constructions available in language, but looking at how these are encoded—that is, structured and understood—by speakers of different languages is certainly not an insignificant topic of research.

3.2 Expressing Comparison Constructions

3.2.1 The Semantic Strategy

Cross-linguistically, there seem to be two overarching semantic strategies for encoding comparison constructions: the explicit and the implicit strategy. Languages that employ the explicit strategy have a dedicated (or specialised) morphosyntactic form which establishes an explicit ordering relation between two individuals/entities with respect to a gradable property (Kennedy 2009). Following the literary conventions, Treis (2018) distinguishes between degrees of comparison of the adjective (which I refer to as the gradable property):

- positive: *typically unmodified, base form*
- equative: *comparee and standard possess the property to the same extent*
- comparative: *comparee has the property to a different degree from the standard*
- superlative: *the highest degree of the property is ascribed to the comparee*

A comparative under the explicit strategy has dedicated morphosyntax, which marks that the degree to which the comparee possesses the gradable property exceeds that which the comparison standard possesses (Kennedy 2009). The gradable property is thus generally in its comparative degree. In set-theoretic terms, this can be thought

of as in (14) as the comparee possesses the property to the same degree as the standard *and* a greater degree than the standard.

(14) [comparee] > [comparison standard]
$\simeq$ [height of comparison standard] $\subset$ [height of comparee]

The implicit strategy, on the other hand, is built around the positive (unmarked) form of a predicate, or gradable property, and relies on the inherent context-dependency of the positive form. Kennedy (2007b, as cited in Kennedy 2009) argues that the positive form denotes the minimal degree that the property requires to be noticeable in the context. Therefore, with the implicit strategy, the comparison is inferred by assigning the property to the comparee and not to the comparison standard (through manipulating the context). Motu (Austronesian; Papua New Guinea) is a language that employs the implicit strategy by way of a conjoined comparative (Beck et al. 2009). Bobaljik (2012) describes the form of the conjoined comparative as one that is built from the juxtaposition of a positive expression and a contrasting one, which can be the negated form, the intensified form, or an antonymous form as in (15), where Mary is tall, and Frank is short:

(15) *Mary na lata, to Frank na kwadoḡi.* [Motu]
Mary TOP tall, but Frank TOP short
'Mary is taller than Frank'

(Beck et al. 2009:3)

Kennedy (2009) also makes reference to individual vs. degree comparison, where languages differ in whether they express an ordering relation between individuals, or additionally express a relation between individuals and degrees. English has both forms, as comparison between individuals (4) and degree comparison (8) are both available.

Analysing the semantic strategy employed by a language is certainly not trivial,

but the availability of certain constructions can be a good diagnostic tool for determining which semantic strategy is employed. The differential comparative in (8), where a measure phrase details the difference between the comparee and the comparison standard, gives rise to degree comparison and is one such diagnostic for the explicit strategy since it is difficult to see how this comparative could be encoded (or indeed, where the measure phrase could be located) under the implicit strategy which depends on assigning the property to one individual and not to the other (Kennedy 2009).

3.2.2 Forming the Comparative

A major point of cross-linguistic variation arises with the form of the comparative (under either semantic strategy). Dixon (2008) and Stassen (1985) present different strategies for forming the comparative. Stassen (1985) includes in his typology the conjoined comparative (as seen above in (15)), the particle comparative, the exceed comparative and the locative comparative. English makes use of the particle comparative (an in-depth analysis is kept for §3.3), and since Ndebele employs the exceed comparative and the locative comparative, only these strategies will be examined further.

Dixon (2008) classifies the forms of comparative from A-F and S, and it seems that types A1 and A2 correspond to the locative comparative, and types B and C to the exceed comparative.

The exceed comparative is formed from a transitive verb meaning 'to exceed' or 'to surpass', whose subject is always the comparee, and its complement (or direct object) is the comparison standard (Stassen 1985). It is worth noting that although 'exceed' can function as the only verb in a phrase, it can also be found in a serial verb construction along with the comparative predicate (Stassen 1985).

Dixon (2008) describes this construction (type B) as a serial verb construction

where the property and the 'exceed'-verb function as a single predicate. The comparee and standard are treated as the subject and object respectively, similarly to the description of the exceed comparative from Stassen (1985). Type C is similar, but the gradable property is expressed in a peripheral constituent, meaning the 'exceed'-verb alone takes the comparee and standard as its arguments, and conveys the degree (Dixon 2008).

Stassen (1985) offers an example (16) of this comparative in Swahili (Bantu; Kenya).

(16) *Mti huu ni mrefu ku-shinda ule* [Swahili]
tree this is big INF-exceed that
'This tree is taller than that tree.'

(Stassen 1985:43)

The formation of the locative comparative is based on the comparison standard serving as a constituent of an adverbial phrase, which is marked by a locative element (Stassen 1985). This is similar to types A1 and A2 in the typology of Dixon (2008). He suggests that these types are monoclausal and the property functions as the head of the copula or verbless clause parameter (Dixon 2008). Type A1 treats the property as an adjective or noun, whereas Type A2 holds that the property has verbal properties (Dixon 2008). Stassen (1985) provides an example of a locative comparative from Chukchi (Chukotko-Kamchatkan; Russia), seen in (17):

(17) *Gamga-qla'ul-ik qetvu-ci-um* [Chukchi]
all-men-on strong-more-1ST.SG
'I am stronger than all men.'

(based on Stassen 1985:42)

In §4, I begin to analyse the exceed comparative and the locative comparative in Ndebele, and in which contexts they can be used. Additionally, §4.2.1 looks at why I argue that Ndebele makes use of the explicit strategy when encoding comparatives.

3.3 The Comparative in English

As mentioned previously, comparison places two entities or individuals in an ordering relation (greater- or less-than) with respect to a measurement scale (Hohaus & Bochnak 2020). In English, this is usually expressed by way of the particle comparative (Stassen 1985). The particle comparative does not consist of two independent, coordinated clauses, but the comparison standard is typically a constituent of the same phrase that contains the comparee (Stassen 1985). In general, there is a specific comparative particle (like English 'than') which accompanies the comparison standard (Stassen 1985).

The gradable property in English is usually modified with the word 'more' (such as 'more interesting') or morphologically marked with *-er* (as in 'kinder'). Interestingly, marking the property morphologically is common across languages that employ the particle comparative (Stassen 1985). Schematically, a particle comparative can be thought of as in (18), where MORPH indicates a potential position for optional morphological marking on the property:

(18) [comparee [[gradable property (+ MORPH)] [PTCL + standard]]]

3.3.1 A Compositional Analysis of an English Comparative

Using the schematic form of a particle comparative in (18), I present a compositional analysis of an English predicative comparative (19), repeated from (4).

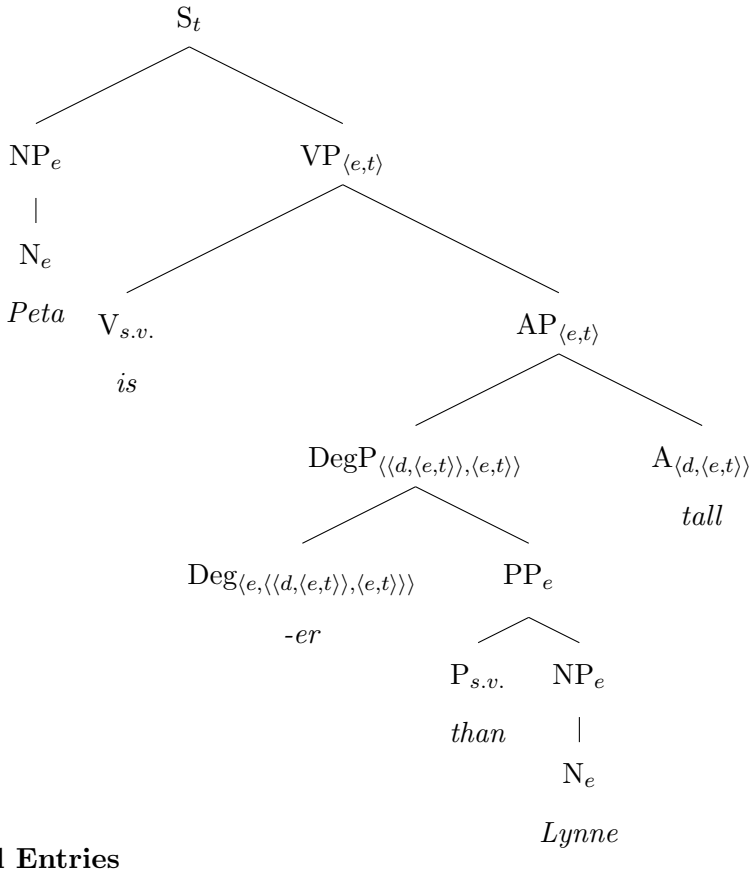
(19) *'Peta is taller than Lynne.'*

I begin with the syntactic structure and the semantic type of each node, before listing the lexical entries underneath. The syntactic tree uses a simplified syntax, where I treat *is* and *than* as semantically vacuous, and overlook the effects of tense or aspect.

Note that Beck et al. (2009) argue that adjectives introduce degrees, and relate

individuals to sets of degrees, and thus 'tall' has the semantic type $\langle d, \langle e, t\rangle\rangle$.

(20) **Syntactic Structure and Semantic Types**



Lexical Entries

$[\![\, \textit{Peta} \,]\!] = \mathrm{P}$

$[\![\, \textit{Lynne} \,]\!] = \mathrm{L}$

$[\![\, \textit{tall} \,]\!] = [\lambda d^* : d^* \in D_d.\, [\lambda x : x \in D_e.\ x \text{ is } d^*\text{-tall}]]$

$[\![\, \textit{-er} \,]\!] = [\lambda z : z \in D_e.\, [\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}.\, [\lambda y : y \in D_e.$

$\textsc{max}(\lambda d.\, A(d)(y)) > \textsc{max}(\lambda d.\, A(d)(z))]]]$

Moving to the composition of (19), I use a bottom-up approach, where the degree phrase is derived before the adjectival phrase. I then derive the full structure, moving to the topmost node (thus taking *Peta* as the argument of the whole verb phrase).

