Abstract: The mediostructure, that is the system of cross-referencing, is a lexicographic device that can be used to establish relations among different components of a dictionary. This paper focuses on different mediostructural strategies and their practical application in general synchronic dictionaries. The structure of dictionaries is discussed from a metalexicographic perspective in order to explain the system of cross-referencing. It is shown how textual cohesion, achieved by the interaction of the various structural components, is promoted by the use of a system of cross-referencing and improved by an innovative approach towards a mediostructure-orientated lexicography.

Keywords: CROSS-REFERENCING, MEDIOSTRUCTURE, LEXICOGRAPHY, DICTIONARY, METALEXICOGRAPHY, REFERENCE ENTRY, REFERENCE RELATION, REFERENCE ADDRESS, AFRICAN LANGUAGES

Introduction

In spite of the fact that lexicography has been practised for centuries, metalexicography, that is the theory of lexicography, is a relative new subdiscipline within the broader field of linguistics. Dictionaries existed and functioned quite well long before theoreticians, critical analysis and theoretical frameworks. Today, however, it is widely accepted that there is a strong interplay between...
metalexicography and the lexicographic practice. The metalexicographical influence has transformed lexicography into a scientific practice with a very definite purpose, viz. the production of dictionaries. The production of dictionaries as a result of the scientific practice of lexicography should lead to the establishment of the cultural practice of dictionary use. The user-perspective, so prevalent in modern-day metalexicography, compels lexicographers to compile their dictionaries according to the needs and research skills of well-defined target user groups. The dominant role of the user has had a definite effect on the compilation of dictionaries as well as on the evaluation of their quality. Good dictionaries do not only display a linguistically sound treatment of a specific selection of lexical items. They are also products that can be used as linguistic instruments by their respective target user groups. The better they can be used, the better dictionaries they are.

The quality of dictionary use, that is the degree of success a user experiences when consulting a dictionary and employing the retrieved information, is determined by a variety of features, but one of the most important characteristics of a good dictionary is its accessibility. Accessibility leads to an unambiguous retrieval of the information presented on both the macro- and microstructural levels. Any theory of lexicography should present strategies to improve the linguistic quality of dictionaries. However, this should be preceded by strategies to enhance the way in which the target user can identify the data he/she is looking for in order to retrieve the necessary information and to utilise it for decoding or encoding purposes.

Dictionary research has lead to the establishment of different structures of printed dictionaries, e.g. in addition to the macrostructure, microstructure and access structure also the mediostructure. The mediostructure, that is the system of cross-referencing, is a lexicographic device that can be used to establish relations between different components of a dictionary. According to Wiegand (1996: 11) it interconnects the knowledge elements represented in different sectors of the dictionary on several levels of lexicographic description to form a network. Working with a dictionary as a carrier of texts, the mediostructural entries can guide the user between different texts, e.g. between the central text and any text in the front or back matter or between various articles functioning as subtexts in the central word-list. An article-internal mediostructural relation assists the user to relate various microstructural entries employed in the same article.

This paper focuses on different mediostructural strategies and their practical application in general synchronic dictionaries. The structure of dictionaries is discussed from a metalexicographic perspective in order to explain the domain of application of a system of cross-referencing. It is shown how textual cohesion, achieved by the interaction of the various structural components, is promoted by the use of a system of cross-referencing and improved by an innovative approach towards a mediostructure-orientated lexicography. Although the mediostructure of dictionaries is a central topic of this paper, references to
the theory of mediostructures will only cover a small segment of this structural component. A detailed discussion can be found in Wiegand (1996).

