The path to verbal bodily diagnostics in isiXhosa

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Abstract

This article explores the manner in which deverbal nominals derived from verbs related to bodily processes manifest themselves within the Generative Lexicon paradigm. The paramount idea is that, the devices found in the lexical semantic structure are more than adequate in explaining the different interpretations of the deverbal nominals, as they are found in different noun classifications. This is illustrated in the article, firstly, by utilising the semantics of noun classes in Proto-Bantu. Secondly, I briefly looked at the typology of deverbal nominals derived from Setswana and isiXhosa to determine any differences in terms of their derivation. Thirdly, I analysed the deverbal nominals using de-compositional lexical semantics.

Keywords: Deverbal nominal; classification; composition; generative; interpretation.

1.   Introduction

Verbal nominalisation has been the subject of many incisive linguistic enquiries over the years. In many instances, the results of such studies have led to dichotomous scales with binary structures. One structure comprises of derived nominals with verbal characteristics and the other with nominal characteristics. Alexiadou and Grimshaw (2008) explored the properties of the two theories of nominalisation. The structural model advances the idea that some nouns contain VPs and/or verbal functional layers. The other paradigm, advances the notion that the verbal properties of deverbal nouns result from the event structure and argument structure of the DPs that they head. In this study, though reference made in regards to the lexical semantic structure of deverbal nominals, emphasis will be on derived nouns with a bias for nominal characteristics.

The pertinent question is, *what is nominalisation?* The morpho-syntactic features of nominalisations have been studied since the 1970s (Chomsky 1970; Jackendoff 1975) and others. Chomsky (1970) distinguished two types of nominalisation, lexical and syntactic nominalisation. Anyanwu and Omega (2015: 2) describe lexical nominalisation as one of the derivational processes that derive a noun from some other lexical category, typically a verb or adjective.

Taher (2015: 32) cites Janigova (2008: 9) who defines nominalisation as a process of conveying a verb related meaning by a noun phrase whose underlying structure is clausal. Retoré and Real-Coelho (2015: 2) describe nominalisation as 'nouns derived from other syntactical categories, especially deverbals that derive from verbs'.

Martin (2009: 832) advances the notion that derived nominals be taken as the last stage of nominalisation scale, and that nominalisation refers to the process by which certain verbal categories are turned into a nominal group. This process is prevalent in most African languages and it manifests itself through prefixation and suffixation. Comrie and Thompson (1985: 349) suggest that 'nominalisation' means in essence 'turning something into a noun'.

2.   The semantics of noun classes in Proto-Bantu

Denny and Creider (1986: 217) acknowledge the problem of deciding the kind of system encoded by the gender class markers which are prefixes on the noun. They state that a number system determines the prefixes and classes in a Bantu language, and the noun class by themselves have no overall intrinsic semantic content. They are of the view that the bulk of noun prefixes are associated with configurational classes according to whether there is solid shape or outline shape as the basis of classification. The four configuration classes 3/3, 5/6, 9/10 and 11/10 are listed with their semantic interpretation below.

2.1   Class 3/4 extended (long)

Concrete:
i.	*-bidi*	'body'
ii.	*-caŋga*	'sandy island (usually elongated)'
iii.	*-nue*	'finger'

Concrete problematic:
iv.	*-bombó*	'forehead (lenght cultural valued)'
v.	*-díma*	(5/6) 'bat'
vi.	*-gu̜ba*	(only singular) 'bellows'

Abstract:
vii.	*-dimo*	'work (cultivation)'
viii.	*-kindo*	'football'
ix.	*-yáka*	'year'
x.	*-yi̜nci*	'daytime (temporal extension)'

2.2   Class 5/6 non-extended (rounded, protruded, bunched)

Concrete:
xi.	*-bééde*	'breast'
xii.	*-coká*	'axe (i.e., the head)'
xiii.	*-júba*	'(only singular) sun'

Concrete problematic:
xiv.	*-kúpa*	(3/4, 7/8) 'bone (protrusion)'
xv.	*-papá*	(11/10) 'wing (protrusion)'
xvi.	-tú	(15/6) 'ear (differentiate from –tú 3/4 head)'

Abstract:

xvii.	*-júị*	'voice'
xviii.	*-kúá*	'inheritance'
xix.	*-páca*	'twin'

2.3   Class 9/10: non-extended, outline figure

Concrete:

xx.	*-bambo*	(7/8, 11/10) '(for holding down the edge)'
xxi.	*-já*	(only singular) 'outside'
xxii.	*-yuŋgú*	'cooking pot'