Step-by-Step Derivation (bottom-up)

$$\left[\!\!\left[\begin{array}{c} \mathrm{DegP}_{\langle\langle d,\langle e,t\rangle\rangle,\langle e,t\rangle\rangle} \\ \diagup \quad \diagdown \\ \mathrm{Deg}_{\langle e,\langle\langle d,\langle e,t\rangle\rangle,\langle e,t\rangle\rangle\rangle} \quad \mathrm{PP}_e \\ \textit{-er} \qquad\qquad \diagup \quad \diagdown \\ \qquad\qquad\qquad \mathrm{P}_{s.v.} \quad \mathrm{NP}_e \\ \qquad\qquad\qquad \textit{than} \qquad\quad | \\ \qquad\qquad\qquad\qquad\quad \mathrm{N}_e \\ \qquad\qquad\qquad\qquad\quad \textit{Lynne} \end{array} \right]\!\!\right] = \text{(by functional application (FA))}$$

To derive this section, the Deg node acts as the function, and the whole PP as the argument, as shown below.

$$\left[\!\!\left[\begin{array}{c} \mathrm{Deg}_{\langle e,\langle\langle d,\langle e,t\rangle\rangle,\langle e,t\rangle\rangle\rangle} \\ \textit{-er} \end{array} \right]\!\!\right] \left(\left[\!\!\left[\begin{array}{c} \mathrm{PP}_e \\ \diagup \quad \diagdown \\ \mathrm{P}_{s.v.} \quad \mathrm{NP}_e \\ \textit{than} \qquad | \\ \qquad\quad \mathrm{N}_e \\ \qquad\quad \textit{Lynne} \end{array} \right]\!\!\right] \right) = \text{(by non-branching nodes (NN))}$$

If I treat 'than' as semantically vacuous, the PP is a non-branching node. This means the next step is to apply terminal nodes, using the lexical entries from above.

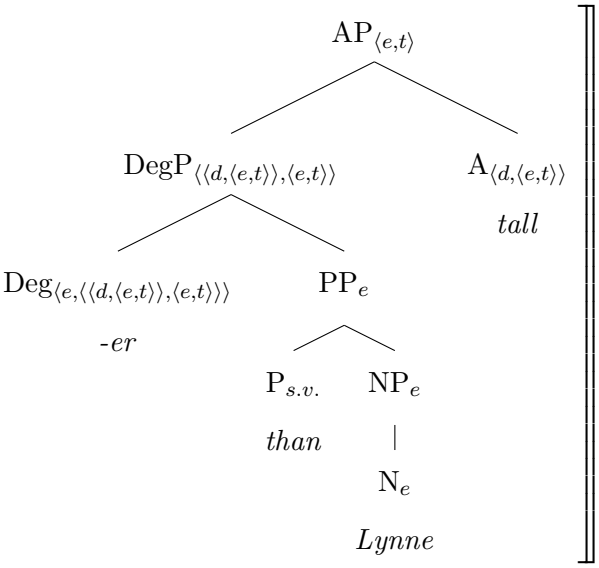
$$\left[\!\!\left[\begin{array}{c} \mathrm{Deg}_{\langle e,\langle\langle d,\langle e,t\rangle\rangle,\langle e,t\rangle\rangle\rangle} \\ \textit{-er} \end{array} \right]\!\!\right] \left(\left[\!\!\left[\begin{array}{c} \mathrm{N}_e \\ \textit{Lynne} \end{array} \right]\!\!\right] \right) = \text{(by terminal nodes (TN), lexical entries)}$$

$[\lambda z : z \in D_e. [\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}. [\lambda y : y \in D_e. \textsc{max}(\lambda d.\, A(d)(y)) > \textsc{max}(\lambda d.\, A(d)(z))]]](L)$

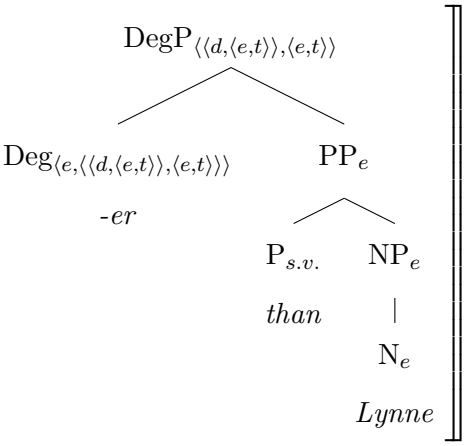
= (by simplification—substituting L for z)

$[\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}. [\lambda y : y \in D_e. \textsc{max}(\lambda d.\, A(d)(y)) > \textsc{max}(\lambda d.\, A(d)(L))]]$

After this, I move to the AP, where the DegP (already derived) acts as the function and the node, A, the argument.

$[\![$ 

$]\!]$ = (by FA)

$[\![$ 

$]\!]$ $\left([\![\text{A}_{\langle d,\langle e,t\rangle\rangle} \; \textit{tall}]\!] \right)$ = (by TN, previous step)

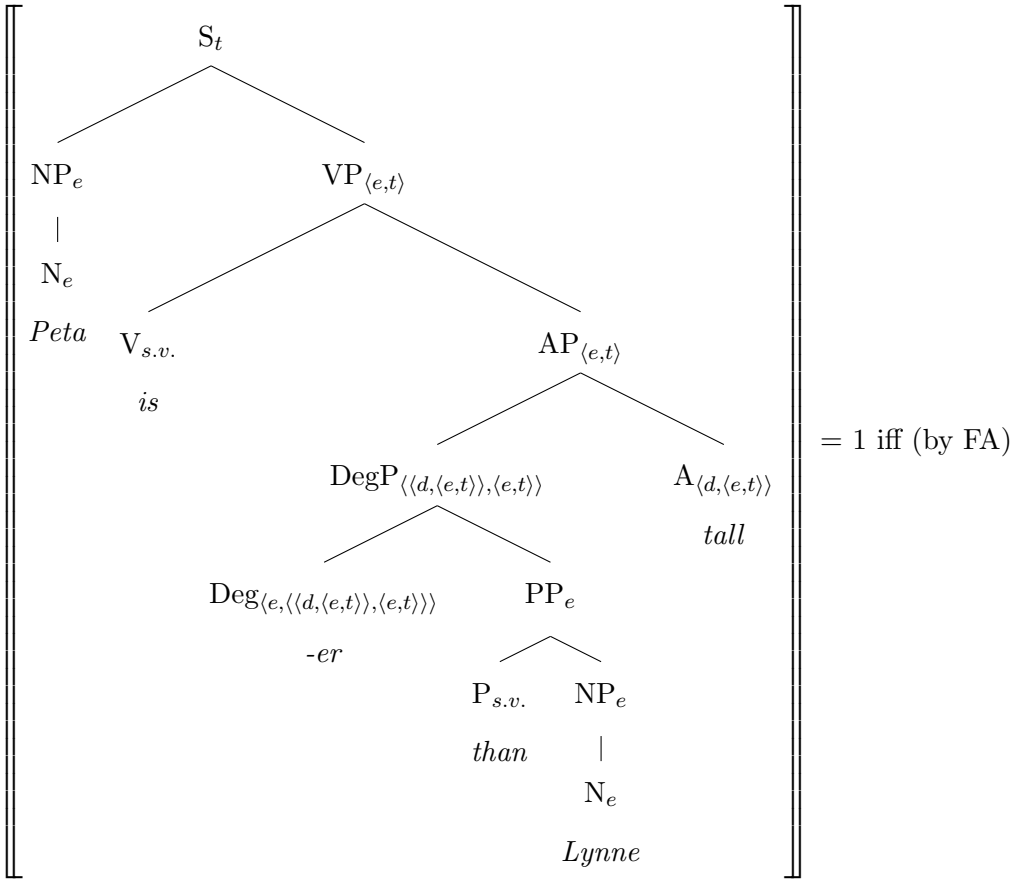
$[\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}. [\lambda y : y \in D_e. \textsc{max}(\lambda d.\, A(d)(y)) > \textsc{max}(\lambda d.\, A(d)(L))]]$ $([\lambda d^* : d^* \in D_d. [\lambda x : x \in D_e.\ x \text{ is } d^*\text{-tall}]])$ = (by simplification—substituting the lexical entry of 'tall' for A)

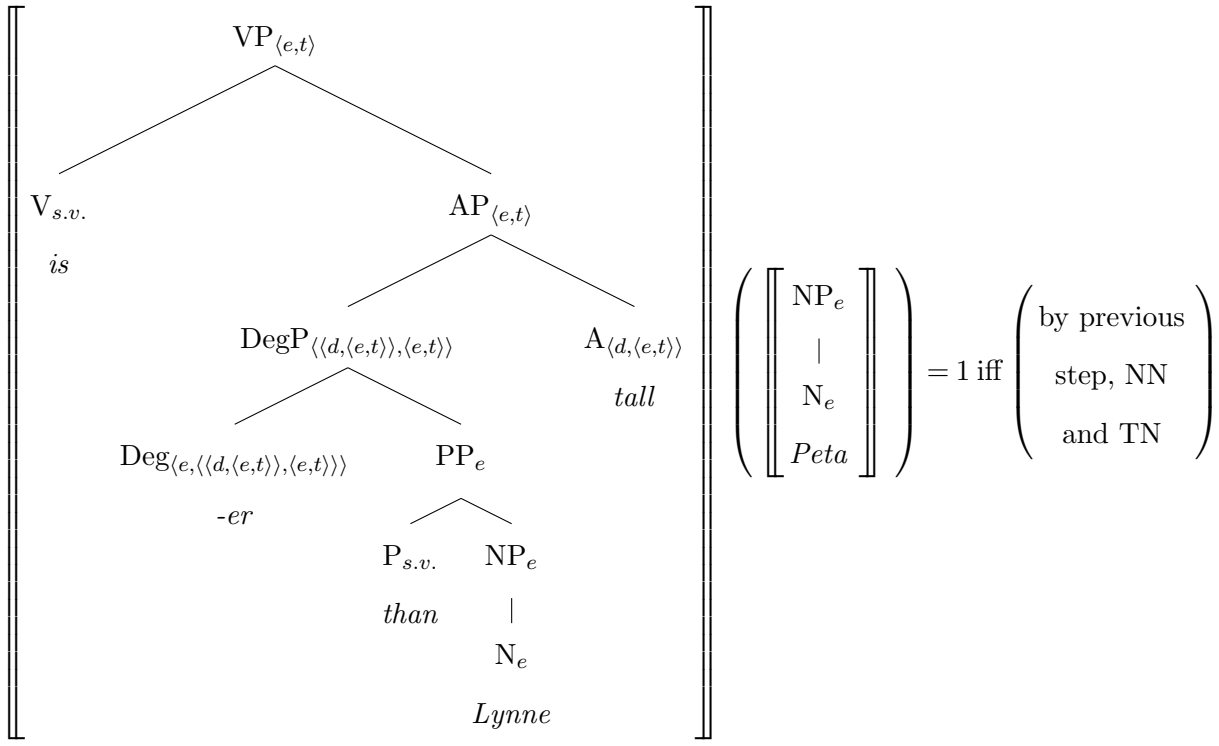
$[\lambda y : y \in D_e.\, \textsc{max}(\lambda d.\, [\lambda d^* : d^* \in D_d.\, [\lambda x : x \in D_e.\ x \text{ is } d^*\text{-tall}]](d)(y)) > \textsc{max}(\lambda d.\, [\lambda d^* : d^* \in D_d.\, [\lambda x : x \in D_e.\ x \text{ is } d^*\text{-tall}]](d)(L))]$ = (by simplification—substituting d for d^*)

$[\lambda y : y \in D_e.\, \textsc{max}(\lambda d.\, [\lambda x : x \in D_e.\ x \text{ is } d\text{-tall}](y)) > \textsc{max}(\lambda d.\, [\lambda x : x \in D_e.\ x \text{ is } d\text{-tall}](L))]$ = (by simplification—substituting y and L for x)

$[\lambda y : y \in D_e.\, \textsc{max}(\lambda d.\, y \text{ is } d\text{-tall}) > \textsc{max}(\lambda d.\, L \text{ is } d\text{-tall})]$

The final step derives the full tree structure. I treat the VP as a non-branching node, so the NP is the argument of the already-derived VP (which is the next step above the AP).





