Corpus-based Lexicographic Pragmatics: On 'transforming' dirty corpora

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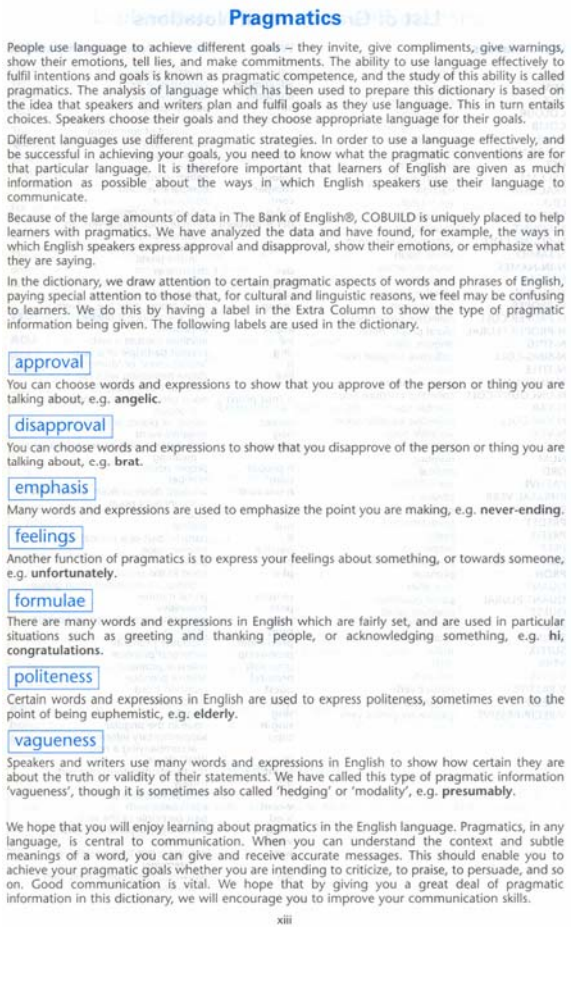
Corpus-based pragmatics in dictionaries

Just over one decade ago, corpus-based pragmatics labelling made its way into a major dictionary for the first time. In the *Collins COBUILD English Dictionary* (COBUILD 2, Sinclair 1995), the compilers started to insert the novel 'PRAGMATICS' sign into the Extra Column, whenever the 'statement of meaning' for certain senses of words had to be supplemented by an 'added meaning'. In the latest edition, COBUILD 5, this single label is split into seven different labels, as can be seen from Figures 1 and 2.



Pragmatics

People use language to achieve different goals – they invite, give compliments, give warnings, show their emotions, tell lies, and make commitments. The ability to use language effectively to fulfil intentions and goals is known as pragmatic competence, and the study of this ability is called pragmatics. The analysis of language which has been used to prepare this dictionary is based on the idea that speakers and writers plan and fulfil goals as they use language. This in turn entails choices. Speakers choose their goals and they choose appropriate language for their goals.

Different languages use different pragmatic strategies. In order to use a language effectively, and be successful in achieving your goals, you need to know what the pragmatic conventions are for that particular language. It is therefore important that learners of English are given as much information as possible about the ways in which English speakers use their language to communicate.

Because of the large amounts of data in The Bank of English®, COBUILD is uniquely placed to help learners with pragmatics. We have analyzed the data and have found, for example, the ways in which English speakers express approval and disapproval, show their emotions, or emphasize what they are saying.

In the dictionary, we draw attention to certain pragmatic aspects of words and phrases of English, paying special attention to those that, for cultural and linguistic reasons, we feel may be confusing to learners. We do this by having a label in the Extra Column to show the type of pragmatic information being given. The following labels are used in the dictionary.

approval
You can choose words and expressions to show that you approve of the person or thing you are talking about, e.g. **angelic**.

disapproval
You can choose words and expressions to show that you disapprove of the person or thing you are talking about, e.g. **brat**.

emphasis
Many words and expressions are used to emphasize the point you are making, e.g. **never-ending**.

feelings
Another function of pragmatics is to express your feelings about something, or towards someone, e.g. **unfortunately**.

formulae
There are many words and expressions in English which are fairly set, and are used in particular situations such as greeting and thanking people, or acknowledging something, e.g. **hi**, **congratulations**.

politeness
Certain words and expressions in English are used to express politeness, sometimes even to the point of being euphemistic, e.g. **elderly**.

vagueness
Speakers and writers use many words and expressions in English to show how certain they are about the truth or validity of their statements. We have called this type of pragmatic information 'vagueness', though it is sometimes also called 'hedging' or 'modality', e.g. **presumably**.