Concrete problematic:

xxiii.	*–boga*	'vegetable'
xxiv.	*-da*	(only singular) 'abdomen'
xxv.	*-pígo*	'kidney'

Abstract:

xxvi.	*-joodí*	'dream'
xxvii.	*-pépo*	'cold wind'

2.4   Class 11/10: non-extended, outline figure

Concrete:

xxviii.	*-papá*	'wing (protrusion)'
xxix.	*-bambo*	'peg'
xxx.	*-kígé*	'eyebrow'

Concrete problematic:

xxxi.	*-cace*	'spark (hole in darkness)'

2.5   Class 9: insufficient data

Concrete:

xxxii.	*-dedụ*	'beard'
xxxiii.	*-kúnde*	'edible beans'

2.6   Class 10: insufficient data

xxxiv.	*-kuŋgu*	'dust'
xxxv.	*-kú*	'death'
xxxvi.	*-pádá*	'baldness'

The majority of African languages derive nouns from other word categories more especially the verb category by utilising prefixes ad suffixes. Mletshe (2017) cites Du Plessis (1997: 21) who is of the view that 'the changing of a verb into a noun occurs in isiXhosa by the means of the rules of lexical derivation', as can be illustrated in (1) below:

(1)	a.	*dada*	'swim'	>	*indadi*	'swimmer'
	b.	*cula*	'sing'	>	*umculi*	'singer'
	c.	*hamba*	'go'	>	*uhambo*	'journey'
	d.	*thetha*	'talk'	>	*intetho*	'speech'

3.   A brief typology of deverbal nominals in Setswana

Krüger (2006: 113) is of the view that the linear syntagmatic level deverbatives include the following types of morphemes arranged in the given order:

(a)   Noun class prefix
(b)   Verbal root
(c)   Deverbative suffix

Krüger considers noun classes as being central in determining the semantic value of deverbatives, and places deverbative endings as being crucial in distinguishing the interpretation of deverbal nouns, as is illustrated in (2) with deverbatives in noun classes 1 (*mo*) and 2 (*ba*) below:

3.1   With suffix -i

(2)   a.   *go-dira*   'to do, to work'   >   *modiri*   'worker, servant'
       b.   *go-busa*   'to govern'   >   *mmusi*   'governor'
       c.   *go-bega*   'to report'   >   *mmeg*i   'reporter'

The deverbatives in (2) denote human as ordinary performers of the process without any additional semantic properties. Krüger argues that if the infinitive occurs in the passive form the basic ending is retained, as is shown in (3) and (4) respectively.

3.2   With suffix -a

(3)   a.   *go-golegwa*   'to be captured' >   *mogolegwa*   'a capture'
       b.   *go-lalediwa*   'to be invited' >   *molalediwa*   'a guest'
       c.   *go-lekana*   'to be alike'   >   *molekana*   'a friend'

3.3   With verbal prefixes

(4)   a.   *go-ithuta*   'to learn, to study' >   *moithubi*   'a scholar'
       b.   *go-re-swel*a   'to die for us'   >   *moreswedi*   'a redeemer'
       c.   *go-nthata*   'to like me'   >   *monthati*   'one who likes me'

Krüger suggests that deverbatives in noun classes 3 (*mo*) and 4 (*me-*) indicate the manner or method according to which the action is executed or the result or consequence of the action, as is shown in (5), whereas a small number of deverbatives assume the suffix **-*a***, as is illustrated in (6) below.

3.4   With suffix -o

(5)   a.   *go-epa*   'to dig'   >   *moepa*   'mine'
       b.   *go-bina*   'to dance'   >   *mmino*   'manner of dancing'
       c.   *go-leboga*   'to thank someone'   >   *molebogo*   'manner of thanking'

3.5   With suffix -a

(6) a.   *go-bopa*   'to mould, to form' >   *mmopa*   'clay for pottery'
     b.   *go-laetsa* 'to send a message' >   *malaetsa*   'message'
     c.   *go-laletsa* 'to invite'   >   *molaletsa*   'invited to give aid'

4.   The morphology of deverbal nominals in isXhosa

Du Plessis (1997) suggests that nouns in Bantu languages are specified for a certain noun class which are recognised through prefixes, and that the changing of a verb into a noun occurs by means of lexical derivation, as is illustrated in (7) below.