$[\lambda y : y \in D_e.\, \textsc{max}(\lambda d.\, y \text{ is } d\text{-tall}) > \textsc{max}(\lambda d.\, L \text{ is } d\text{-tall})]\ (P) = 1$ iff

(by simplification—substituting P for y)

$\textsc{max}(\lambda d.\, P \text{ is } d\text{-tall}) > \textsc{max}(\lambda d.\, L \text{ is } d\text{-tall}) = 1$ iff the maximal degree to which P is tall exceeds the maximal degree to which L is tall.

Naturally, other constructions exhibit different derivations or additional steps—a differential comparative, for example, would require an additional argument: a degree argument that specifies the difference between the comparee and the standard. An updated entry for differential *-er*$_{\text{diff}}$ is shown in (21).

(21) $[\![\text{-}er_{\text{diff}}]\!] = [\lambda d' : d' \in D_d.[\lambda z : z \in D_e.\, [\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}.\, [\lambda y : y \in D_e.$
$\textsc{max}(\lambda d.\, A(d)(y)) \geq \textsc{max}(\lambda d.\, A(d)(z)) + d']]]]$

Furthermore, with cross-linguistic variation, one question that arises after this derivation of an English comparative is whether a similar composition would function for other languages which employ the explicit strategy. In §4.2.2, I begin to examine

this in Ndebele, a language that I argue also uses the explicit strategy (although—as previously mentioned—not by way of a particle comparative, but rather an exceed and locative comparative).

3.4 The Superlative Construction

In this section, I leave behind the comparative proper to focus on another construction in the domain of comparison constructions: the superlative. First, I consider the intuitive meaning given by this construction and then present some research from Bobaljik (2012) and Beck (1997) on the morphological superlative (§3.4.1). In §3.4.2, I provide a cursory insight into the research surrounding the ambiguity in the readings of the superlative, before looking at cross-linguistic strategies that are used to form the superlative (§3.4.3), following Bobaljik (2012) and Coppock, Bogal-Allbritten & Nouri-Hosseini (2020).

The superlative construction picks out the entity or individual that possesses the gradable property to the greatest extent—in (22) (repeated from (13)), this individual is Ross, as he is tall to a greater extent than other salient individuals in the context.

(22) *'Ross is the tallest.'*

In set-theoretic terms, this can be expressed as a subset relation between the height of Ross and the height of the other salient individuals in the context (23), similarly to (14), the set-theoretic description of a comparative construction.

(23) [height of individuals in context] $\subset$ [height of Ross]

This relation holds because Ross possesses all the degrees of height that the other individuals possess; intuitively, if Ross is 180cm, he is also 179cm, 178cm and 130cm etc.

3.4.1 The Semantics Behind the Morphological Superlative

The English superlative is expressed similarly to the comparative in that it can be marked morphologically with *-est* (as in 'kindest'), or through a periphrastic construction using 'most' (such as 'most interesting').

Bobaljik (2012) mainly examines the similarities in superlatives that are encoded morphologically (like those in English), although briefly considers other morphosyntactic strategies, such as those that express the superlative by way of a universal quantifier acting as the comparison standard ('than everyone'). This seems to be the strategy in Ndebele and thus will be explored in depth later (§4.3). Importantly, for the analysis of the English superlative, Bobaljik (2012) proposes the Containment Hypothesis, stating that the representation of the comparative is contained in that of the superlative, that is, 'tall-est' is made up of 'tall+*-er*+*-est*', where the comparative morpheme is a phonologically null allomorph and hence not seen at a surface level (but is present at LF, the logical form).

Stateva (2002, as cited in Bobaljik 2012) agrees that the superlative does indeed embed the comparative, however argues that the embedded comparative -ER is distinct from the comparative *-er*, and intrinsically comes to mean 'than all the others'. In this vein, the comparative *-er* is argued to be quantificational (that is, specifying or quantifying a set), whereas the embedded comparative -ER in the superlative is not. Evidence for this comes from comparative conditionals as in (24) and the ungrammatical (25):

(24) *'The faster Lynne works, the earlier she'll be allowed to go.'*

(25) **'The fastest Lynne works, the earliest she'll be allowed to go.'*

As (24) requires movement of the comparative degree operator (which is licensed by its quantificational nature), if this operator—or its phonologically null allomorph—were present in (25), it would be allowed, and therefore would not be ungrammatical

(Stateva 2002, as cited in Bobaljik 2012). Since it is disallowed, Stateva (2002, as cited in Bobaljik 2012) argues that the two comparatives *-er* (present in comparatives) and -ER (contained in superlatives) are distinct, with the -ER variant being seen as non-quantificational. Beck (1997) follows a similar line of reasoning, providing evidence from the disallowed presence of the comparison standard as in (26):

(26) *#'The older Lynne is than Monika, the taller she is.'*

Beck (1997) argues that the comparison standard is held in the head of the comparative conditional and therefore an additional standard ('than Monika') is uninterpretable. Beck (1997) states that the 'the...the...' construction has an operator—given by (part of) the meaning of 'the'—which takes one argument from the clause that it c-commands (in the case of (26), this is Lynne) and creates two degree descriptions, thereby both argument 'slots' provided by *-er* are filled, leaving no space for an overt comparison standard. Essentially, the same reasoning applies to (25): since the superlative is argued to carry the comparative -ER and provide the meaning 'than all the (contextually salient) others', it cannot be the second comparison standard in this construction if the standard is already held in the head of the comparative conditional (Bobaljik 2012).

Whether the superlative (specifically the morphological form) embeds the comparative *-er* or not is debated in the literature and the semantic reflex on languages other than English is not yet widely researched (Bobaljik 2012). An analysis that contains the meaning 'than all the others' is appealing as this provides some unity with other languages' superlative strategies, such as those that use a universal standard of comparison 'than everyone'.

Moving to the formal semantics of *-est*, Bobaljik (2012) provides two possible lexical entries for the English superlative morphology (also mentioned in Heim 1999). The entry in (27-a) holds the comparative's quantificational property, whereas (27-b)

does not contain the comparative—and since both are appropriate analyses for the superlative; it is apparent that semantics alone cannot account for the Containment Hypothesis (Bobaljik 2012).

(27) a. $[\![\textit{-est}]\!](R)(x) = 1$ iff $\forall y[y = x \rightarrow \text{MAX}\, d : R(d)(x) = 1 > \text{MAX}\, d : R(d)(y) = 1]$

b. $[\![\textit{-est}]\!](R)(x) = 1$ iff $\exists d[R(d)(x) = 1 \;\&\; \forall y[y = x \rightarrow \neg R(d)(y)]]]$

Both lexical entries take two arguments: the gradable property R and an entity x. The former, (27-a), can be thought of as the individual x possessing the property R to a degree that is greater than any other individual's (y) possession of R, whereas the second, (27-b), does not make explicit reference to a comparative or greater-than element. The second thus requires an expression to be true if an individual x possesses the property R to the degree that no other individual (y) does.

Crucially, (27-a) contains the core of the lexical entry for *-er* from §3.3.1, repeated below:

(28) $[\![\textit{-er}]\!] = [\lambda z : z \in D_e.\, [\lambda A : A \in D_{\langle d,\langle e,t\rangle\rangle}.\, [\lambda y : y \in D_e.\, \text{MAX}(\lambda d.\, A(d)(y)) > \text{MAX}(\lambda d.\, A(d)(z))]]]$

Although both entries are appropriate for a morphological superlative expression, it seems that (27-a) provides the option for a unified analysis as mentioned above. An entry where the greater-than relation is overt is more consistent with a comparison standard 'than everyone' which is used in Ndebele, for example.

3.4.2 Superlative Ambiguity

Leaving the full derivation of the semantic composition of a superlative construction for another time, I move to a broader look at the meanings provided by superlative constructions. Much of the superlative literature (see for instance, Heim 1999, Tomaszewicz 2015 and Szabolcsi 1986) is concerned with the ambiguity that arises with the expression of superlatives; namely the difference between an absolute reading

(29-a) and the relative (or comparative) reading (29-b). (Note that the capitalised words portray emphasis and are focused constituents.)

(29) a. 'Ross climbed the tallest MOUNTAIN.'
b. 'ROSS climbed the tallest mountain.'

In (29-a), it is understood that Ross climbed the tallest mountain out of all the mountains in the context; thus if the context were all the mountains in the world, Ross would have climbed Mount Everest. In (29-b), however, it seems that Ross climbed a higher mountain than any other contextually salient individual climbed (crucially, he did not have to have climbed Mount Everest, but could have climbed Mount Kilimanjaro and the others Snowdon, for example).

Naturally, whether this is true ambiguity or pure context-dependency is one question that results after looking at sentences like (29) (Heim 1999).

Szabolcsi (1986) argues that this is a scope ambiguity and therefore not pure context-dependency. In the absolute reading (29-a), *-est* takes scope over the noun phrase that contains it, whereas in the relative reading (29-b), *-est* takes scope at a propositional level. If *-est* takes scope outside of its phrase boundary, Szabolcsi (1986) suggests that the sentence is disambiguated and the relative reading arises by way of focus. The examples in (30) show how the ambiguity is resolved by the location of focus. A clearer sense of the different meanings can be gained by replacing the focused constituents with a wh-word 'who(m)' or a wh-phrase 'which bag'.

(30) a. 'Ross passed the HEAVIEST bag to Monika.' [absolute]
b. 'ROSS passed the heaviest bag to Monika.' [comparative]
i.e. no one else passed her the heaviest bag, but someone else could have passed her a lighter one.
c. 'Ross passed the heaviest bag to MONIKA.' [comparative]
i.e. he didn't pass the heaviest bag to anyone else, but could have passed a lighter one to someone else.

The truth conditions clearly differ with the varied positions of focus. Farkas & Kiss

(2000) provide formalised truth conditions for *-est* (32) that are consistent with the first lexical entry for *-est* (repeated below from (27-a)).