Some basic terms relating to a theory of mediostructures

Wiegand (1996) gives an exposition of the fundamental terms employed in a theory of mediostructures. According to his theory, a lexicographer refers the dictionary user from a reference position to a reference address. This is usually done by means of a reference entry and gives the user access to additional relevant lexicographic data. A reference relation is established between the reference entry and the reference address. In Webster's Ninth New Collegiate Dictionary (W9) the article of the lemma sign *frog* contains the following entries:

any of various smooth-skinned web-footed largely aquatic tailless agile leaping amphibians ... — compare TOAD

In this example the specific slot in the article of the lemma sign *frog* is the reference position, and the lemma sign *toad*, the separate macrostructural entry to which the user is referred, is the reference address. Here the reference entry consists of two separate text segments, i.e. the entry marking the reference relation (*compare*), henceforth referred to as the reference marker, and the entry indicating the reference address (*toad*).

A variety of reference markers is used in different dictionaries and often also in one dictionary, e.g. text segments like *see*, *compare*, →, ⇒, etc. In the English-Dutch translation dictionary *Van Dale Groot Woordenboek Engels-Nederlands* a single arrow is used as one of the reference markers. In the article of the lemma sign *track system* the reference entry "→ tracking" consists of the reference marker "⇒" and the entry *tracking*, indicating the reference address.

A rather interesting example of cross-reference is found in Dictionary of Lexicography (DL) in its treatment of the entries circular reference and reference circularity. The first is referred to the second, and the second again to the first:

**circular reference**
⇒ REFERENCE CIRCULARITY

**reference circularity**
⇒ CIRCULAR REFERENCE

After having fallen victim to this cunning technique by which the user is put into an unending loop he/she will understand exactly what idea is conveyed by "circular reference"!

For the purpose of this article it is important to pay attention to one further
aspect of the theory of mediostructures, i.e. three important types of reference addresses. The first category is that of the internal reference address. With an internal reference address the mediostructural relation does not exceed the boundaries of the article. This type of cross-referencing is used to establish cohesion between different microstructural entries in one article. Basiswoordeboek van Afrikaans contains the following article for the lemma sign frats (trick/freak):

(1) frats (fratse) nw. ① Iemand haal fratse uit om mense te vermaak of te laat lag. 'n Mens moet soms vaardigheid hé om dit te kan doen; toertjie, kunsie. Die kinders het baie gelag vir die fratse van die hanswors by die sirkus. Die aap haal baie fratse uit met die hoop dat die mense vir hom sal grondboontjies gee. ... ② 'n Frats is iets wat baie ongewoon of onverwags is. Fratse kan ook iets wees wat skielik afwyk van die gewone. 'n Man wat na die kinders kyk terwyl sy vrou werk, sal deur baie mense as 'n frats beskou word. Hier is laasweek 'n fratskalf gebore met twee koppe en vuf bene. ... fratvlieëër (by 1); fratbrander, fratgolf, fratsongeluk (by 2)

The niched lemmata, included as run-on entries, consist of the unexplained compounds fratvlieëër (aerobat), fratbrander, fratgolf (freak wave) and fratsongeluk (freak accident), with the lexical item frats- as word initial stem. However, it is not the same sense of the lexical item frats- that functions in these self-explanatory compounds. Two sense discriminations occur in the treatment of the lemma frats. To assist the user in achieving the correct semantic interpretation a relation has to be established between the different niched lemmata and the relevant sense discriminations. One of the ways in which this can be done, is by means of a mediostructural procedure that is aimed at an article-internal address. The lemma sign fratvlieëënier is followed by the entry (by 1) and the other compounds by the entry (by 2). These are cross-references with the text segment by functioning as a reference marker, and the text segments 1 and 2 functioning as reference address indicators. These reference entries guide the user from the reference position to an address in the same article, i.e. the meaning paraphrases presented for the respective sense discriminations.

A second type of reference address is the external reference address. The cross-reference exceeds the boundaries of the article. Two search domains can be identified for external reference addresses. Dictionary articles are texts but they also function as subtexts of the central word-list which is the dominating lexicographic text. The external address can be located either elsewhere in the central word-list, e.g. another lemma sign or a specified microstructural element in another article, or in a separate text outside the central word-list. Compare the articles of gyro and stow in Collins Dictionary of the English Language (CED) and Longman Dictionary of Contemporary English (LDOCE) respectively.