(7) a.   *sebenza*   'work'   >   *umsebenzi*   'worker'
     b.   *gula*   'sick'   >   *umguli*   'sick person'
     c.   *baleka*   'run'   >   *imbaleki*   'runner'

5.   Generative Lexicon paradigm

The purpose of this section is to briefly outline the salient devices used in Generative Lexicon (henceforth GL) paradigm that are relevant for this study. Research on lexical information is mostly situated on the argument and event structure properties, particularly, in regards to deverbal nominals and their corresponding verbs. The analyses presented here is situated in pustejovsky's (1996) Generative Lexicon theory, particularly, the analysis on the semantics of nominals.

Pustejovsky (1996) contends that lexical meaning within the GL can best be situated in four different levels of representation, namely, argument structure, qualia structure, event structure and lexical inheritance structure.

Busa (1996: 27) advances the notion that 'GL provides us with tools of great descriptive power for the semantics of lexical items and with the devices that allow us to make a lot of important generalisations'. Busa (1996) further states that 'the GL is able to handle nominalisation, viewed in syntax as a category changing operation, which requires the positing of an abstract verbal category **auth** for the nominal **author**.

The focus here is on the lexical semantic representation wherein the argument structure is explored with the aim of determining how it is syntactically realized. The deverbal nominals will be illustrated in phrase markers in the form of a noun phrase (NP) dominated by a determiner phrase (DP) projection. Abney (1987) advanced functional categories projection for the NP. Visser (2008: 16) specifies that 'the three vowels ***i-***, ***u-*** and ***a-*** may respectively occur as the preprefix of nouns in the different noun classes in isiXhosa can be viewed as allomorphic realizations of the Determiner category, as is illustrated in (8)'.
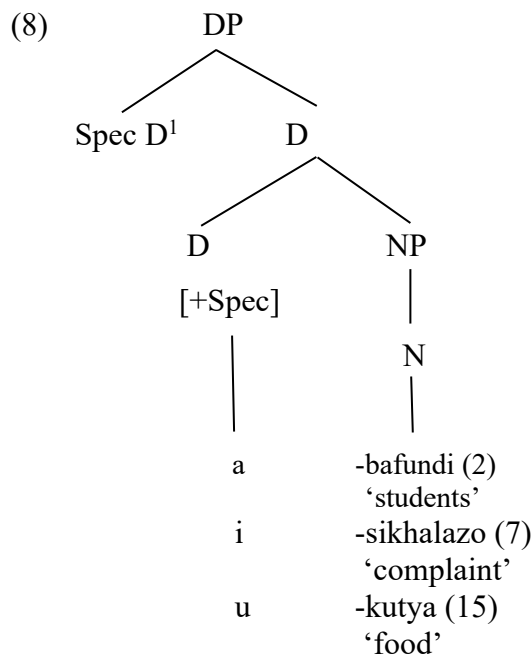
(8)   DP

Spec D¹   D

D   NP
[+Spec] |
| N
| |
a   -bafundi (2)
          'students'
i   -sikhalazo (7)
          'complaint'
u   -kutya (15)
          'food'

Figure 1: Allomorphic realization of the preprefix as head of DP

6.   Deverbal senses in isiXhosa Generative lexicon

6.1   Verbs relating to bodily processes

Levin (1993: 118) describes verbs relating to the body 'as verbs that relate to the involuntary bodily processes, that is, processes that are typically not under the control of the person that experiences them'. The lexical schematic representation in Tables 1 and 2 displays diverse deverbal noun classes 1, 3, 5, 7, 8, 9 and 11 derived from varying intransitive verbs relating to the body. This paper will focus only on a single sequence of derived nouns from intransitive verbs relating to the body will be generatively analysed. The main focus of this section is on the lexical information of the deverbal nouns derived from various noun classes. This will help in showing how deverbal nominals map out in the three different levels of representation, namely argument structure, qualia structure and event structure, and thereby impart the compositional interpretation of the deverbal nominals in context.