(31) **Lexical entry for *-est***
$[\![\textit{-est}]\!](R)(x) = 1$ iff $\forall y[y = x \rightarrow \textsc{max}\, d : R(d)(x) = 1 > \textsc{max}\, d : R(d)(y) = 1]$

(32) **Truth conditions for *-est***
$[\textit{-est}](\langle a, B\rangle, f) = 1$ iff $\forall x \in B \setminus \{a\} : (a) > f(x)$

Farkas & Kiss (2000) propose that the entity, a, is the 'correlate', that is, the referent of the NP containing the superlative (if an absolute reading), or the focused constituent in a relative reading. The set indicated by B provides the field of comparison. The function f offers the dimension of comparison and orders the entities within the set provided by B. This effectively states 'for all x, if x belongs to B and is not the value of a, a is greater than x, when applied to function f'.

In a sentence like (30-a), the absolute reading, the correlate is the referent of the heaviest bag, the set consists of the bags in the context and the function maps their weights in a scalar fashion. However, in (30-b), the correlate is Ross which means the set contained by B consists of the other contextually salient individuals (for example, Lynne or Peta). The function orders these individuals by the weight of the bag that they passed to Monika and so creates an expression as in (33):

(33) $f(x, d) = [\lambda x : x \in D_e\ [\lambda d : d \in D_d\ .\ x$ passed Monika a d-heavy bag$]]$

Needless to say, I argue that this shows that focus not only disambiguates the readings in English, but also changes the truth conditions of the sentence through resolving the ambiguity. Ndebele, however, does not disambiguate primarily through focus, but rather morphologically—I examine this in §4.3.1.

Finally, a further point discussed in the literature is that of the definite nature of superlative phrases, such as 'the heaviest bag'. Although I will not go into much detail here, it is suffice to say that relative readings of the superlative are thought

to arise from an inherently indefinite superlative DP (it should be mentioned that what the superlative literature calls DPs, I treated as NPs in my earlier analysis) (Szabolcsi 1986). Beck (1997) argues similarly, stating that since extraction is typically not possible out of definite DPs, moving *-est* out of the DP to ensure it has a wider scope for a relative reading should mean the definite DP containing *-est* at phonological form (PF) is indefinite at LF.

3.4.3 Forming the Superlative Cross-Linguistically

As previously mentioned, the English superlative is constructed in two ways: morphologically with *-est* or periphrastically with 'most'. Just like comparison constructions, languages vary as to how they encode superlative constructions (see Bobaljik 2012, Coppock, Bogal-Allbritten & Nouri-Hosseini 2020 and Treis 2018 for a wider overview).

Below, I list some of the superlative construction strategies that Bobaljik (2012) observes:

- M: Superlatives are indicated synthetically, with an affix (morphologically)
- P: Superlatives are expressed analytically (that is, periphrastically)
- ALL: Superlatives are expressed by way of a comparison construction with a universal comparison standard typically translating to 'everyone' or 'all'
- CPR: Superlatives are not clearly distinct from comparatives in their morpho-syntax
- DEF: Superlatives are derived from the comparative by way of a definiteness marker
- VERY: Superlatives are expressed by an intensifier (note that disambiguating the two readings in this case is not clear-cut)

Unlike Bobaljik (2012), Gorshenin (2012, as cited in Treis 2018) argues that although superlative constructions are indeed a subtype of comparative constructions, not all have a comparative construction basis. He differentiates between superlative constructions whose formal bases are comparatives and those that are distinct from comparatives (and thus the superlative is typically expressed through a dedicated

morpheme). However, importantly for this section, the superlative strategies that he classifies are similar to those of Bobaljik's (2012), with the addition of a scope superlative, which explicitly identifies the group that the comparee belongs to, and is chosen from (Gorshenin 2012, as cited in Treis 2018).

A further examination of cross-linguistic strategies in the formation of superlatives can be found in Project MUSE: 'Universals in superlative semantics' (Coppock, Bogal-Allbritten & Nouri-Hosseini 2020). They collected data on a sample of languages to classify their choice of method for encoding superlatives, specifically focusing on the use of 'most'. Coppock, Bogal-Allbritten & Nouri-Hosseini (2020) observe that the English 'most' has two readings: a proportional reading (34-a) and a superlative reading (34-b)—interestingly, a language is more likely to have a superlative meaning of (their equivalent of) 'most' than a proportional meaning.

(34) a. 'Monika has visited most campsites in France.'
i.e. The number of campsites Monika has visited is greater than those she has not.

b. 'MONIKA has visited the most campsites in France.'
i.e. Out of the individuals in the situation, Monika has visited more campsites than anyone else.

Coppock, Bogal-Allbritten & Nouri-Hosseini (2020) propose that the superlative reading of 'most' is composed of 'many+-*est*' and thus can have a relative (or comparative) reading as in (34-b). A different relative reading could be attained if focus were placed on 'France'—suitable alternatives would be other countries.

They use the classifications below to type languages, which is based on both the literature from Bobaljik (2012) and Gorshenin (2012, as cited in Treis 2018).

- M: Morphological superlative marker (like the English *-est*)
- PERIPH: Analytic superlative marker
- CMPR+DEF: Comparative structure with a definiteness marker
- CMPR: Comparative structure
- CMPR+ALL: Comparative with universal comparison standard

While it is clear to see how these strategies function under the explicit strategy of comparison, the question concerning how a superlative is encoded under the implicit strategy arises. If this strategy is built on the comparee possessing the property, and the standard not, analysing how a superlative could be structured in languages that make use of the implicit strategy is a fascinating area of research.

Bochnak (2015) proposes that Washo (spoken in California and Nevada; USA) is a language that encodes comparison under the implicit strategy as it has no dedicated comparison morphology, and makes no reference to degrees. The gradable predicates of Washo are argued not to have a degree variable, and are instead vague predicates that are sensitive to context (Bochnak 2015). Clearly, this requires the lexical entry for 'tall' to be different from that of English (repeated in (36) from §3.3.1):

(35) $[\![\text{ tall}_{\text{Washo}}]\!]^{c} = \lambda\, x\, .\ x$ counts as tall in c
(Bochnak 2015:4)

(36) $[\![\text{ tall }]\!] = [\lambda d^{*} : d^{*} \in D_{d}.\ [\lambda x : x \in D_{e}.\ x \text{ is } d^{*}\text{-tall}]]$

Bochnak (2015) explains that Washo lacks degree morphology, including comparative morphemes and superlatives. Expressing a comparative, then, such as 'the man is taller than the woman' is given through the use of a conjoined comparative, where the comparison standard is the negated form of the positive: 'the man is tall, the woman is not tall.' (Bochnak 2015:15). Following this, to express a superlative, Washo uses the cross-linguistically common ALL strategy (as labelled by Bobaljik 2012), where the standard is expressed by a universal quantifier (Bochnak 2015). It is still encoded under the implicit strategy with a conjoined comparative. An example of a Washo superlative translates to 'My son is tall, everyone is not tall' (Bochnak 2015:24).

Ndebele also uses the ALL strategy from Bobaljik (2012), which can alternatively be labelled as the CMPR+ALL strategy (from Coppock, Bogal-Allbritten & Nouri-

Hosseini 2020), but since Ndebele employs the explicit strategy, and can encode degree arguments (unlike Washo), the lexical entries of Ndebele gradable properties look more similar to those of English.

3.5 Wrapping up the Grammar of Comparison

Before moving to the comparison data from Ndebele, I briefly summarise the main points discussed above.

Comparison constructions have three main components: the comparee, comparison standard and comparative predicate (which is generally a gradable property). A comparison construction orders both entities with respect to the measurement scale provided by the gradable property (Hohaus & Bochnak 2020).

Kinds of comparison constructions include the comparative proper and superlative, and languages differ as to which kinds they can express, and how these are expressed. Languages typically employ either the explicit strategy, where comparison is expressed by dedicated morphosyntax, or the implicit strategy, where the comparee possesses the property, and the standard does not.

Under these semantic strategies, some forms of comparison constructions can be classified as conjoined comparatives (as with Washo and Motu), particle comparatives (used in English) and exceed and locative comparatives which both occur in Ndebele, and are analysed further in §4 (see Stassen (1985) for a more detailed description of other comparative forms).

Finally, a superlative construction selects the entity or individual that possesses the property to the greatest extent—and languages vary as to how they encode this construction as well (Bobaljik 2012, Treis 2018). English uses the morphological superlative, and there is much discussion in the superlative literature on whether the superlative contains the comparative, that is, whether tall+est is composed of tall+-*er*+-*est* (Bobaljik 2012).

A further point of research examines the ambiguity between absolute and relative (or comparative) readings of superlatives. Focus seems to play a key role in disambiguating English superlatives (Tomaszewicz 2015, Bobaljik 2012, Heim 1999, Szabolcsi 1986). Since encoding superlatives varies cross-linguistically, two elements of analysis include examining whether the choice of superlative strategy in a given language actually provides both readings, and then, how these readings are disambiguated.

4 Comparison in Ndebele

In this chapter, I begin to look at how comparison constructions are encoded in Ndebele, mainly examining the comparative proper (§4.2), and the superlative construction (§4.3). I start with a brief look at the methodological processes in semantic fieldwork, before moving to the analysis of the data.

4.1 Methodology

The main aim of semantic fieldwork is to gain knowledge about utterance meaning in a language (Matthewson 2004). These meanings are typically context-dependent, and therefore not always directly accessible by native speakers' intuitions. Matthewson (2004) argues that although translation tasks are helpful, they only provide a clue to an utterance meaning and not a full result. They—and other text materials, such as language grammars or dictionaries—crucially do not provide any negative data, that is, what is *not* possible in a language (Matthewson 2011). Direct elicitation by way of acceptability judgement tasks (such as asking whether a sentence is acceptable in a given discourse context) and elicitation/production tasks (such as asking a language consultant to retell a story in the object language, using visual prompts) provides more detailed, specific information (Matthewson 2011).

I collected language data during online meetings with two language consultants (RG and KN) via basic translation tasks, and more complicated elicitation and acceptability judgement tasks. I used the storyboards 'What Matters' (Bogal-Allbritten, Coppock & Nouri-Hosseini 2018) and 'The Twin Dilemma' (Empson et al. 2020) to elicit data on superlative and comparison constructions respectively. Follow-up elicitation with native speakers allowed me to gain negative data and acceptability judgements on certain constructions. [1]

[1] A low-risk ethics application for this project was approved under the Ethics Committee at the School of Arts, Languages and Cultures, The University of Manchester (reference: 2020-10476-16680). See Appendices for the ethics approval, participant information sheet and consent form.

The language consultants both grew up in Zimbabwe, Southern Africa. KN spoke Ndebele at home, and learnt English and Shona (Bantu; Zimbabwe) as he grew up. He moved to England at aged 27 and has been living in the UK for 17 years. Similarly, RG (age 58) spoke Ndebele and Zulu at home, while learning English at school. She moved to England at age 37.

4.2 Forming the Comparative in Ndebele

Turning now to the data, I offer an initial analysis of the comparative in Ndebele in this section, showing that the comparative is formed with both the exceed comparative and the locative comparative. I argue that when expressing a greater-than ordering relation, both strategies are available, but with less-than relations, the locative comparative is greatly preferred. In these instances, the exceed comparative is not readily available, and is considered odd (though not strictly ungrammatical). In §4.2.1, I provide evidence for the use of the explicit strategy in Ndebele, and then analyse the comparative strategies in more depth in §4.2.2.

