Linguistics Terminology and Neologisms in Swahili: Rules vs. Practice

Gilles-Maurice de Schryver [1,2] and Jutta De Nul [1]

[1] BantUGent, Ghent University

[2] Dept. of African Languages, University of Pretoria

gillesmaurice.deschryver@UGent.be, jutta.denul@UGent.be

Abstract

In this paper we study the use of Swahili terminology in the field of linguistics. More in particular, we are interested to find out whether the rules laid out by scholars in the scientific literature for the creation of terminological neologisms in Swahili correspond with actual practice. To do so, we proceed in three steps. In Step 1 we undertake the semi-automatic extraction of linguistics terminology, by comparing occurrence frequencies in a special-purpose corpus consisting of ten Swahili language/linguistics textbooks, with their corresponding frequencies in a 22-million-token general-language reference corpus. In Step 2 we study the source languages and actual word formation processes of the terms and neologisms with the highest keyness values obtained during the previous step. This discussion is divided into several sections, one section per source language. In Step 3, the found terms and neologisms are compared with their treatment (or absence thereof) in two existing reference works, a general one and a linguistics terminology list. These three steps are preceded by brief introductions to (i) the Swahili language; (ii) its dictionaries and terminology lists; (iii) its metalexicographical, terminological and neologism studies; as well as (iv) our use of the concept of 'neologism'. The three steps are followed by a discussion of our findings and a conclusion.

Keywords

Bantu, Swahili, corpora, semi-automatic term extraction, linguistics terminology, terminological neologisms, lexicography, digital dictionaries

The Swahili language

The Bantu language Swahili (or Kiswahili in the language) is *the* lingua franca of East Africa, spoken by up to 100 million first- and second-language speakers, especially in Tanzania and Kenya, but also in the neighbouring countries to their west and south (Mohamed 2009, iv-v). It is one of the most well-known African languages, and is taught at virtually every African-language department in the world.

Although grammatically a Bantu language, a large part of its vocabulary was actually borrowed from Arabic, for which the Encyclopædia Britannica (2014) simply states that "there are an enormous number of Arabic loanwords in the language". These loanwords, in turn, found their way into neighbouring languages (e.g., Baldi 2011; 2012).

Dictionaries and terminology lists for Swahili

The existing lexicographic output, the result of a century-and-a-half-old craft rather than a modern science, consists of several hundred dictionaries and terminology lists. Benson (1964, 65) traces the origins of Swahili lexicography back to the earliest manuscript the missionary Krapf sent home from the field, "a vocabulary which became quite an extensive work", written in 1844. Krapf's first published dictionary, *A Dictionary of the Suahili Language*, dates from 1882. The next important lexicographic work is the *Dictionnaire français-swahili* by Sacleux (1891), followed half a century later by the other direction, *Dictionnaire swahili-français* (Sacleux 1939). Around the turn of the 19th century, Madan (1894; 1902; 1903) produced his set of bilingual English-Swahili-English dictionaries. Subsequently, Swahili was successfully paired with German by Velten (1910; 1933) in his *Suaheli-Wörterbuch*. All of these dictionaries are consulted to this day, as are those of Johnson (1939a; 1939b), which are founded on those of Madan (1902; 1903).

A welcome addition to the output of the early missionaries and the trade, are the Swahili dictionaries produced by academic institutes. Chief among them has been TUKI

(*Taasisi ya Uchunguzi wa Kiswahili*), also known under its English acronym IKR (Institute of Kiswahili Research), at the University of Dar es Salaam. In addition to their three flagship dictionaries — a monolingual Swahili dictionary (TUKI 1981; 2004), a bilingual English-Swahili dictionary (IKR 1996; 2006) and a bilingual Swahili-English dictionary (TUKI 2001; 2014) — TUKI has been engaged in the compilation of numerous terminology lists. These include terms for linguistics (Massamba 1990; 2004).

The most popular online dictionary for Swahili remains the one produced 15 years ago by Hillewaert and de Schryver (2004).