(2) gy·ro (ˈdʒaiərəu) n., pl. ˌros. 1. See gyrocompass. 2. See gyroscope.
Cross-Referencing as a Lexicographic Device

(3) **stow /stou/ v [X9 (AWAY)]**  
1 to put away or pack, esp. for some time: to stow goods (away) in boxes  
2 stow it! sl Be quiet!

The lexical item gyro is polysemous and has two different senses. The article of this lemma sign displays no meaning paraphrase for either of the polysemous senses but cross-references the user instead to the treatment presented for two other lemma signs, i.e. gyrocompass and gyroscope. These lemma signs are the external reference addresses located elsewhere in the central word-list. In the article of the lemma sign stow LDOCE includes the text segment "[X9(AWAY)]". The X9 refers the user to a text in the back matter of the dictionary which contains a table of codes indicating a variety of grammatical values. X9 is explained in this table as a verb with one object as well as an additional descriptive word or phrase, e.g. put + it + in the box. The text element away in the quoted text segment is the additional word to be used with the verb stow. In this example the text segment X9 is a reference entry indicating an external address located in another text of the dictionary.

Quite often a combination of external and internal reference addresses are given in one reference entry. In *The Concise Oxford Dictionary* the article of the lemma sign ghosting contains the following entries:

- the appearance of a 'ghost' (see GHOST n. 4) or secondary image in a television picture.

In this example the meaning paraphrase of the lemma sign ghosting is the reference position containing a triple address which consists, as the main address, of an external reference address located in the central word-list, i.e. the lemma sign ghost, as well as two additional internal addresses, i.e. a secondary address, the nominal function of this lexical item, and a tertiary address, the fourth polysemous sense of this item. The last two reference addresses identify text segments in the article of the lemma sign ghost.

The use of a mediostructural strategy of external reference addresses endeavours to enhance the functionality of a dictionary as a source reflecting aspects of the linguistic reality. One of the real problems experienced by the users of alphabetically ordered dictionaries is the decontextualisation of lexical items. Bolinger (1985: 69) maintains that lexicography is an unnatural occupation: "It consists in tearing words from their mother context and setting them in rows — carrots and onions and beetroot and salsify next to one another — with roots shorn like those of celery to make them fit side by side, in an order determined not by nature but by some obscure Phoenician sailors who traded with Greeks in the long ago." He continues this argument by saying that "half of the lexicographer's labor is spent repairing this damage to an infinitude of natural connections that every word in any language contracts with every other word, in a complex neural web knit densely at the center but ever more diffusely as it spreads outward". According to him "a bit of context, a synonym, a grammatical category, ... and a cross-reference or two" are "the additives that accomplish the repair".
From both a semantic and a pragmatic perspective the lexicon has to be regarded as an ordered set of lexical entries. However, the alphabetical ordering of a dictionary defies the network of semantic relations existing between this set of lexical entries. The mediostructure of a dictionary is a powerful mechanism to re-establish some of the lexical relations. Dictionaries employ the mediostructure to refer the user to external addresses which are linked with the lemma sign of the reference position article in relations such as synonymy, oppositeness of meaning, hyponomy, dialectal, stylistic, chronolectic and other forms of variation, etc. For the language learner as well as the seasoned native speaker of any given language these cross-references represent an added value which assists them in improving their communicative potential. South African dictionaries should employ external reference addresses in a more general and consistent way. However, it is of extreme importance that these strategies be explained comprehensively in the front matter of the dictionary.

The third category of reference address is the dictionary external reference address. This mediostructural procedure links a text segment in a dictionary to a source outside the dictionary. In *A Dictionary of Language Planning Terms* Cluver (1993) puts the strategy of dictionary external reference to good use. The back matter of the dictionary contains a bibliography of sources in which more information regarding the terminology treated in the dictionary can be found. Many articles contain condensed bibliographical references which leads the user to the bibliography in the back matter. This is the reference position from where the user is guided by means of a complete reference to the specific source. The condensed bibliographical references in the articles are clearly indicated by the reference marker "Bibl.". In the article of the lemma sign primary language the following text segment is found: "Bibl. Mühlhäusler 1986: 9". The bibliography gives the full reference, i.e. "Mühlhäusler, P. 1986. *Pidgin and creole linguistics*. Oxford: Basil Blackwell." By means of the dictionary external reference address the lemma sign is linked to this external source. A variety of other reference addresses can also be identified but they are not relevant for the present discussion.