Before I introduce the predicative and adverbial comparatives in Ndebele, I present the positive construction in (37). The internal structure of the positive is likely made up of a subject and a predicate—in this case *-de* 'tall', prefixed by the adjectival concord of class one *mu-*.

(37) *U-mu-de.*
2ND.SG-1.ADJ-tall
'You are tall.'

Moving to the comparative proper in Ndebele, in the same way that Stassen (1985) describes the exceed comparative, Ndebele has a verb for encoding comparison that translates to 'pass' or 'exceed'. An example of a predicative comparative with *kwedlula* 'exceed' is shown in (38):

(38) *U Peta mu-de u-kwedlul-a u Monika.*
1 Peta 1.ADJ-tall 1SM-exceed-FV 1 Monika
'Peta is taller than Monika.'

(Lit.) 'Peta is tall, exceeding Monika.'

The verb *ukwedlula* 'exceed' in the above construction seems to be the only lexical verb in the construction, as *mude* 'high' or 'tall' is in the 'true set' of adjectives, with a class one adjectival prefix (although it could be argued to have verbal—or copula—properties for derivational purposes; this is considered in more depth in §4.2.2). The incentive to gloss *kwedlula* as 'exceed' comes mainly from other Bantu language analyses—Grout (1893) finds a similar comparative system in Zulu, where comparatives are expressed with a 'surpass'-verb. A production task provides further evidence for an 'exceed'-type meaning, as a speaker was asked to use *ukwedlula* in a sentence and produced (39). The sentence below can be used in the context of running a race, or in an academic achievement sense.

(39) *Ngi-za kwedlul-a Monika.*
1ST.SG-FUT pass-FV Monika
'I will pass Monika.'

Grout (1893) identifies an alternative comparative strategy in Zulu which makes use of a locative particle, which he translates as 'to' or 'from'. This is similar to Ndebele, where the locative particle *ku-* can be translated as 'on' or 'in'. The particle *ku-* introduces the standard of comparison by way of a locative phrase, as in (40) (which has the same meaning as the predicative comparative in (38)):

(40) *U Peta mu-de ku-lo Monika.*
1 Peta 1.ADJ-tall LOC-1.DEM Monika
'Peta is taller than Monika.'

(Lit.) 'Peta is tall on Monika.'

The motivation to gloss *ku-* as a locative particle comes from a set of production

tasks, shown in (41):

(41) a. *Ba-hambe ku-lo udaka.*
2SM-walk.IMM.PST LOC-DEM muddy grounds
'They walked on muddy grounds.'

b. *Um'-fana u-zalelwe ku-lo uhlupho.*
1-boy 1SM-born.PASS.PFV LOC-DEM poverty
'The boy was born in absolute poverty.'

Both strategies are also available in expressing adverbial comparatives, where the comparee's execution of the event denoted by the verb is compared to that of the standard. First, (42) is expressed through the exceed comparative:

(42) *U Lynne u-za-hlabel-el-a kakhulu u-kwedlul-a mina.*
1 Lynne 1SM-FUT-sing-APP-FV loud 1SM-exceed-FV 1ST.SG.PERS
'Lynne will sing louder than me.'

(Lit.) 'Lynne will sing loudly, exceeding me.'

Interestingly, an applicative suffix *-el-* is found in (42). An applicative suffix is a transitivising morpheme and works by introducing an additional argument slot (Sibanda 2004). Semantically, this suffix has many functions, such as providing a benefactive, or locative argument; the type of meaning changes dependent on the semantic requirements of the verb (Sibanda 2004). Here, I argue it provides a slot for the gradable property as without the *-el-* suffix, it gives a different meaning (43):

(43) *U Lynne u-za-hlabel-a kakhulu u-kwedlul-a mina.*
1 Lynne 1SM-FUT-sing-FV very.much 1SM-exceed-FV 1ST.SG.PERS
'Lynne will sing more than me.'

(Lit.) 'Lynne will sing very much, exceeding me.'

Further, a locative comparative used for an adverbial comparative is given in (44). Note that *ngcono* seems to be a lexicalised comparative form, as it translates to 'better', which is inherently comparative.

(44) *U Peta wa-gid-a ngcono ku-laye.*
1 Peta 1SM.PST-dance-FV better LOC-3rd.DEM
'Peta danced better than her.'

(Lit.) 'Peta danced better on her.'

Looking now at comparatives that express less-than relations, I show that the locative construction is preferred. From acceptability judgement tasks, I found that speakers were unlikely to accept a less-than construction with an exceed comparative. The predicative comparatives below in (45) and (46) demonstrate this:

(45) *U Monika um-fitshane ku-lo Peta.*
1 Monika 1SM-short LOC-1.DEM Peta
'Monika is shorter than Peta.'

(Lit.) 'Monika is short on Peta.'

(46) *#U Monika um-fitshane u-kwedlul-a u Peta.*
1 Monika 1SM-short 1SM-exceed-FV 1 Peta
Intended: 'Monika is shorter than Peta.'

(Lit.) #'Monika is short, exceeding Peta.'

At its core, *kwedlula* 'exceed' exhibits a sense of 'greater-than' and thus it seems fairly intuitive that this construction is dispreferred in a less-than ordering relation. It is clear to see that the locative comparative is broad in its usage, and allows for greater-than and less-than comparatives, whether predicative or adverbial, whereas the exceed comparative predominantly encodes those that express greater-than ordering relations (Table 1):

Table 1: Use of exceed and locative comparatives in predicative and adverbial comparative constructions

	Greater-than	Less-than
Exceed	✓	*X*
Locative	✓	✓

In order to ascertain whether the locative comparative arose in Ndebele for the sole purpose of expressing less-than relations requires a more diachronic study and goes beyond the scope of this project, but would be interesting for further research.

In the next section, I provide more examples of exceed and locative comparatives, proposing that the data show evidence for the explicit strategy.

4.2.1 Evidence for the Explicit Strategy

As previously mentioned, languages that employ the explicit strategy have a specialised morphosyntax which orders the comparee and standard by assigning a degree of the gradable property to each of them (Kennedy 2009). Analysing the use of strategy in a language is not trivial, but there are certain constructions that indicate the use of the explicit strategy. Two such constructions that function as diagnostics for the explicit strategy are differential degree questions and differential comparatives. These rely on a measure phrase (or similar) to specify the difference between the comparee and the standard.

Kennedy (2009) argues that measure phrases override the interpretation of the positive form of the gradable property precisely because they *can* combine with the property. Kennedy (2009) proposes that the composition of a measure phrase and a gradable property form a predicate that is not context-dependent, but crucially specifies the difference between two degrees on a scale. Essentially, constructions or contexts that force the comparative form of the gradable property, and remove the vague reading of the positive (whose form is inherently context-dependent) should provide an indication of the language's choice of semantic strategy (Kennedy 2009).

At a cross-linguistic level, Schwarzschild (2005, as cited in Beck et al. 2009) observes variation in where a measure phrase can occur. Some languages allow for measure phrases to occur in comparatives, and *also* with unmarked positive forms of the gradable property, as in (47), repeated from (10):

(47) 'Peta is 21 years **old**.'

Other languages permit the measure phrase in comparatives, but not in combination with unmarked adjectives. English, for example, does not seem to allow a measure phrase with all properties such as 'hot' (48):

(48) #'It is 36°C **hot** outside.'

Beck et al. (2009) claims that measure phrases quantify over degrees, so are of a semantic type $\langle\langle d, t\rangle, t\rangle$. They are then unable to combine directly with gradable properties of type $\langle d\langle, e, t\rangle\rangle$, thus Schwarzschild (2005, as cited in Beck et al. 2009) argues that the property undergoes a type shift to allow for an argument position for a measure phrase rather than a degree argument. To account for properties like 'hot' that cannot combine with a measure phrases, Schwarzschild (2005, as cited in Beck et al. 2009) holds that some properties are unable to undergo this type shifting.

Returning to the data from Ndebele, I argue that it is an explicit strategy language on the basis that it allows for differential comparatives and differential degree questions (and measure phrases therein).

First, I offer a differential comparative which encodes the greater-than relation. In (49), this is expressed via the exceed comparative, and the locative comparative is used in (50).

(49) *U Lynne m'-dala u-kwedlul-a u Monika ng-emi-nyaka emi-hlanu.*
1 Lynne 1SM-old 1SM-exceed-FV 1 Monika by-4-year 4.ENUM-five
'Lynne is five years older than Monika.'

(Lit.) 'Lynne is old, exceeding Monika by five years.'

(50) a. *U Lynne m'-dala ku-lo Monika ng-emi-nyaka emi-hlanu.*
1 Lynne 1SM-old LOC-1.DEM Monika by-4-year 4.ENUM-five
'Lynne is five years older than Monika.'

(Lit.) 'Lynne is old on Monika by five years.'

b. *U Lynne m'-dala ng-emi-nyaka emi-hlanu ku-lo Monika.*
1 Lynne 1SM-old by-4-year 4.ENUM-five LOC-1.DEM Monika
'Lynne is five years older than Monika.'

(Lit.) 'Lynne is old by five years on Monika.'

In (50), the measure phrase can occur after the standard (50-a), or between 'old' and the standard (50-b). Interestingly, the measure phrase in (49) cannot occur between 'old' and *ukwedlula* 'exceed' and thus is likely an adjunct. However an intensifier like *kakhulu* 'very much' can occur between them, as in (51):

(51) *U Peta mude kakhulu ukwedlula u Monika.*
1 Peta 1.ADJ-tall very.much 1SM-exceed-FV 1 Monika
'Peta is much taller than Monika.'

This is probably due to *kakhulu* 'very much' modifying 'tall', rather than occurring between the two constituents. However, the disallowed presence of a measure phrase between the property and exceed-verb could indicate a difference in the syntactic structures of the exceed and locative comparatives; a primary in-depth analysis is kept for the next section, §4.2.2.

Similarly to the predicative and adverbial comparative constructions, less-than differential comparatives are typically expressed by the locative comparative (52):

(52) *U Lynne m'-fitshane nge 2cm ku-lo Peta.*
1 Lynne 1SM-short by 2cm LOC-1.DEM Peta
'Lynne is two centimetres shorter than Peta.'

(Lit.) 'Lynne is short by two centimetres on Peta.'

Degree questions are also available in Ndebele. These constructions place a question word or phrase in the place of a measure phrase. In (53), *okunganani* 'how much' requests a measurement, and the answer[2] follows in (54).

[2]Note that more data is needed to gloss *okwe* correctly, as it could also be an equative marker or a possessive marker.

(53) *U Lynne mu-de oku-nganani?*
1 Lynne 1.ADJ-tall 15.REL-how.much
'How tall is Lynne?'