The lexical representation in Table 2 displays the various sub-areas of the derived nouns from various intransitive verbs relating to bodily processes are mapped in terms of semantic type, such as Person, Result, Action, manner of event, Action/ Result, State and Event. Each deverbal nominal class is designated by means of the binary feature (+) in the various semantic types.

	class 1	class 3	class 5	class 7	class 8	class 9	class 11
thimla 'sneeze'	*umthimli* 'sneezing Person'	*umthimlo* 'manner of sneezing'	*ithimla* 'chronically sneezing person'	*isithimli* 'severely sneezing person'	*izithimli* 'severely sneezing people'	*intimlo* 'act of sneezing'	*uthimlo* 'way of sneezing'
lila 'cry'	*umlili* 'crying person'		*ilila* 'wailing person'	*isililo* 'extreme cry'	*izililo* 'extreme screams'		*ulilo* 'way of crying'
zamla 'yawn'	*umzamli* 'yawning person'	*umzamlo* 'manner of yawning'		*isizamli* 'expert yawning person'	*izizamli* 'expert yawning people'		*uzamlo* 'yawning'
dangala 'tired/ weak'	*umdangali* 'lazy person'	*umdangalo* 'laziness'	*idangala* 'extremely lazy person'	*isidangali* 'weak person'	*izidangali* 'weak people'	*indagalo* 'fatigue'	*udangalo* 'tiredness feeling'
khohlela 'cough'	*umkhohleli* 'coughing person'	*umkhohlelo* 'manner of coughing'	*ikhohlela* 'extremely coughing person'	*isikhohlela/i* 'phlem/ coughing person	*izikhohlela* 'phlems'	*inkohleli* 'habitually coughing person'	*ukhohlelo* 'way of coughing'

Table 1: Noun class classification

class	thimla	lila	zamla	dangala	khohlela
			Person			
1	+	+	+	+	+
5		+		+	
7	+		+	+	+
8	+		+		
9					+
			Result			
7					+
8					+
9	+				
			Action			
9	+				
			Manner of event			
3	+	+	+	+	+
			Action/ Result			
7		+			
9			+		
			State			
3	+			+	
			Event			
11				+	

Table 2: Binary feature classification

6.2   Nominalisation with the verb stem –thimla (sneeze)

(9)   *Umfundi   wathimla.*
        Um- fundi   u-a-thiml-a
        CL1-student   SM.CL.1 PST-sneeze-FV

Lexical semantic structure
> ***thimla***
> ARGSTR = ARG 1 = X: Sneeze
> EVSTR = E 1 = e_1 : process
> QUALIA = FORMAL = X
>   AGENTIVE   ***-thimla*** sneeze (e_1, x)

6.1.1   Hierarchy of semantic concepts

A. Verb stem ***-thimla***: Sneeze - Process

The lexical representation of the verb relating to the bodily process ***-thimla*** can be explained as displaying only one argument in its argument structure (ARGSTR). This argument denotes the entity performing the sneezing. The event structure (EVSTR) shows that the verb expresses a process of sneezing. The qualia features encompass the formal quale that indicates the identity of the physical object (X) and the agent quale that denotes the process of sneezing (e_1) of the person (X). The intransitive verb relating to bodily process ***-thimla*** may be deverbatised (see Figure 2) where the DP semantic information of the deverbative noun ***umthimli*** is illustrated.

Class 1
Prefix: ***um-***
Suffix: ***-i***
umthimli   "a person who sneezes."

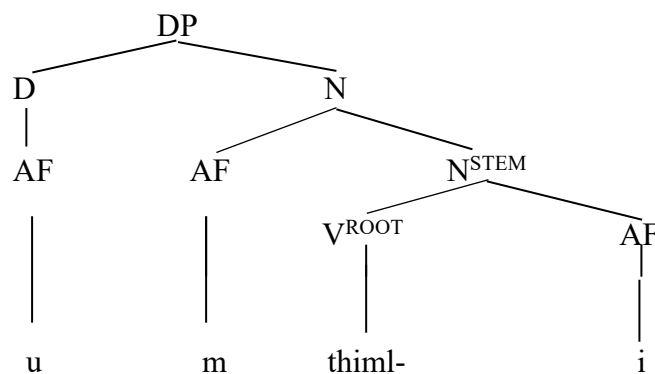

Figure 2: DP semantic information

Nominalisation in class 1
umthimli (a sneezing person)

(10)   a.   *Umthimli   ulele.*
                Um-thimli   u-lal-a
                CL.1-sneeze   SM.CL.1-PFT-FV
                "The sneezing person is asleep."