We hope that you will enjoy learning about pragmatics in the English language. Pragmatics, in any language, is central to communication. When you can understand the context and subtle meanings of a word, you can give and receive accurate messages. This should enable you to achieve your pragmatic goals whether you are intending to criticize, to praise, to persuade, and so on. Good communication is vital. We hope that by giving you a great deal of pragmatic information in this dictionary, we will encourage you to improve your communication skills.

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Figure 1: Information plate on 'Pragmatics' in the front matter of COBUILD 5

Anglican a

anemone /ənɛ̱mənɪ/ **(anemones)** An **anemone** is a garden plant with red, purple, or white flowers. N-COUNT

anesthesia /ænɪsθi̱ːzɪə, -ʒə/ → see **anaesthesia**.

anesthesiologist /ænɪsθiːzɪɒ̱lədʒɪst/ **(anesthesiologists)** An **anesthesiologist** is a doctor who specializes in giving anaesthetics. [AM] N-COUNT

☑ in BRIT, use **anaesthetist**

anesthetic /ænɪsθɛ̱tɪk/ → see **anaesthetic**.

anesthetist /ənɪ̱ːsθətɪst/ **(anesthetists)** An **anesthetist** is a nurse or other person who gives an anaesthetic to a patient. [AM] N-COUNT

anesthetize /ənɪ̱ːsθətaɪz/ → see **anaesthetize**.

anew /ənjuː, AM ənuː/ If you do something **anew**, you do it again, often in a different way from before. [WRITTEN] ❑ *She's ready to start anew... He began his work anew.* ADV: ADV after v = *afresh*

angel /e̱ɪndʒəl/ **(angels)** 1 **Angels** are spiritual beings that some people believe are God's servants in heaven. N-COUNT
2 You can call someone you like very much an **angel** in order to show affection, especially when they have been kind to you or done you a favour. N-COUNT feelings
3 If you describe someone as an **angel**, you mean that they seem to be very kind and good. N-COUNT approval

angelic /ændʒɛ̱lɪk/ 1 You can describe someone as **angelic** if they are, or seem to be, very good, kind, and gentle. ❑ *...an angelic face... He looked angelic.* ADJ: usu ADJ n approval
2 **Angelic** means like angels or relating to angels. ❑ *...angelic choirs.* ADJ: ADJ n

angelica /ændʒɛ̱lɪkə/ **Angelica** is the candied stems of the angelica plant which can be used in making cakes or sweets. N-UNCOUNT

anger /æ̱ŋgəʳ/ **(angers, angering, angered)** ◆◇◇
1 **Anger** is the strong emotion that you feel when you think that someone has behaved in an unfair, cruel, or unacceptable way. ❑ *He cried with anger and frustration... Ellen felt both despair and an-* N-UNCOUNT: oft N *at* n/ -ing = *rage, fury*

Figure 2: Random section from COBUILD 5; note the pragmatics data in the extra column (on the right of the articles)

Those added meanings, being descriptions of the ways in which people use language, were based on sound corpus evidence – at the time (in 1995) a digital collection of over two hundred million English words. Since then, the explicit treatment of pragmatics has continued to command increasing dictionary space. In the fully-corpus-driven *Macmillan English Dictionary for Advanced Learners* (MEDAL, Rundell 2002), for example, two entire pages were devoted to pragmatics in the Language Awareness section which is found right in the middle of the central lemma-sign list.