Metalexicographical, terminological and neologism studies for Swahili

Despite the size and importance of the language as well as the large amount of practical lexicographic products, the number of metalexicographical, terminological and neologism studies for Swahili is underwhelming, at least in the English academic literature (cf. de Schryver 2009, 387). Exceptions include the insightful works of Mdee (1990), Tumbo-Masabo (1990) and Kiango (2000). The main reason for this state of affairs is that most research in this field has actually appeared *in* Swahili, published by TUKI. Excellent examples are the edited collections by Tumbo-Masabo and Mwansoko (1992), Kiango and Mdee (1995) and Mwansoko and Chuwa (1995).

Goal of the present paper

In this paper we wish to study the use of Swahili terminology in the field of linguistics, and more in particular to find out whether the most important terms and neologisms extracted from a small purpose-built Swahili language/linguistics corpus are adequately covered in two of the existing reference works; one the general online bilingual Swahili-English dictionary of Hillewaert and de Schryver (2004), the other the special-purpose paper semi-bilingual Swahili-Swahili-English linguistics terminology list by Massamba (2004). In passing we will also test whether a mostly automated approach to doing so works (well) for Swahili.

Our definition of a neologism is the one proposed by the father of lexicography as a scientific discipline: "neologism is a term which can refer to any new lexical unit, the novelty of which is still felt" (Zgusta 1971, 179). Language and especially modern linguistics being a rather recent field of knowledge for which terminology had to be developed in Swahili, the assumption in this paper is thus that quite a number of Swahili language/linguistics terms are still novel enough to be called neologisms. With Zgusta (1971, 181 ff.) we may call these 'terminological neologisms'. As part of this study, we will thus also need to look into how new concepts for language/linguistics have been and are currently coined in Swahili, through borrowing and/or through language-internal processes. The various results will then be brought together in order to offer suggestions for the compilation of future reference works for Swahili.

The semi-automatic extraction of Swahili linguistics terminology

In order to semi-automatically extract Swahili linguistics terminology, we compare the occurrence frequencies in a special-purpose corpus consisting of ten recent Swahili language/linguistics textbooks, with their corresponding frequencies in a 22-million-token general-language reference corpus of Swahili. That reference corpus is an amalgamation and extension of earlier Swahili corpora (e.g., de Schryver and Prinsloo 2001, de Schryver et al. 2006, Devos and de Schryver 2016). The contents of the special-purpose corpus are shown in Table 1 (full bibliographic details, including the original titles in Swahili, may be found in the References).

Table 1

Nat.	Author	Year	Translation of title into English	Tokens	Types	STTR	std. dev.
TZ	Khamisi	2009	Proficiency in Swahili: Grammar 1	8,867	1,846	35.34	56.46
TZ	Khamisi	2008	Relational Grammar	36,209	4,713	35.24	62.27

TZ	Kihore	2009	Proficiency in Swahili: Grammar 2	14,490	2,335	36.18	58.12
TZ	Kihore, Massamba and Msanjila	2003	Structural Grammar of Standard Swahili: Secondary and University	43,347	5,480	37.16	60.13
TZ	King'ei	2010	Basics of Sociolinguistics	55,959	8,546	43.51	55.38
TZ	Massamba, Kihore and Hokororo	1999	Syntax of Standard Swahili: Secondary and Tertiary	36,927	5,147	38.45	58.58
TZ	Massamba, Kihore and Msanjila	2004	Phonology of Standard Swahili: Secondary and Tertiary	23,044	3,057	33.93	62.09
KN	Matei	2008	The Binoculars of Grammar: The exact reading of Swahili grammar. Questions and exercises	61,331	9,986	45.56	54.33
TZ	Nyangwine and Masebo	2002	Swahili: Secondary 3 and 4. Development of Swahili, Literature, Grammar, Use, Formation and Knowledge	91,717	12,678	43.35	56.56
KN	Waihiga	1999	Explanatory Grammar of Swahili	39,684	7,494	44.15	55.94
			SUM	**411,575**	**34,768**	**41.00**	**61.03**

SWAHILI LANGUAGE/LINGUISTICS TEXTBOOKS IN THE SPECIAL-PURPOSE

CORPUS; WITH: KN = KENYAN, NAT. = NATIONALITY, STD. DEV. = STANDARD

DEVIATION (OF STTR), STTR = STANDARDISED TYPE-TOKEN RATIO, TZ =

TANZANIAN

Interestingly, the values in Table 1 suggest that the range of vocabulary use in the (two)