Lexical semantic structure

b.	***umthimli***			
	ARGSTR	= ARG 1	=	x : human
	EVSTR	= DE 1	=	e_1 : process
	QUALIA	= FORMAL	=	X
		AGENTIVE	***-thimla***	act (e_1 , x)

6.1.2 Hierarchy of semantic structure

B. Sneeze: Process - Actor - Human

The lexical semantic representation of the derived noun ***umthimli*** (sneezing person) specifies in its argument structure (ARGSTR), only one argument. The event structure (EVSTR) epitomises the default process event of sneezing. The qualia features display the formal quale denoting the identity of the human argument (X), and the agentive quale denotes the act (process) of sneezing (e_1) of a person (X). The bodily process verb ***-thimla*** may be deverbatised (see Figure 3) where the DP semantic information of the derived noun ***umthimlo*** is illustrated.

Class 3
Prefix: ***um-***
Suffix: ***-o***
umthimlo   "manner of sneezing."

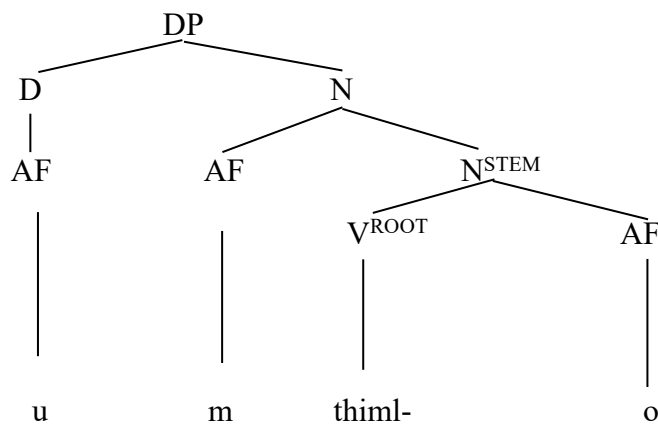**Figure 3:** DP semantic information

Nominalisation in class 3
umthimlo (manner of sneezing)

(11)   a.   *Umthimlo   uphelile.*
                Um-thimlo   u-phel-ile
                CL.3-sneeze   SM.CL.3-PFT-stop
                "The sneezing has stopped."

Lexical semantic structure
      b.   ***umthimlo***
              ARGSTR   = ARG 1   = x : e : r
              EVSTR   = D - E 1   = e_1 : process
              QUALIA   = FORMAL   = X
              AGENTIVE = ***thimla*** - Manner (e_1 , x)

6.1.3 Hierarchy of semantic concepts

C. Sneeze - Manner - Process – Event

There are two arguments in the argument structure (ARGSTR) displayed in the lexical semantic representation of ***umthimlo*** (sneezing), one of which is a default argument, denoting the physical object that performs the act of sneezing. The other argument is the reference (r) of the event of sneezing. The qualia structure displays the formal quale denoting the identity of the human argument (X) and the agentive quale bears the feature [manner] of sneezing (e_1) of a person. The deverbal noun ***umthimlo*** in (11) refers to an individual-level nominal which is defined to a particular event. The bodily process verb ***-thimla*** can be deverbatised (see Figure 4) where the DP semantic information of the deverbative noun **isithimli** is illustrated.

Class 7
Prefix: **isi-**
Suffix: **-i**
isithimli   "sneezing person."

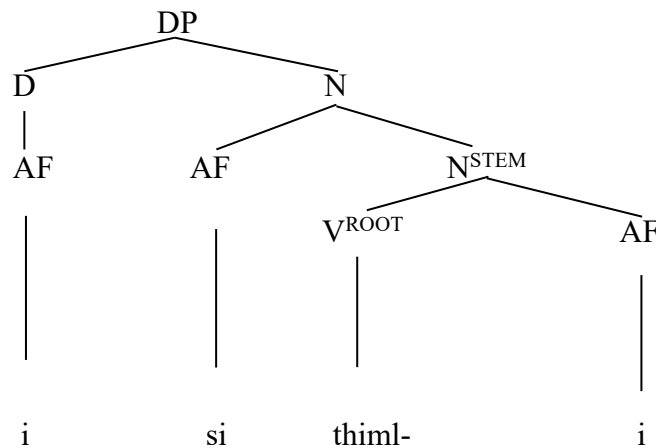**Figure 4:** DP semantic information

Nominalisation in class 7
isithimli (a habitually sneezing person)

(12)   a.   *Isithimli*   *sendoda*   *silele.*
                Isi-thimli   se- ndod-a   si-lal-a
                CL.7-sneezing person   Gen-man-FV   SM.CL.7-PFT-FV
                "The habitual sneezing person is sleeping."