Corpus-based dictionary making in South Africa

In post-1994 South Africa, a brand-new series of dictionaries is being produced for all official languages – Afrikaans, Ndebele, Northern Sotho, South African English, Southern Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa and Zulu. For each of those languages, various corpora have been built, and dictionaries based on the data therein are under compilation. Dictionaries such as COBUILD and MEDAL are held up as an example, and the resulting reference works will be the first ones that will reflect real and authentic use of the South African languages.

This last claim, however, immediately presents a problem. From the above it is clear that there is a direct relationship between the quality of the final products, and the quality of the corpora on which those products are based. Although considerable efforts have been made to create state-of-the art electronic corpora for all languages involved, technical limitations and difficulties inherent to the specific languages imply that one must be extra careful in interpreting some of the results, as some level of 'transformation' has already taken place during corpus building, with a further transformation taking place during the initial analysis of the corpus data.

Northern Sotho case study

For the purposes of this paper, the focus will be on one language, Northern Sotho. Like all South African corpora, the corpora for Northern Sotho are made up of both digitised and digital material. The former is typically the result of straightforward scanning followed by optical character recognition (OCR), while the latter mainly brings together Internet material and existing electronic files contributed by colleagues, authors, publishers, etc.

In the Northern Sotho orthography, a distinction is made between the voiceless alveolar fricative 's' and the voiceless prepalatal fricative 'š'. In order to make sure that any scanned material also makes sense after scanning, it is of paramount importance to ensure that the distinction between these two voiceless fricatives is kept. This means that it is absolutely crucial to 'train' the OCR software so that it also differentiates between the two in all circumstances. (Note that, given the 'š' is not normally part of standard OCR packages, and given the letter 'q' is not used in the Northern Sotho orthography, the OCR software is often trained to recognise and interpret all 'š' as 'q'. A simple search-and-replace then enables one to restore all 'q' to 'š' in the final file.)

True frequencies of use

However, despite rigorous training of the OCR software, the 's' and 'š' are all too often still mixed up. Occurrence frequencies for forms such as 'ntshe' versus 'ntše', 'se' versus 'še', 'seba' versus 'šeba', etc. are therefore not fully reliable, which is a problem in corpus-based

lexicography. It is a problem on the macrostructural level of the dictionary, because one cannot indicate the true frequency of use. Dividing the lexicon in 'frequency bands' (by means of lemma signs in colour, various numbers of stars or diamonds accompanying the top-frequent lemmas, etc.) is fast becoming a standard feature in modern dictionaries. See for example Figure 2, illustrating the filled / hollow diamonds as used in COBUILD, or Figures 3 and 4 illustrating star ratings as found in MEDAL and in a Northern Sotho – English dictionary (De Schryver 2007).