(54) *U Lynne mu-de okwe 170cm.*
1 Lynne 1.ADJ-tall about(?) 170cm
'Lynne is about 170cm.'

Differential degree questions are similar to degree questions in that the question word or phrase seeks an answer with a measure phrase. Examples are shown in (55) with an exceed comparative, and (56), with a locative comparative.

(55) *I-klasi ya-mi yokugida i-nde kanganani ukwedlula e-ka*
4-class 4.POSS-1ST.SG of.dance 4.ADJ-long how.much exceed 4.REL-of
Lynne?
Lynne
'How much longer is my dance class than Lynne's?'

(Lit.) 'My dance class is long how much exceeding that of Lynne's?'

(56) *I-klasi ya-mi yokugida i-nde kanganani ku-le-ka*
4-class 4.POSS-1ST.SG of.dance 4.ADJ-long how.much LOC-4.REL-of
Lynne?
Lynne
'How much longer is my dance class than Lynne's?'

(Lit.) 'My dance class is long how much on that of Lynne's?'

From (55), it is clear to see that *kanganani* 'how much' occurs between the property 'long' and the exceed-verb, raising questions about why the measure phrase cannot occur between these two. More research into question-formation in Ndebele, and further analysis of the internal structure of *kanganani* or *okunganani* 'how much' is necessary and would yield a better understanding of how measure phrases interact with comparison in Ndebele.

For the purposes of this dissertation, however, I argue that the data show that measure phrases can co-occur with comparison, that differential comparatives ((49) and (50)) are available in Ndebele, and that both of these demonstrate the use of

the explicit strategy. Additionally, the extent to which an individual possesses a property (those that are in the 'true set' of adjectives, in any case) can be specified by the assignment of an overt degree, thus showing properties are indeed explicitly gradable.

4.2.2 An Initial Analysis of Ndebele Comparatives

With the use of the explicit strategy, gradable properties that are explicitly gradable, and the ability to form differential comparatives, deriving the comparative in Ndebele is likely to be similar to English (and less like Washo or Motu, for example). In this section, I first discuss the gradable property, and follow this by drawing up a primary analysis of the structures of the exceed and locative comparatives.

If the gradable property belongs to the 'true set' of adjectives, it is generally prefixed by an adjectival marker. When combined with the constituent it is modifying, it functions as a small phrase formed from a subject and a predicate. Whether the predicate containing the property has copula-like properties has not been researched in Ndebele, but Gibson, Guérois & Marten (2019) argue that Bantu languages typically employ copulas, and encode them morphologically, prosodically, or omit the copula through a process known as 'copula-dropping' (Pustet 2003, as cited in Gibson, Guérois & Marten 2019).

Pustet (2003, as cited in Gibson, Guérois & Marten 2019) proposes that copula omission occurs with a certain set of grammatical categories, and that copulas are most likely to be omitted from adjectives than other predicates, such as nominal predicates. Without having researched the prosody of Ndebele and so purely looking on a morphological level, I propose that copula-dropping occurs in Ndebele with adjectives and suggest that a covert copula is contained within the positive, and therefore the comparative.

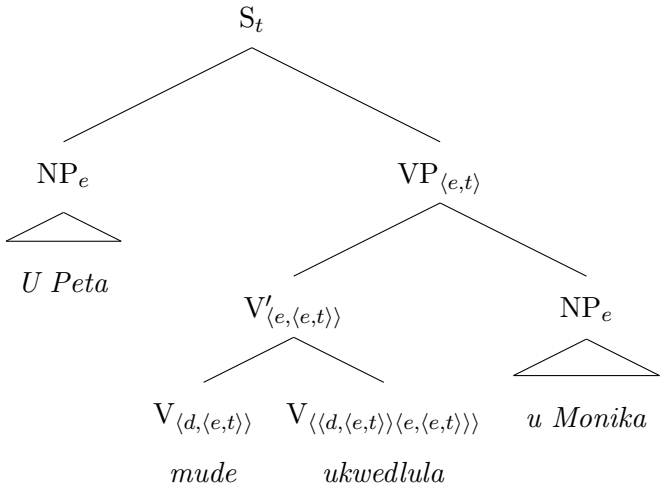
Motivation for the inclusion of a covert copula comes partly from a preference for

a unified analysis—placing the positive 'she is tall' in the past tense 'she was tall' requires the past tense prefix *wa-* to be attached to the property, making it more verb-like. Additionally, it is difficult to see how the locative comparative would be structured with a complete lack of copula, or any verbal material.

Beginning with an analysis of the exceed comparative, note that according to Dixon (2008) there are two kinds of exceed comparative: Type B, which is a serial verb construction, and Type C, which keeps the gradable property as a peripheral constituent. I argue that Ndebele uses a Type B construction, as the property is not a peripheral constituent (shown by its adjectival marker). A tree is given in (57), where the semantic types mirror those of the English comparative (although the structure is different; the property and exceed-verb are in the place of the English copula, and thus are not semantically vacuous).

(57) *'U Peta mude ukwedlula u Monika.'*

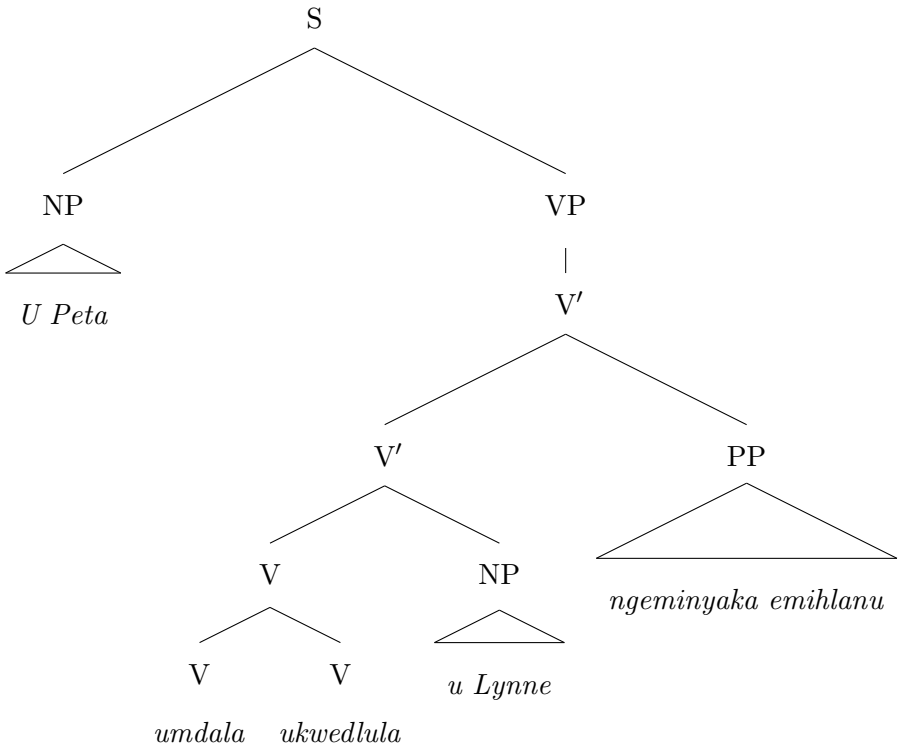
'Peta is taller than Monika.'



With differential comparatives under the exceed comparative, I suggest that the measure phrase is an adjunct (introduced by *ng-* 'by').

(58) *'U Peta umdala ukwedlula u Lynne ngeminyaka emihlanu.'*

'Peta is five years older than Lynne.'



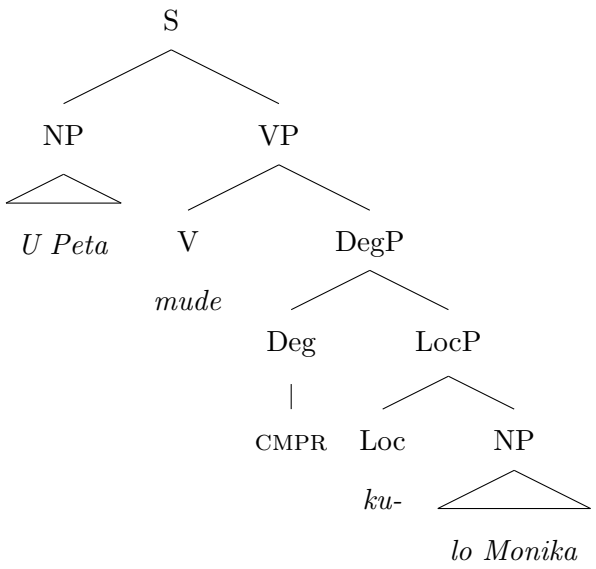
Next looking at the locative comparative, it is clear that there must be a different analysis as there is no explicit verb to establish the ordering relation. Either the locative particle *ku-* has a comparative function, or there is a covert comparative operator. From production tasks, the way in which *ku-* combines with the noun class of its complement appears identical to the way it functions in a comparison construction (combining with the standard), and thus the presence of a covert comparative operator provides a unified analysis for the locative marker. The syntactic trees below use CMPR to indicate the covert comparative operator.

As mentioned, an analysis with a covert copula (which I take to be contained in the property, hence naming the node 'V') would provide a verb for the locative comparative which otherwise seems verb-less, and does not provide much unity with standard analyses of sentences, which are generally analysed as having the VP as

the head of the phrase. Assigning the property a covert copula renders the locative comparative as a Type A2 construction, in the typology of Dixon (2008).

(59) *'U Peta mude kulo Monika.'*

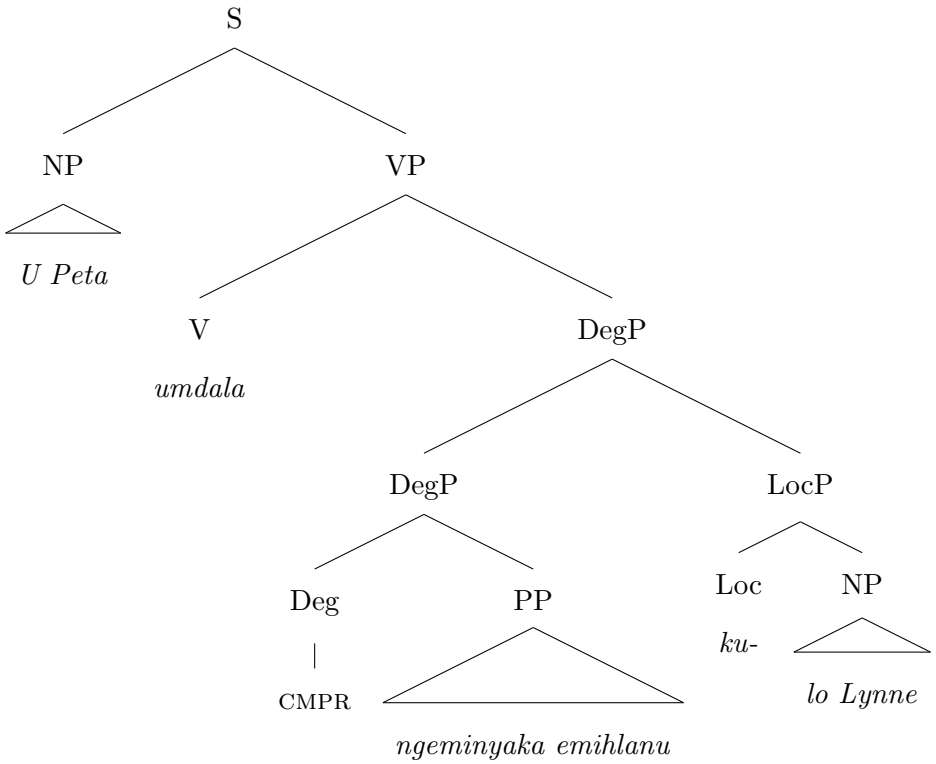
'Peta is taller than Monika.'