Lexical semantic structure

b.	***isithimli***		
	ARGSTR	= ARG 1	= human
	EVSTR	= D - E 1	= e_1 : process
	QUALIA	= FORMAL	= X
	AGENTIVE	= ***thimla*** – act – intensive (e_1, x, y)

6.1.4   Hierarchy of semantic concepts

D. Walk – Intensive – Motion –Actor – Human

The lexical semantic representation of the deverbal noun ***isithimli*** in (12) can be explained in a similar manner to ***umthimli*** in (10), with the only difference displayed in the agentive quale which in addition has the feature [Intensive] to the act of sneezing. The event structure [EVSTR] demonstrates the default process event of sneezing. The bodily process verb *-thimla* can be deverbatised (see Figure 5) where the DP semantic information of the deverbative noun ***intimlo*** is illustrated.

Class 9
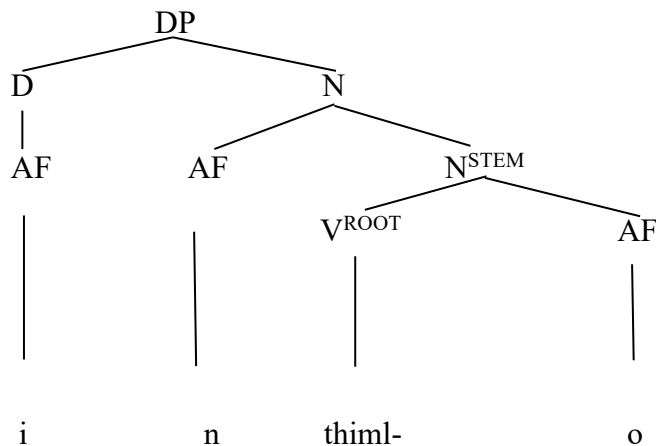Prefix: ***in***
Suffix: ***-o***
intimlo "sneezing"

Figure 5: DP semantic information

Nominalisation in class 9
intimlo (sneezing)

(13)	a.	Intimlo	yenja	iphelile.
		In-thimlo	ye-nj-a	i-phel-ile
		CL.9 sneezing	Gen-dog-FV	SM.CL. 9 PFT-FV
		"The sneezing of the dog has ended."		

Lexical semantic structure

      b.   ***intimlo***

          ARGSTR   = ARG 1 = e : r

          D – ARG 1   = x : phys(ical) object)

          EVSTR   = D - E 1   = e_1 : process

          QUALIA   = FORMAL = X

                         AGENTIVE   = ***-thimla***_Result (e_1 , x)

6.1.5   Hierarchy of semantic concepts

E. Sneezing - Process – Result

The lexical semantic representation of ***intimlo*** in (13) can be elucidated similarly to (11), the only difference being specified in the formal quale where the feature [Result] is present. The deverbative noun ***intimlo*** in (13) refers to an individual-level nominal which is defined in relation to a particular event. The bodily process verb *-thimla* can be deverbatised (see Figure 6) where the DP semantic information of the deverbative noun ***uthimlo*** is illustrated.

Class 11

Prefix: ***u(lu)***

Suffix: ***-o***

uthimlo   (sneezing)
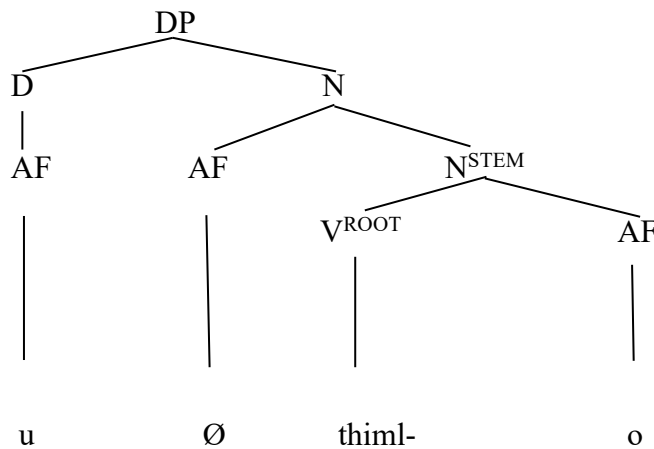

Figure 6: DP semantic information

Nominalisation in class 11

uthimlo   "sneezing"

(14)   a.   *Uthimlo luphelile.*

             U(lu)- thimlo   lu-phel- ile.