Kenyan textbooks is wider than in the (eight) Tanzanian textbooks, as can be deduced from

the STTRs (which indicate the number of 'new' words entering a textbook for each additional 1,000 words). In all, the total number of running orthographic words in the language/linguistics textbook corpus is just over 400,000 (the tokens), a good 30,000 of which are unique orthographic words (the types). To compare these types with the more than 500,000 types in the reference corpus, the methodology presented in Taljard and de Schryver (2002) is employed. In short, the KeyWords tool of WordSmith Tools (Scott 1996-2019) was set to extract all the so-called positive 'keywords', being orthographic words which are unusually frequent in the language/linguistics corpus compared to their frequency in the reference corpus, with the additional requirement that these keywords had to occur at least ten times across the special-purpose textbooks. To calculate the 'keyness values', WST was set to employ Dunning's (1993) log-likelihood test.
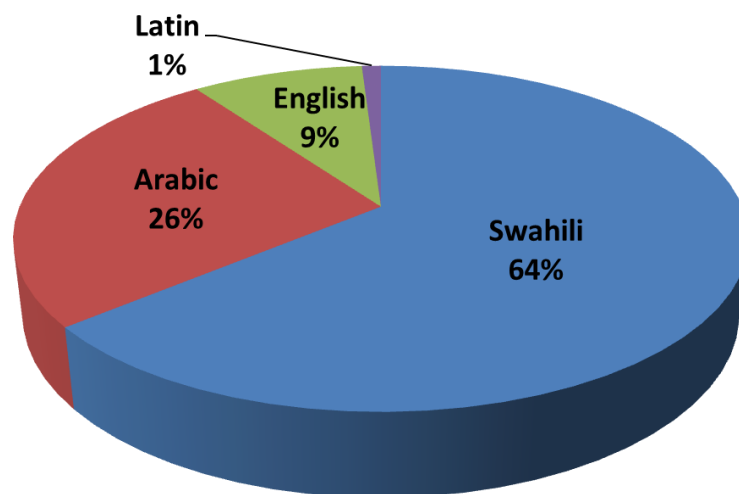
The assumption is thus that most of the keywords offered by WST will also be (specialised) terms from the field of language/linguistics, and that that list will also contain some neologisms. Here we are presented with an intriguing conundrum: Given that Swahili has so heavily borrowed vocabulary from Arabic in the course of so many centuries, when does a borrowing stop to be a borrowing and become part of the Swahili language?

The result of this exercise is presented in the online Addendum, being an annotated Excel sheet. WST offered over 2,000 keywords — too many to study in detail for the purposes of this paper. We therefore decided to go down the list in order of decreasing keyness value, until we reached 100 language/linguistics terms. The first observation one may make concerns the effectiveness of the methodology used. To reach 100 terms, we had to go down to item 142, which means a *precision* of 70%. This value is much higher than the one obtained for the Bantu language Northern Sotho (Taljard and de Schryver 2002, 54-56), which is good news for the methodology that had been proposed by Taljard and de Schryver (2002). Secondly, hardly any of the (42) discarded items is actually junk; as they are simply

typical for the kind of writing found in textbooks, with material such as *huweza* 'usually possible', *zifuatazo* 'it which follows', *huwa* 'always be, usually be', *hutumiwa* 'usually used', *huonyesha* 'usually show', *eleza* 'explain', ... *yaani* 'in other words'. Other items are used to number material (i, ii, iii, iv, …), to contrast material (*au* 'or'), or even to stress material (*hiki* 'this (one)', *hizi* 'these (ones)'). For at least three items one could also argue that they are terms: *kitabu* 'book' (< Ar), *Kiingereza* 'English' (< En) and *andika* 'write' (Sw). In point of fact, Massamba (2004, 33) includes *Kiingereza* 'English' as a lemma sign in his linguistics terminology list.

Conversely, and moving to the actual 100 terms, one could argue that *tunga* 'compose, make' and *hudondoshwa* 'is dropped' should not have been kept as language/linguistics terminology. But these are details. The overall picture as to the provenance of the top 100 keywords is shown in Figure 1: 36% have been adopted from other languages, especially Arabic (26%) and English (9%) with one word from Latin (1%), namely *nomino* 'noun'.