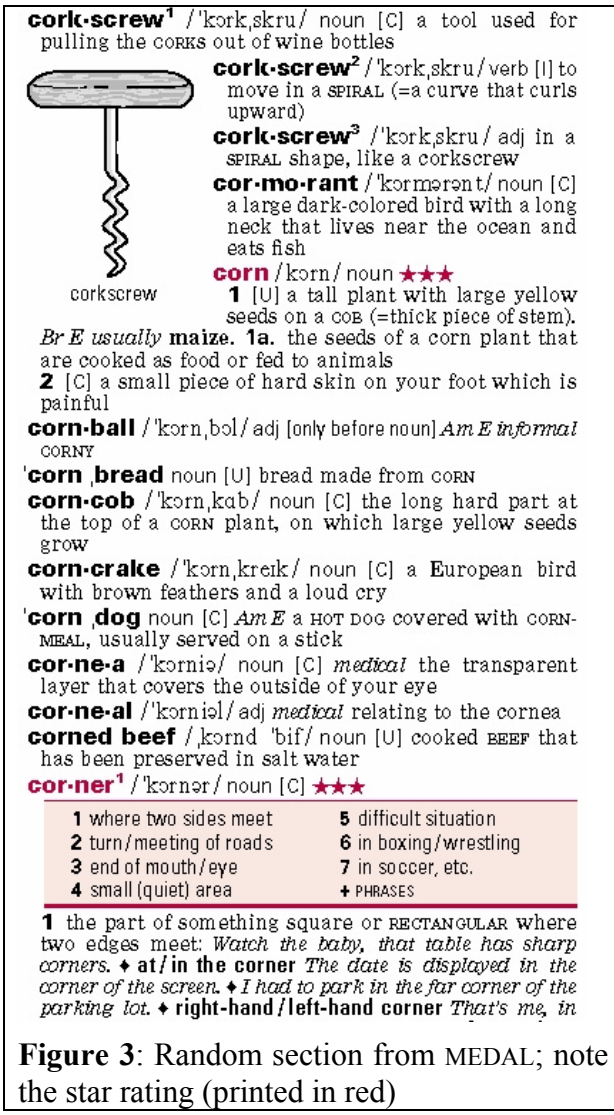


Figure 3: Random section from MEDAL; note the star rating (printed in red)

Figure 4: Random section from the PUKUNTŠU YA SEKOLO; note the star rating

Non-standard orthographies

In order to do this correctly for the African-language dictionaries, one would thus need to proofread an entire corpus manually. Apart from the fact that there are no resources available for this, the fact that the spelling has not been standardised throws an extra spanner in the works.

Indeed, take for instance the form 'setše'* which, taken at face value, appears frequently enough in the various Northern Sotho corpora to warrant inclusion in a dictionary; see Figure 5. A closer inspection of all the concordance lines, however, reveals that in 95% of the cases this should actually have been 'šetše' – the result of either scanning errors, or spelling errors in

the original source material. For the remaining 5%, the authors clearly meant to write 'tshetše'. To complicate matters further, there is also a 'tšhetše', where the first 'š' might also be the result of various errors.