The addition of a covert comparative operator also provides some clarification on the appearance of the measure phrase after the property and before the standard (which is not permitted under the exceed comparative). The measure phrase is a PP, and functions as the sister of the CMPR node.

(60) *'U Peta umdala ngeminyaka emihlanu kulo Lynne.'*

'Peta is five years older than Lynne.'



Although I have presented a surface structure, achieving a full compositional analysis for (57) to (60) would require more research into the semantic types of measure phrases in Ndebele, examining whether they are able to type-shift the adjective, and thus quantify over them. If measure phrases do type-shift the gradable property in Ndebele, this could be an argument for the measure phrase occurring higher in the tree, or even functioning as the sister of the property's node.

4.3 Forming the Superlative in Ndebele

Moving now to the superlative, the data in this section show that Ndebele expresses these constructions with both the exceed and locative strategies, as with the comparative. In §4.3.1, I look at how the multiple readings of superlatives are disambiguated.

As indicated earlier, Ndebele expresses the superlative construction by way of the ALL strategy (in the terminology of Bobaljik 2012), or the CMPR+ALL strategy, using the classification from Coppock, Bogal-Allbritten & Nouri-Hosseini (2020).

On a surface level, the form of the superlative in Ndebele is very similar to that of the comparative: superlatives are built from the exceed comparative or the locative comparative. The comparee precedes the gradable property and the comparison standard is indicated by a universal quantifier *-(o)nke* 'all'.

Below, I present two predicative superlative constructions that encode a greater-than ordering relation: (61) employs the exceed strategy, and (62) the locative.

(61) U Ross nguye omu-de u-kwedlul-a bonke.
1 Ross COP 1.REL-tall 1SM-exceed-FV 2.all
'Ross is the tallest.'

(Lit.) 'Ross, it is he who is tall, exceeding all of them.'

(62) U Ross nguye omu-de ku-labo bonke.
1 Ross COP 1.REL-tall LOC-2.DEM 2.all
'Ross is the tallest.'

(Lit.) 'Ross, it is he who is tall on all of them.'

One key difference between the comparative and superlative constructions in Ndebele is the way in which the gradable property is expressed. With a predicative comparative, an adjectival marker is prefixed to the property, and the comparee and property belong to the same clause. However with a superlative construction, the prefix is a relative marker, and the gradable property follows a copula phrase 'it is [comparee] who is [gradable property]'. Further research into the underlying structure and use of an overt copula in Ndebele superlatives may show focus could play a role in their meaning, and could tentatively relate to the definite nature of superlatives in English.

Within the attributive superlative 'the tallest teacher', I find the same pattern—

both the exceed strategy and locative strategy are available ((63-a) and (63-b)), and the gradable property follows a copula phrase:

(63) Context: There are teachers in the staff room, waiting for the staff meeting to start. Teacher A asks whom they are waiting for and Teacher B replies, "We are waiting for Mr K." At Teacher A's confused look, Teacher B clarifies:
Sentence: "He is the tallest teacher."

a. *Ng-um-balisi omu-de u-kwedlul-a bonke aba-balisi.*
COP-1-teacher 1.REL-tall 1SM-exceed-FV 2.all 2-teacher
'He's the tallest teacher.'
(Lit.) 'He is the teacher who is tall, exceeding all the teachers.'

b. *Ng-um-balisi omu-de ku-labo bonke aba-balisi.*
COP-1-teacher 1.REL-tall LOC-2.DEM 2.all 2-teacher
'He's the tallest teacher.'
(Lit.) 'He is the teacher who is tall on all the teachers.'

Note that the example above specifies the standard of comparison, limiting 'all' to the specific group of teachers and consequently could potentially be classed as Type S (a scope superlative), according to the terminology of Gorshenin (2012, as cited in Treis 2018). These kinds of constructions are based on the positive or comparative construction and explicitly express the scope, that is, identifying the group from which the comparee is selected (Gorshenin 2012, as cited in Treis 2018). Interpreting these expressions requires that there be pre-existing knowledge that the comparee is a member of the group presented by the standard and as such, it is not grammaticalised (Gorshenin 2012, as cited in Treis 2018).

As described earlier, when encoding the less-than relation in a comparative construction, the exceed comparative is dispreferred, and the locative comparative readily available. With less-than superlative constructions, however, this does not appear to be the case—both strategies are able to describe a situation where the comparee possesses the gradable property to the greatest extent (even if this gradable property seems inherently less-than, like 'short' or 'small'). In (64), an exceed comparative

and (65), a locative comparative are used to describe the smallest kitten[3].

(64) *Ngi-fun-a* *um-akiti* *om-ncinyane* *ukwedlula* *bonke!*
1ST.SG-want-FV 1-kitten 1.REL-small exceed 2.all
'I want the smallest kitten!'

(Lit.) 'I want the kitten which is small exceeding them all!'

(65) *Ngi-fun-a* *um-akiti* *om-ncinyane* *ku-labo* *bonke!*
1ST.SG-want-FV 1-kitten 1.REL-small LOC-2.DEM 2.all
'I want the smallest kitten!'

(Lit.) 'I want the kitten which is small on them all!'

It could be argued that the exceed strategy is acceptable purely because the gradable property 'small' is possessed to the greatest extent, however the exceed strategy is also seen in constructions as in (66), where the property of 'favourite' (or the event of 'NEG love [object]') is possessed to the least extent.

(66) *I-phizi* *yi-zo* *im-bhida* *angayithandiyo* *ukwedlula*
8-pea COP-8.PRON 4-vegetable 1SM.REL-NEG-4OM-love-RS exceed
zonke.
8.all
'Peas are her least favourite vegetable.'

(Lit.) 'Peas, they are the vegetable that she does not love exceeding them all (vegetables).'

Outside the 'true set' of adjectives, it seems that a superlative construction is more context-dependent, and the construction is not strictly limited to an exceed or locative comparative. In (67) and (68), the superlative sense is understood from the intensifier *kakhulu* 'very much' or 'a lot'.

[3]I have glossed 'kitten' as class one, but a different translation *ikati* 'cat' renders it class five with a plural *amakiti* in class six, so its class membership is undetermined.

(67) U Monika ng-um-twana omu-hle kakhulu.
1 Monika COP-1-child 1.REL-cute very.much
'Monika is the cutest.'

(Lit.) 'Monika is a child who is very cute.'

(68) *Emulini yangakwabo, u Lynne nguye o-hlek-is-a aba-nye*
1.in.family 1.POSS.their 1 Lynne COP 1.REL-funny-CAUS-FV 2-other
kakhulu.
very.much
'In their family, Lynne is the funniest.'

(Lit.) 'In their family, Lynne, it is she who causes the others to laugh a lot.'

The form, therefore, of the superlative construction with the 'true set' of adjectives is very similar to that of the comparative, but the exceed comparative seems to have a broader range of uses in the superlative domain, since it functions in both greater-than and less-than constructions.

4.3.1 Accounting for the Superlative Ambiguity

Given that Ndebele is able to encode superlative constructions, a subsequent point of investigation concerns the two readings of the superlative, examining how they are disambiguated.

As described in §3.4.2, English differentiates between the absolute and relative readings of superlatives by way of focus, and thus intonation or emphasis play a role. In Ndebele, focus is not the primary disambiguating factor; the two readings are distinguished by morphological means, through changing the noun class of the standard. Before presenting the data, I offer the context in which the sentences were produced.

> Context: Of all the mountains in the world, Mount Everest is the tallest (8,849m), but no one in this situation climbed it. Lynne climbed Mount Kilimanjaro (5,985m) and Peta climbed Snowdon (1,085m) (which we are taking to be the shortest mountain in the world). Everyone else in the situation climbed Mount Fuji (3,776m).

In examples (69) (an exceed comparative) and (70) (a locative comparative), the interpretation of the superlative is the absolute reading, since Peta climbed the shortest mountain out of all the mountains. The universal standard is *zonke* 'all', and refers to the mountains, as it is prefixed by a class 10 marker. Note that I gloss *intaba* 'mountain' as class nine and thus its plural belongs to class 10.

(69) *U Peta wa-khwel-a in-taba e-mfitshane ukwedlula zonke.*
1 Peta PST-climb-FV 9-mountain 9.REL-short exceed 10.all
'Peta climbed the shortest MOUNTAIN.'

(Lit.) 'Peta climbed the mountain which was short, exceeding them all.'

(70) *U Peta wa-khwel-a in-taba e-mfitshane ku-lazo zonke.*
1 Peta PST-climb-FV 9-mountain 9.REL-short LOC-10.DEM 10.all
'Peta climbed the shortest MOUNTAIN.'

(Lit.) 'Peta climbed the mountain which was short on them all.'

The following two examples demonstrate the relative reading, as Lynne climbed the tallest mountain out of the set of climbers, but crucially did not climb Mount Everest, the tallest mountain in the world. The exceed comparative is used in (71), and the locative in (72).

(71) *U Lynne wa-khwel-a in-taba e-nde ukwedlula*
1 Lynne PST-climb-FV 9-mountain 9.REL-tall exceed
ezakhwelwa ng-abanye bakhe.
10.REL-climb.PASS by-2.other 2-3RD.POSS
'LYNNE climbed the tallest mountain.'

(Lit.) 'LYNNE climbed the mountain which was tall, exceeding the ones climbed by her others.'

(72) *U Lynne wa-khwel-a in-taba e-nde ku-labo bonke.*
1 Lynne PST-climb-FV 9-mountain 9.REL-tall LOC-10.DEM 10.all
'LYNNE climbed the tallest mountain.'

(Lit.) 'LYNNE climbed the mountain which was tall on them all (climbers).'

The difference can be seen more clearly within the locative comparative, as the

universal standard is specified by *bonke* 'all', with a class two prefix, relating 'all' to the other climbers.

From examples (69) to (72), it appears that the superlative is disambiguated morphologically, and the interpretation is dependent on the encoding of the universal standard.

4.4 Wrapping up the Data

In light of the data presented above, it is evident that there are two main strategies for expressing comparison: the exceed and the locative comparative.