Figure 1

SOURCE LANGUAGE OF THE TOP SWAHILI LANGUAGE/LINGUISTICS TERMS

Neologisms in Swahili linguistics terminology

We now wish to study the actual word formation processes of the terms and neologisms with the highest keyness values obtained during the previous step, viz. of the 'top 100'. The

analysis follows the framework illustrated in Gauton et al. (2003) for the Bantu languages Zulu and Northern Sotho.

When it comes to the terms with an English source, these are: *sentensi* 'sentence', *konsonanti* 'consonant', *mofimu* 'morpheme', *silabi* 'syllable', *fonolojia* 'phonology', *kisintaksia* 'syntactical(ly)', *sintaksia* 'syntax', *nazali* 'nasal' and *mofu* 'morph'. Four aspects are immediately clear when Swahili borrows from English: (i) when there is no final vowel, one is added (here *-u* following *m* and *f*; *-i* elsewhere), (ii) non-native consonant clusters are replaced by (mostly) single consonants, (iii) some morphemes may be made 'lighter' by using *-ia*, and (iv) part-of-speech mismatches are handled both morphologically and syntagmatically (e.g., the English adv./adj. 'syntactical(ly)' takes both the prefix from cl. 7 (*ki-*) and uses a possessive construction (*-a ~*)[1]. Therefore, rather than making use of a *loanword* in which the original (English) spelling has been retained, Swahili terminologists prefer *transliteration*, whereby the phonological structure of a loanword is adapted to the sound system of the borrowing language. In simple terms: Swahili likes sequences of CVCV…, where Cs may also be prenasalized. These observations from actual Swahili *practice* as found in textbooks, correspond with the Swahili *rules* as for example laid down by Tumbo-Masabo (1992, 26-31).

With regard to the terms with an Arabic source, the first problem, of course, is to be able to rather confidently state that a certain term is indeed originally Arabic. Here, we were guided by the etymological information found in the online monolingual Swahili dictionary which is part of the Oxford Global Languages project (OGL 2017), in addition to cross-checks in the language portal bab.la (2017). Doing so, fully a quarter of the 'top 100' language/linguistics terms in Swahili seem to originate from Arabic. For these, one may make a number of observations. Firstly, some terms have been borrowed straightforwardly,

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[1] For more on this, see de Schryver (2006; 2008).

both with regard to form and meaning, such as *lugha* 'language' < لُغة [luḡa] 'language', or *maana* 'meaning' < مَعْنَى [maʿnā] 'meaning'. Secondly, for those cases of the previous category without a final vowel in the original Arabic, such a vowel is added in Swahili: *sauti* 'sound; voice' < صَوْت [ṣawt] 'voice', or *kamusi* 'dictionary' < قاموس [qāmūs] 'dictionary'. Thirdly, extending this further, vowels may be interspersed in order to obtain the open syllable structure (CVCV…) typical of Swahili: *lahaja* 'dialect' < لَهْجة [lahja] 'dialect; tone', *sahili* 'simple' < سَهْل [sahl] 'simple', or *herufi* 'letter' < حَرْف [ḥarf] 'letter'. Fourthly, for each of the three previous groups, the original meanings may be extended, to obtain the linguistic terms, thus respectively: (i) صِفَة [ṣifa] 'quality, trait' > *sifa* 'feature', or عَلامة [ʿalāma] 'marker' > *alama* 'symbol'; (ii) إِعْرَاب [iʾrāb] 'the system of nominal, adjectival and verbal suffixes of Classical Arabic' > *irabu* 'vowel', فَصيح [faṣīḥ] 'eloquent' > *fasihi* 'literature', or نَفْس [nafs] 'soul' > *nafsi* '(grammatical) person'; and (iii) صَرْف [ṣarf] 'inflection; declension' > *sarufi* 'grammar'. Unlike the neologisms sourced from English (discussed in the previous paragraph), these borrowings from Arabic are likely many centuries old. This is confirmed when one looks up the 26 Arabic loans from the top 100 in Sacleux's (1939) dictionary from 80 years ago: As many as two thirds are covered, with a direct link to the Arabic in that dictionary's etymological slot[2]. Those that are not covered in Sacleux's (1939) dictionary may indeed be of more recent origin, such as: *lahaja* 'dialect' < لَهْجة [lahja] 'dialect; tone', *istilahi* 'terminology' < مُصْطَلَح [muṣṭalaḥ] 'terminology', or *methali* 'proverb, saying' < مَثَل [maṯal] 'parable, epigram, example'[3].