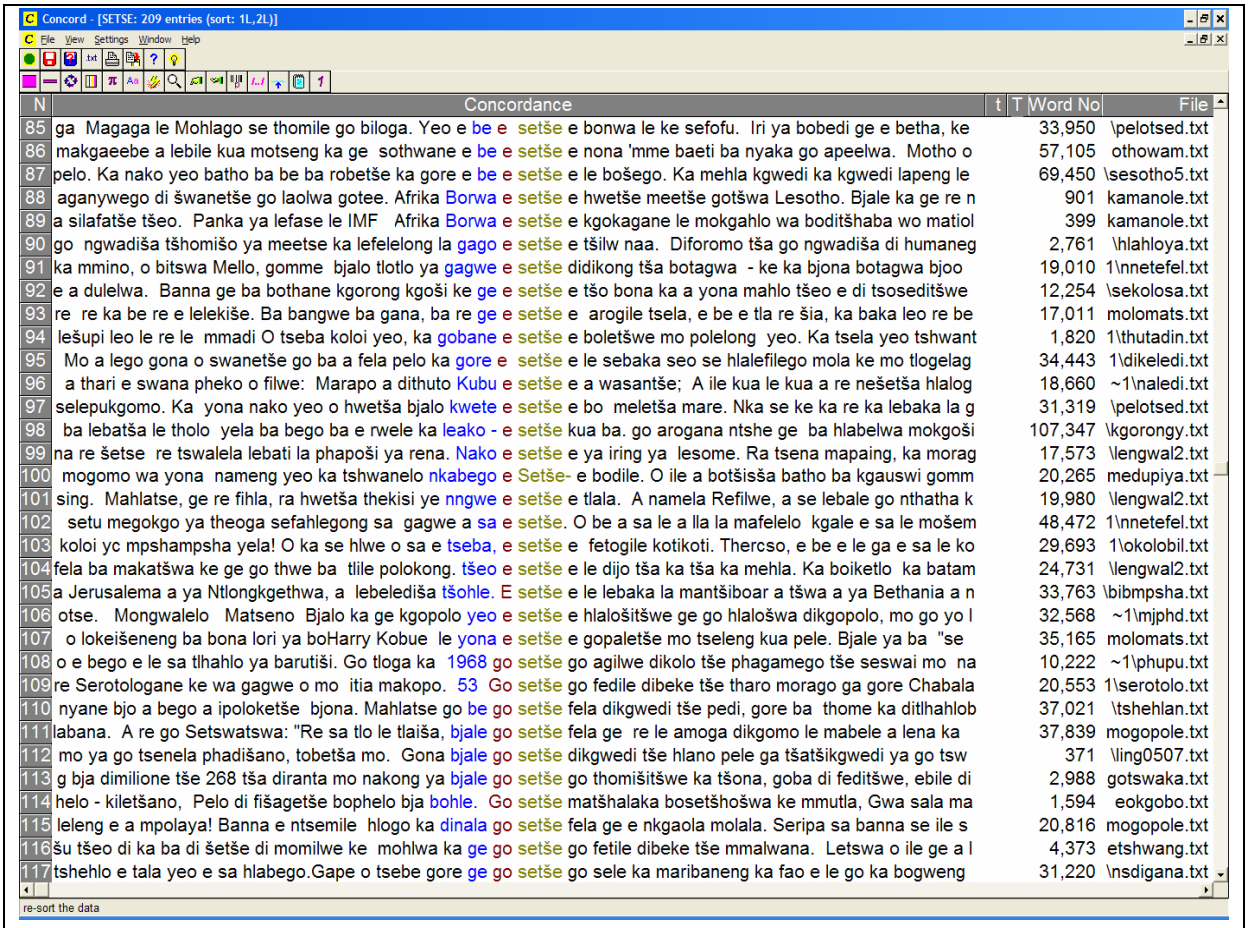


Figure 5: The form 'setše'* in a Northern Sotho corpus; here queried with *WordSmith Tools* (Scott 2007)

The inclusion of zero-frequency words

Even entirely trivial cases can lead to radically wrong conclusions. Existing corpus-based dictionaries for Northern Sotho will for example list both 'šoma' / 'šome' and 'soma' / 'some' as different verbal forms (as in the POPULAR, by Kriel, Prinsloo & Sathekge 1997). All four are frequent enough to be included in even a small dictionary. However, reading through all the corpus examples indicates that simply all cases of 'soma' / 'some' should have been 'šoma' / 'šome'. In addition to 'the machine' (i.e. the OCR) which transformed the original, this is a clear case where 'the human user', probably not knowing how to get the 'š' out of a keyboard, simply opted for the erroneous base form without the diacritic throughout. The human users thereby transformed one verb into another, and an inattentive dictionary compiler might end up treating a verb with a zero occurrence!

Collective evidence, or another transformation?

All human users together, however, thanks to the collective evidence in a corpus, may also help in pinpointing the most common spelling for certain words and/or confirm what should

be considered 'the standard' when dealing with an unstable orthography. As such the spelling 'tshepa' is for example one point five times more frequent than 'tshepha', 'bantši' four times more frequent than 'bantšhi', or 'bontši' nine times more frequent than 'bontšhi'. In all these cases, the form without aspiration is clearly the one that needs to be considered as the 'correct' form and thus the one that needs to be included in the dictionary. On the other hand, with this approach one still runs the risk to have factored out dialectal variation in pronunciation, another transformation.

Collective evidence, and dictionary-internal cross-references

Nonetheless, where the difference in frequency between different corpus forms is at least a factor ten, one may safely assume that the more frequently attested corpus form is also 'the norm'. This is for example the case for 'yeo' which is twelve times more frequent than 'eo', 'gešo' which is thirteen times more frequent than 'gešu', or 'kgauswi' which is fourteen times more frequent than 'kgaufsi'. Given that the lesser-used forms remain very frequently used, the lexicographer will do well to cross-refer the lower-frequency forms to the higher-frequency forms, with in each case the reference marker text 'Correct spelling ='. See in this regard Figure 6, which shows the preview of the creation of the articles for 'eo' and 'yeo' in the dictionary compilation environment *TshwaneLex* (Joffe et al. 2007).