Within the comparative proper, the locative comparative is broader in its usage, occurring in both greater-than and less-than constructions, whereas the exceed comparative is unlikely to appear in less-than constructions. I argue that the gradable property generally contains a covert copula, and that the structure of these comparative strategies differ. The exceed comparative is built around a serial verb construction, where the exceed-verb encodes the comparative, whereas the locative comparative carries a covert comparative operator.

The superlative construction does not restrict the use of the exceed comparative to only greater-than constructions, but both comparatives are available to express the superlative.

Both the absolute and relative readings of the superlative are available in Ndebele, and the disambiguating factor is an overt morphological difference in the standard.

5 Summary

I conclude in this section, first summarising the data with respect to the wider area of cross-linguistic comparison (§5.1) and finish with looking at the wider domain of comparison, and propose ideas for further research and analysis (§5.2).

5.1 Concluding Remarks

This dissertation aimed to contribute to the wider cross-linguistic typology of comparison by providing an initial inventory of comparison constructions in Ndebele.

Comparison is a key area of research within cross-linguistic variation, and cross-linguistic semantics. It is agreed that the main components of a comparison construction are the comparee, comparison standard and comparative predicate. Languages differ fairly systematically as to how they encode these elements and establish them in an ordering relation. Under the explicit and implicit strategy, there are multiple comparative forms attested across languages, such as the conjoined, particle, exceed and locative comparative.

Through analysing the Ndebele data, I argue that the comparative proper is encoded under the explicit strategy (shown by the availability of differential comparatives) by way of two forms: the exceed and the locative comparative—both of which are acceptable in greater-than constructions. To encode a less-than comparative, the exceed comparative is markedly dispreferred. Deriving the Ndebele predicative comparative under the exceed comparative seems similar to the composition of the English comparative, since the exceed-verb makes the comparative interpretation explicit. I argue that the locative comparative contains a covert comparative operator allowing the comparative reading to arise.

Finally, when it comes to the superlative constructions, both comparative strategies are available, regardless of whether the property is possessed to the greatest extent or to the least extent. I claim that Ndebele disambiguates the absolute and relative

readings of superlatives by way of morphological marking on the standard. This is different from English which disambiguates the superlative readings by way of focus.

5.2 Outlook

While this dissertation has provided some insight into the Ndebele comparison construction inventory, much is left to be investigated. As mentioned in §4.2.1 and §4.2.2, more analysis of the internal structure of measure phrases is required, looking at whether they can quantify over gradable properties.

Ideas for more research include looking at other constructions in the area of comparison, for example, comparative conditionals (73), and constructions where the comparison standard is a whole phrase (74). These would yield more evidence for how phrases and comparison constructions are structured in Ndebele.

(73) *'The faster Lynne runs, the sooner she'll arrive.'* Comparative conditional

(74) *'The bridge is longer than the river is wide.'* Clausal standard

A further point of cross-linguistic variation concerns the equative construction (75).

(75) a. *'Peta is as tall as Kath.'* Unmodified equative
b. *'Peta is twice as old as Monika.'* Factorial phrase equative

Thus far there has not been much research into equatives across languages and due to this, cross-linguistically common strategies for encoding the equative have not been documented. In Ndebele, for example, would the equative use either of the comparative strategies, or is there a word that translates as 'as', similarly to English? Further questions arise when investigating how this construction would be encoded under an implicit strategy. As this does not explicitly make use of degrees, how would the identical degree of the property be ascribed to both entities? With this in mind, developing a cross-linguistic typology of equatives would be a fascinating topic for further research.

6 Appendices

Appendix I

Arts, Languages and Cultures School Panel

School of Arts, Languages and Cultures
Samuel Alexander Building A21
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Ref: 2020-10476-16680

06/11/2020

Dear Siena Weingartz, , Dr Vera Hohaus

Study Title: Ndebele Research for UG Dissertation

Thank you for submitting your low risk ethics application for the project named above which has now been approved by your supervisor and logged with the Ethics Administrator.

Please ensure you read the information on the Research Ethics website in relation to data collection in the COVID environment as well as the guidance issued by the University in relation to face-to-face (in person) data collection both on and off campus.

A word document version of this guidance is also available.

If anything untoward happens during your research or any changes take place then please inform your supervisor and/or programme director immediately.

Please accept this email as confirmation that your low risk Ethical Approval application has been approved and you are now able to carry out your research.

Please let us know if you have any additional queries by emailing: salc.ethics@manchester.ac.uk

Yours sincerely,

Miss Claire Walker

Arts, Languages and Cultures School Panel

Appendix II

MANCHESTER 1824
The University of Manchester

The Grammar of Ndebele - Participant Information Sheet (PIS)

You are being invited to take part in a research study, analysing the grammar and area of comparison in Ndebele. Before you decide whether to take part, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the following information carefully before deciding whether to take part and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information.

About the research

Who will conduct the research?
The primary researcher is Siena Weingartz (School of Arts, Languages and Cultures, The University of Manchester).

What is the purpose of the research?
The aim of the research is to understand how speakers of Ndebele talk about comparison, looking at, for example, how speakers would say 'Alpha is as kind as Tango' or 'Charlie is taller than Alpha'.

Why have I been chosen?
You have been selected for this research as a native speaker of Ndebele. As a native speaker, your acceptability judgements, translations and intuitions are invaluable to language documentation.

Will the outcomes of the research be published?
The outcome of the research will be used in an undergraduate dissertation. Please note that the anonymised data could be used in further projects.

Who has reviewed the research project?
The project has been reviewed by the School of Arts, Languages and Cultures Ethics Committee, The University of Manchester.

Who is funding the research project?
The Sobey-Jones Educational Foundation has provided the researcher with funding to reimburse participants for their time.

What would my involvement be?

What will I be asked to do?
The (informal) process would include asking questions regarding your intuitions about your native language, some translation tasks, elicitations and written examples. These sessions would last one hour, over Zoom (please note, these will *not* be recorded). The study will run from November to early April. Up to 20 one-hour sessions would happen.

Will I be compensated for taking part?
Yes, you will be reimbursed for your time at £15/hour.

What happens if I do not want to take part or if I change my mind?
It is up to you to decide whether or not to take part. If you would like to take part, please keep this information sheet, fill out and sign the consent form and return it to Siena Weingartz (siena.weingartz@student.manchester.ac.uk). Copies of the consent form will be held by you, the participant, the researcher, Siena Weingartz and her supervisor, Dr. Vera Hohaus.

Please note that if you decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself. However, it will not be possible to remove your data from the project once it has been anonymised as we will not be able to identify your specific data. This does not affect your data protection rights.

If you decide not to take part you do not need to do anything further.

Data Protection and Confidentiality

What information will you collect about me?
In order to participate in this research project we will need to collect information that could identify you, called “personal identifiable information”. Specifically we will need to collect:

- your age
- your gender
- where you grew up as a child

Under what legal basis are you collecting this information?
We are collecting and storing this personal identifiable information in accordance with data protection laws which protect your rights. These state that we must have a legal basis (specific reason) for collecting your data. For this study, the specific reason is that it is ‘a public interest task’ and ‘a process necessary for research purposes’.

What are my rights in relation to the information you will collect about me?
You have a number of rights under data protection law regarding your personal information. For example you can request a copy of the information we hold about you.

If you would like to know more about your different rights or the way we use your personal information to ensure we follow the law, please consult our Privacy Notice for Participants (http://documents.manchester.ac.uk/display.aspx?DocID=37095).

Will my participation in the study be confidential and my personal identifiable information be protected?
In accordance with data protection law, The University of Manchester is the Data Controller for this project. This means that we are responsible for making sure your personal information is kept secure, confidential and used only in the way you have been told it will be used. All researchers are trained with this in mind, and your data will be looked after in the following way:

- Your name and any other identifying information will be assigned to a pseudonym. Only the research team will have access to the key that links this pseudonym to your personal information.
- Your data will be kept on an encrypted device and if needed, uploaded to Dropbox; only able to viewed by the research team.
- Your data, contact details and consent form will be stored for up to five years on an encrypted device. Any hardcopies will be kept locked away, accessible only to the research team.

Please also note that individuals from The University of Manchester or regulatory authorities may need to look at the data collected for this study to make sure the project is being carried out as planned. This may involve looking at identifiable data, but all individuals involved in auditing and monitoring the study will have a strict duty of confidentiality to you as a research participant.

Complaints

What if I have a complaint?

If you have a complaint that you wish to direct to members of the research team, please contact either:
Name: SIENA WEINGARTZ (primary researcher)
Email: siena.weingartz@student.manchester.ac.uk

Name: DR. VERA HOHAUS (supervisor)
Email: vera.hohaus@manchester.ac.uk

If you wish to make a formal complaint to someone independent of the research team or if you are not satisfied with the response you have gained from the researchers in the first instance then please contact: The Research Ethics Manager, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester, M13 9PL, by emailing: research.complaints@manchester.ac.uk or by telephoning 0161 275 2674.

If you wish to contact us about your data protection rights, please email dataprotection@manchester.ac.uk or write to: The Information Governance Office, Christie Building, The University of Manchester, Oxford Road, M13 9PL at the University and we will guide you through the process of exercising your rights.

You also have a right to complain to the Information Commissioner's Office (https://ico.org.uk/make-a-complaint/) about complaints relating to your personal identifiable information. Tel: 0303 123 1113

Contact Details

If you have any queries about the study, or would like to take part, then please contact the researcher:
Name: **SIENA WEINGARTZ** (primary researcher)
Email: **siena.weingartz@student.manchester.ac.uk**
Contact The University of Manchester: +44 (0)161 306 6000

Appendix III

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The Grammar of Ndebele - Consent Form

If you are happy to participate after reading the Participant Information Sheet, please complete and sign the consent form below:

	Activities	Initials
1	I confirm that I have read the attached information sheet (Version 1, Date 10/10/2020) for the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.	
2	I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to myself. I understand that it will not be possible to remove my data from the project once it has been anonymised and forms part of the data set. I agree to take part on this basis.	
3	I agree that any data collected may be published in anonymous form in academic books, reports or journals.	
4	I understand that data collected during the study may be looked at by individuals from The University of Manchester or regulatory authorities, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my data.	
5	I agree that any anonymised data collected may be shared with researchers and supervisors.	
6	I agree that the researchers may retain my contact details in order to provide me with a summary of the findings for this study.	
7	I agree that the researchers/researchers at other institutions may contact me in future about other research projects.	

Data Protection

The personal information we collect and use to conduct this research will be processed in accordance with data protection law as explained in the Participant Information Sheet and the Privacy Notice for Participants (http://documents.manchester.ac.uk/display.aspx?DocID=37095).

_____	_____	___/___/_____
Name of Participant	Signature	Date
_____	_____	___/___/_____
Name of person taking consent	Signature	Date

You, the researcher and the supervisor will each keep a copy of this form.

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