The remaining 64 terms in the top 100 all seem to be inherently Swahili. Ten of these are readily available as 'plain nouns', meaning that they are not derived from words in other word classes. These are: *ngeli* 'noun class', *mzizi/mizizi* 'root(s)', *kishazi/vishazi* 'clause(s)',

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[2] See the Addendum for the details.
[3] More detailed studies of Arabic loanwords in Swahili in general, may be found in Tucker (1946), Mwita (2009), Harvey (2014) and Fattakhova and Mingazova (2015).

yambwa 'object', *kibantu* 'Bantu ... (e.g., language)', *msamiati* 'vocabulary', *nduni* 'feature',

and *kaakaa* 'palate'. (Note that both singular and plural nouns may be returned by WST,

given that our Swahili corpora are not POS-tagged.) A total of 41 terms are nouns derived

from verbs, for which template-like 'constructions' are employed. These are found in class

pairs 3/4, 5/6, 7/8, 9/10 and 14, for which the distribution is shown in Table 2. Examples for

each are: *muundo/miundo* 'structure(s)' < *kuunda* 'to make, to construct' [3/4]; *matamshi*

'pronunciations, speech' < *kutamka* 'to pronounce', 'to articulate' [5/6]; *kiambishi/viambishi*

'affix(es)' < *-ambika* 'be said' [7/8]; *tungo* 'construction' < *kutunga* 'to construct', 'to form'

[9/10]; and *utamkaji* 'articulation' < *kutamka* 'to pronounce', 'to articulate' [14]. Other terms

are more adjective-like, such as *ambatani* 'compound' < *kuambatana* 'adhere to one another',

'joined by one another', or *nyambulishi* 'derivational' < *kunyambulika* 'to be extended'. The

last group ('other' in Table 2) is heterogeneous, and for instance contains the verb stem

tendeka 'stative, neuter' < *kutendeka* 'be accomplished'.

Table 2

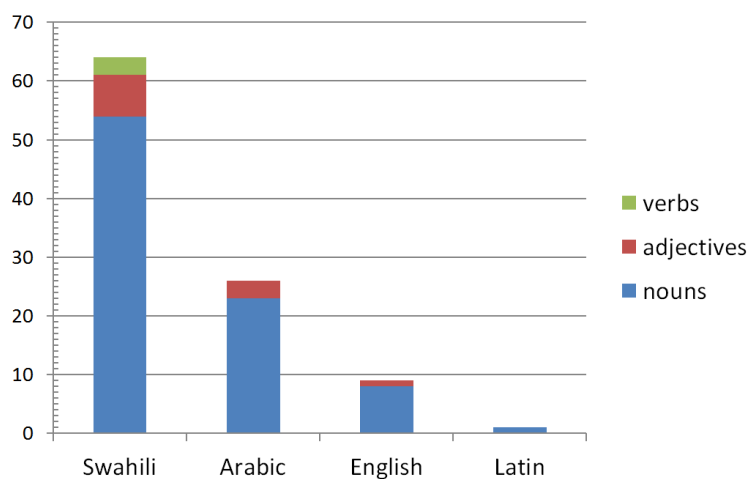| Cl.	Construction	N
plain noun	-	10
3/4	m-/mi-R(+ext)-o	6
5/6	ø-/ma-R-i	3
	ø-/ma-R-o	4
7/8	ki-/vi-R(+ext)-i	13
	ki-/vi-R-o	3
	ki-/vi-stem	4
9/10	ø-R-o	1
	ø-stem	1
14	u-R(+ext)-i	5
	u-stem	1
adj.	R-i	5
other	-	8

	SUM	**64**

TYPES OF CONSTRUCTIONS UNDERLYING THE INHERENTLY SWAHILI LANGUAGE/LINGUISTICS TERMS; WITH: CL. = CLASS(ES), EXT = EXTENSION, R = ROOT