             CL. 11-sneezing   SM.CL.11 PFT-FV

             "The sneezing has ended."

Lexical semantic structure

    b.   ***uthimlo***

ARGSTR	= ARG 1		=	e : r
EVSTR	= D - E 1		=	e_1 : process
QUALIA	= FORMAL		=	X
		AGENTIVE	=	***-thimla*** _ Event (e_1 , x)

6.1.6   Hierarchy of semantic concepts

F. Sneeze - Processs – Event

The lexical semantic representation of ***uthimlo*** in (14) demonstrates only one argument in its argument structure (ARGSTR), which displays the reference (r) of the event (e) of sneezing. The event structure (EVSTR) represents the default process of sneezing. The analyses of deverbal nominals derived from verbs relating to the body demonstrate that bodily process verbs require the presence of an animate argument as the event is a process. The formal quale occurs in terms of which the animate argument is in a process of performing an action (e_1 , x). Deverbal nominals derived from verbs relating to the body in class 1 reflect the presence of the prefix ***um-*** and the suffix *–i* compositionally suggest an interpretation of an animate argument for ***umthimli, umlili, umzamli, umdangali and umkhohleli***. The agentive quale for deverbative nouns in class 3 specifies the feature [Manner].

The nominalization of the deverbative nouns in class 5, 7 and 8   can be analysed in a similar way to class 1 as they also denote the feature [human] with the suffix *–i* in most cases, the only difference relates to the agentive quale which displays the feature [expert] introduced by the prefix *i*. The nominalisation of the deverbative noun, ***uthimlo*** in class 11 specifies an agent quale that displays the feature [manner], and the deverbative noun ***uthimlo*** refers to an individual level nominal defined to a particular event.

7.   Conclusion

In this article, I have advanced the notion that lexical semantics present devices that can be utilised to explain the interpretation of deverbal nominals derived from bodily process verbs. Firstly, it has been shown in this article that deverbal nominalisation and nominalisation are two sides of the same coin as derived nominalisation is regarded as the last stage of nominalisation. Secondly, I have shown a brief illustration of the semantics of noun classes in Proto-Bantu. Proto-Bantu illustrate intrinsic gender class markers that form part of all noun classes in Bantu languages. The gender class markers determine the semantic value of derived nominals, as is the case in Setswana and isiXhosa. Thirdly, I presented analyses of derived nominals derived from bodily process verbs wherein the GL paradigm was used. An interesting phenomenon seems to emerge with regard to the different derived nominals. Deverbal nominals derived from bodily process verbs demonstrate that verbs relating to the body take an animate argument and the event is a process. It is evident in classes 1 and 7 that the presence of the prefixes ***um-*** , ***isi*** and the suffix *–i* compositionally realise an interpretation of for human in ***umthimli*** and ***isikhohleli***, the only difference relates to the agentive quale that displays the feature [Intensive] introduced by the prefix ***isi-*** in class 7.

These deverbal nominals can be interpreted in the same way when they are compositionally derived in the same manner in their respective classes. In circumstances where a different can be found in nominal suffix is found within the same noun class, as in class 7 ***isikhohlela*** (phlegm) and class 11 ***intimlo*** respectively. Derived nominals from class 7 usually denote a (habitual) person where the nominal suffix ***-i*** realises, however, where the nominal suffix is ***-a***, a different interpretation which is not human is displayed in the lexical semantic structure in (15).

(15)   ***isikhohlela*** (phlegm)
　　　　ARGSTR　　= ARG 1 = e : r
　　　　　　　　　　　D – ARG 1 = x : human
　　　　EVSTR　　　= D - E 1　　= e_1 : process
　　　　QUALIA　　= FORMAL　= X
　　　　　　　　　　AGENTIVE = ***-khohlela*** _ Result (e_1 , x)

The number of deverbatives in noun classes 7 and 9 where the nominal suffix is ***-a*** is very low, and the meaning denoted is action or result. The deverbal nominals derived from noun class 5 verbs relating to the body have an interpretation of a stage-level nominal. Some Deverbal nominals in noun class 9 do not readily take a corresponding plural form like the atypical deverbatives ***iintsico*** (spitting) and ***iintsuzo*** (farts), the question remains why? This question is left for further research.

Abbreviations

ARGSTR – argument structure; CL – class; EVSTR – event structure; FV – final vowel; GEN – genitive/possessive morpheme; PST – past tense; PFT – perfect tense; SM – subject marker.

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