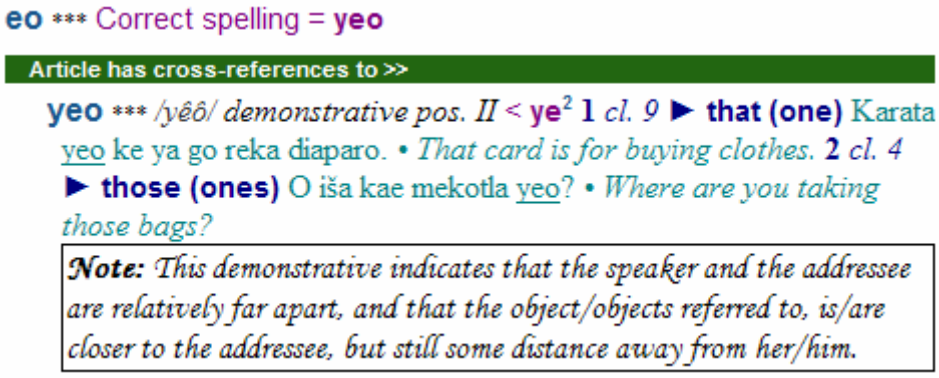


Figure 6: Creating the linked articles 'eo' and 'yeo' in the dictionary compilation environment *TshwaneLex*

Collective evidence, and demoting homonyms

In an English dictionary one may for example find under one of the senses of the determiner 'my' the pragmatic information that when 'my' precedes a (pet) name or otherwise kind designation, its function is to show affection. This is done in COBUILD, as can be seen from Figure 7.

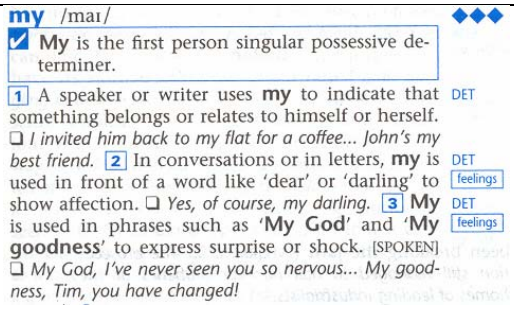


Figure 7: The article for 'my' in COBUILD; note the pragmatic information for senses 2 and 3

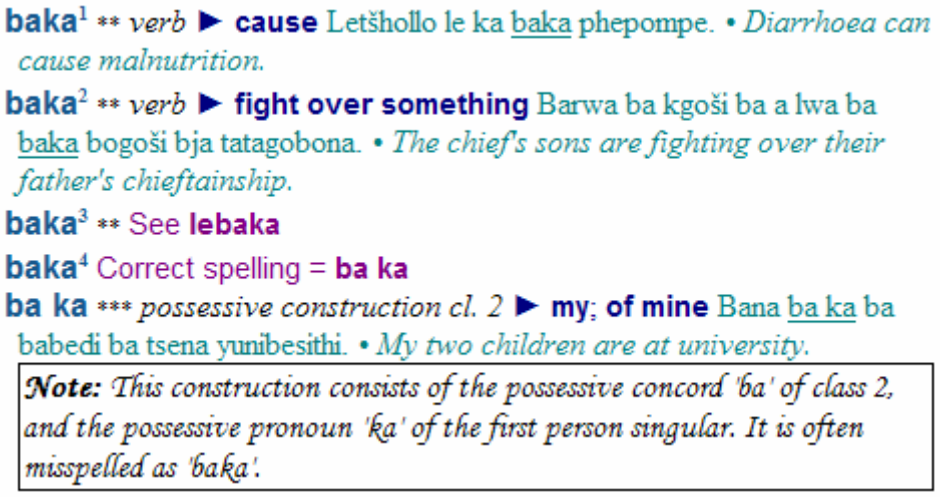
In Northern Sotho, 'my' is rendered as 'of mine', being a possessive concord in agreement with the noun, followed by the possessive pronoun of the first person singular, thus '[PC +] ka'.