With regard to the term formation processes observed here, it is clear that we are mainly dealing with what Mtintsilana and Morris (1988, 110) call *semantic specialisation*, whereby words from the general vocabulary acquire additional, more technical meanings. The other strategies which Mtintsilana and Morris (1988, 110-12) discuss, such as *compounding*, whereby a term is coined by combining existing words, or the exploitation of the *synonym* richness of a vocabulary, are hardly found here. Similarly, the translation strategies listed by Baker (1992, 26-42), such as the use of a more general word or *superordinate*, the use of a more *neutral* or less expressive word, the use of *cultural substitution*, a *paraphrase* using a related word, or a paraphrase using an *unrelated* word, are also not seen for the top 100 Swahili language/linguistics terms.

To wrap up this section, Figure 2 shows the distribution of the word classes of the top 100 Swahili language/linguistics terms, according to source language. Unsurprisingly, the great majority of terms are nouns, followed by adjectives and a few verbs.
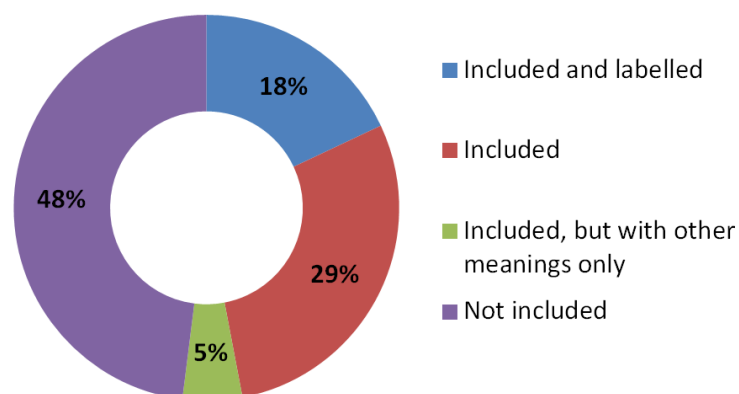
Figure 2

WORD CLASSES OF THE TOP SWAHILI LANGUAGE/LINGUISTICS TERMS, PER

SOURCE LANGUAGE

Linguistics terminology and neologisms in existing dictionaries

How well is terminology covered in a general-language dictionary? One obviously does not

expect to find all terminology of all fields in a broad reference work, but some ought to be

covered. The top 100 language/linguistics terms were searched for in the general online

Swahili-English dictionary by Hillewaert and de Schryver (2004). As many as 47 were found,

18 of which also specifically labelled as belonging to the field of linguistics. A further 5 were

found, but without the specialised meaning, while 48 were not found at all. This is shown in
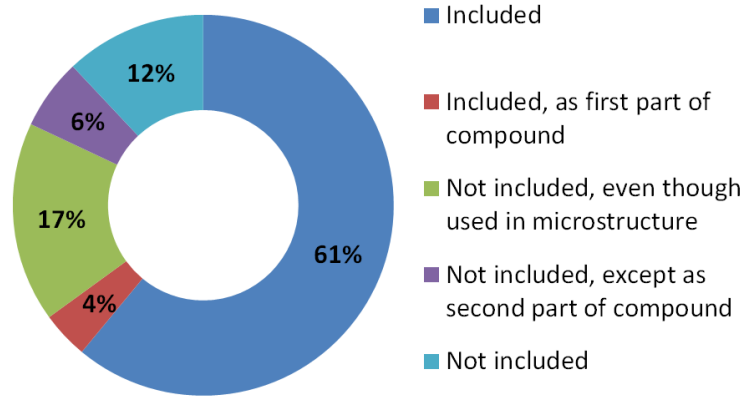
Figure 3.

Figure 3

TOP SWAHILI LANGUAGE/LINGUISTICS TERMS IN A GENERAL ONLINE

SWAHILI-ENGLISH DICTIONARY (HILLEWAERT AND DE SCHRYVER 2004)

Of the 47 terms that were found, 18 were sourced from Arabic, English and Latin. Of the 53

terms that were not found, another 18 were sourced from Arabic and English. Exactly half the

top borrowed language/linguistics terms were thus covered in this dictionary, the other half

not.

We repeated this exercise for the special-purpose paper semi-bilingual Swahili-Swahili-

English linguistics terminology list by Massamba (2004). Given that a manual count of the

number of lemma signs in this terminology list revealed a total of 1 398 entries, it would not be too demanding to expect that the top 100 terms which are actually used in school textbooks are also covered. While the outcome is better than for the general-language dictionary, still only 65 of the terms were found, while 35 were not. Details of the different categories of found vs. not-found are shown in Figure 4. For the not-founds, two categories are slightly problematic: 17 of the missing terms are actually used throughout the microstructure of the terminology list itself (e.g., *KN = kikundi/kirai nomino* 'noun phrase', *KT = kikundi/kirai kitenzi* 'verb phrase', *ambatani* 'compound', *elekezi* 'transitive; prescriptive', ...), while another six are only used as the second part of compounds and can thus not reasonably be found (e.g., *tendeka* 'stative, neuter' can only be found at *kauli* ~ 'stative voice' and at *kitendeka* 'stative marker', or *nyambulishi* 'derivational' can only be found at *kiambishi* ~ 'derivational affix' and at *ambishaji* ~ 'derivation'). In terms of loanwords from Arabic and English, nine have not been lemmatised. For instance, on the macrostructural level, *sanifu* 'standard' can only be found at *lahaja* ~ 'standard dialect' and at *lugha* ~ 'standard language', while *sahili* 'simple' can only be found at *njeo* ~ 'simple tense', at *sentensi* ~ 'simple sentence' and at *wimbi* ~ 'simple wave', while it is also imbedded in the lemma sign *usahilishaji sheria* 'rule simplification'. Conversely, both *sintaksia* 'syntax' and *kisintaksia* 'syntactical(ly)' are used throughout the terminology list, but have not been lemmatised at all. Finally, the absence of entries for *fasihi* 'literature', *methali* 'proverb, saying' and *ufasiri* 'translation' may perhaps be explained if it is assumed that only terms from *core* linguistics were meant be treated in this terminology list.

Figure 4

- Included
- Included, as first part of compound
- Not included, even though used in microstructure
- Not included, except as second part of compound
- Not included

TOP SWAHILI LANGUAGE/LINGUISTICS TERMS IN A SPECIAL-PURPOSE PAPER SEMI-BILINGUAL SWAHILI-SWAHILI-ENGLISH LINGUISTICS TERMINOLOGY LIST (MASSAMBA 2004)

Discussion and conclusion

With reference to terminological neologisms in the field of Swahili language/linguistics, one may thus conclude that most loanwords from Arabic have seized to be neologisms, given that they entered the language many decades, sometimes even centuries, ago. Two-thirds of the Arabic-sourced terms in our study were for instance found in Sacleux's dictionary of 80 years ago. However, some entered recently enough from Arabic to continue to cause confusion, see for instance the discussion in Gibbe (2008, 79-80) regarding *istilahi* (before standardization *sitilahi*, < Ar, now: 'terminology') vs. *msamiati* (Sw, now: 'vocabulary'). Most present-day loanwords to express concepts in linguistics are sourced from English, and in this the practice follows suggested theory (Mwansoko 1990; 2001, 325-27). While all of the found English-sourced terms have also been included in Massamba's 15-year-old terminology list, for some users these may still feel 'new enough' to be seen as neologisms (e.g., *mofimu* 'morpheme', *silabi* 'syllable', *fonolojia* 'phonology', …). Lastly, for the terms that were (recently) coined through language-internal mechanisms, most may well still be considered to be neologisms as they are the result of *semantic specialisation*, whereby general Swahili vocabulary is extended to acquire additional, more technical meanings (e.g., *utamkaji* 'articulation' (Sw, <

kutamka 'to pronounce', 'to articulate'), *kiunganishi* 'conjunction' (Sw, < *kuunganisha* 'to connect' < *kuunga* 'to join', 'to unite'), *kiimbo* 'intonation' (Sw, < *kuimba* 'to sing'), …).

The one overarching conclusion which one may draw from this study is that future terminographers would be well advised to also extract terms from the materials that are actually used. Ideally, this could even be partly automated, as was shown in the present paper for Swahili language/linguistics terminology. Automating this process also facilitates the uncovering of new concepts, either freshly coined through language-internal mechanisms, or borrowed from a language of wider diffusion.

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