When looking at the various corpora for Northern Sotho one will unfortunately find that forms such as 'a ka', 'ba ka', 'bja ka', 'la ka', 'wa ka' or 'ya ka', which follow the noun they refer to, are often misspelled as single words. Given the high occurrence of these misspelled forms, lexicographers have erroneously lemmatised such forms as single words in their dictionaries in the past, as can for instance be seen in Figure 8, taken from Kriel, Van Wyk & Makopo (1989).

lahlê, id. LH: weggooi.
lai[1], id. LL: alles/almal vernietig/opeet.
lai[2], id. HH: glinster, blink, flits.
laiki, snw. leenw. kl 9, HHL: laai(tjie).
laila, ww. LLL (kous. **laidiša**): oplek, verteer (soos vuur).
laiša, ww. leenw. HHL: (op)laai.
laka[1], bsk. kl 5 + bes. st. HL: myne, van my.
laka[2], ww. LL: beheer, toesig hou oor, kontroleer, administreer.
lakaila, ww. LLLL (kous. **lakaidiša**): oplek, verteer, verwoes, verwyder.
lakalêla, ww. LLLL (kous. **lakalêtša**): besorgd/bekommerd wees oor, kla oor; *go lakalêtša katlêgô*, om voorspoed toe te wens.

Figure 8: Random section from the PUKUNTŠU WOORDEBOEK; note that 'laka[1]' should be spelled 'la ka', 'laka[2]' is thus not really a homonym

A lexicographer analysing Northern Sotho corpora when treating 'my' in a bilingual Northern Sotho – English dictionary, will thus need to (a) point out the correct spelling in a Usage Note, and (b) point out, for example by means of an authentic (i.e. corpus-based) example, that the (pragmatic) use whereby 'my' is placed before the noun in English, needs to follow the noun in Northern Sotho. See in this regard Figure 9 (for one instance in the Northern Sotho to English side), which may be contrasted with the information shown in Figure 10 (where one sees the 'grammatical construction' in the English to Northern Sotho side).



baka[1] ** *verb* ► **cause** Letšhollo le ka baka phepompe. • *Diarrhoea can cause malnutrition.*
baka[2] ** *verb* ► **fight over something** Barwa ba kgoši ba a lwa ba baka bogoši bja tatagobona. • *The chief's sons are fighting over their father's chieftainship.*
baka[3] ** See **lebaka**
baka[4] Correct spelling = **ba ka**
ba ka *** *possessive construction cl. 2* ► **my**; **of mine** Bana ba ka ba babedi ba tsena yunibesithi. • *My two children are at university.*

Note: *This construction consists of the possessive concord 'ba' of class 2, and the possessive pronoun 'ka' of the first person singular. It is often misspelled as 'baka'.*

Figure 9: Creating the article 'ba ka' (as well as making provision for the misspelled 'baka[4]') in the dictionary compilation environment *TshwaneLex*

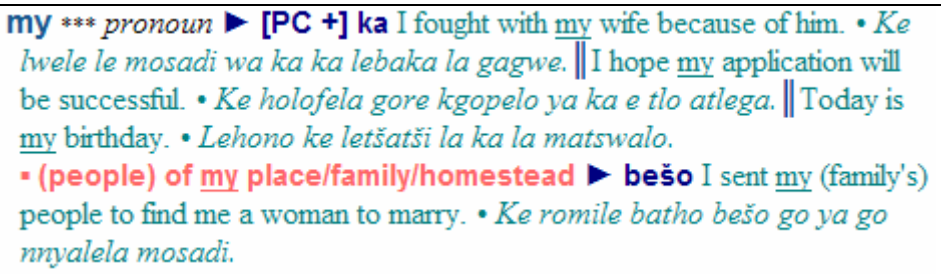


Figure 10: Creating the article 'my' in the dictionary compilation environment *TshwaneLex*

Conclusion

The above examples show why it is thus actually not even possible to 'clean up' and to 'read through' an entire (African-language) corpus before starting to use it to derive linguistic products from. The errors and inconsistencies are exactly needed to be able to formulate and derive rules from. Transformations and interpretations have to be performed on the fly with, for dictionary making, corpus-based lexicographic pragmatics one of the logical outcomes.

Dictionary abbreviations

COBUILD 2 = Sinclair 1995
COBUILD 5 = Sinclair 2006
MEDAL = Rundell 2002
POPULAR = Kriel, Prinsloo & Sathekge 1997
PUKUNTŠU WOORDEBOEK = Kriel, Van Wyk & Makopo 1989
PUKUNTŠU YA SEKOLO = De Schryver 2007

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