For the African languages, apart from the disruption of semantic relations, alphabetical ordering has serious detrimental consequences for grammatical relations. Many traditional compilers, although following an alphabetical ordering in principle, regard the importance of combined semantic and grammatical cohesion as too important to break.

This view implies that in the case of African languages the mediostructure is incapable of re-establishing the most relevant lexical relations. In most dictionaries this results in a hybrid approach where different derivations, sometimes a hundred or more, of a single word are treated within the article of a nominal or especially verbal stem in a complex article with numerous sublemmas and sublemmatic addresses, in addition to being entered as separate lemmas in their appropriate alphabetical positions.
(4) RËKA (-eθa, -eθiθa, -eθa, -eθiθa) koop, aankoop, ruil // buy, purchase, barter; ~ polsa in weede lewe // live in comfort/luxury; ~ o lebëleθë godimo kat in die sak koop // buy a pig in a poke; nku e reθa mosela 'n mooi geboude dame is 'n aantrekking kraag vir jongmans // a lady with a good figure easily attracts young men; diθëkaθëkâne (diθëkaθëkanë) verskiedenheid gekoepse goeder // variety of things bought; lerëko, ma (lerëkâ) gewoonne/neig om te koop // habit of buying, inclination to buy; morëkâ, ba- (morëkâ) pers. dev.; koper // buyer, purchaser; serëki, di- (serëki) pers. dev.; lustige koper // keen buyer; serëko, di- (serëko) pers. dev.; wat gekoop word, aankope // purchases(s); théko, (o)-di- (thëko) man. dev.; koopwyse, prys // manner of buying, price; RËKANA (-rëkana, -rëkanë, -rëkanwa, -rëkanwe) rec.; ruil met mekaar // exchange with one another; a re rëkañ, wena o mphë hëmë elà, nna ke go fë dëta tët laat ons met mekaar ruil, jy gee my daardie hemp en ek gee jou hierdie skone // let us exchange. you give me that shirt, I will give you these shoes; barëkâl (barëkaal) pers. dev.; thékâno, (n-)-di- (thèkând) man. dev.; RËKANTSQA (-rëkantha, -rëkanthëtiθë, -rëkantha, -rëkanthëtiθëwe) caus. < RË-KANA; (om)ruil, wissel (ged); inruil // exchange, barter, trade in, swap; morëkântlthi, ba- (morëkântlthi) pers. dev.; serë- 

kantha, di- (serëka nthâwa) impers. pass. dev.; thékântho, (n-)-di- (thèkânthâ) man. dev.; omruiling, inruiling, wisseling // exchange, bartering, swapping; RËKANYA (-rëkanya, -rëkanle, -rëkanwa, -rëkanwe) caus. < RË-KANA; (om)ruil, wissel (ged) // exchange, barter, swap; morëkânyâl, ba- (morëkânyâl) pers. dev.; serëkânyâwa, di- (serëkânyâwâ) impers. pass. dev.; thékâno, (n-)-di- (thèkând) man. dev.; v. thékântho; RËKEGA (-eθega, -eθegëliθe) neut.; koopbaar w. // b. purchasable; RËKELA (-rëkela, -rëkëliθe, -rëkëliwa, -rëkëliwe) appl.; koop vir // buy for; ~ kolofë kleisig (< Afrikaans) in die sak koop // buy a pig in a poke; borëkëlo (borëkëlo) lo. dev.; kooplek // place where things are bought; morëkël, ba- (morëkëll) pers. dev.; morëkëlwâ, ba- (morëkëlwâ) pers. pass. dev.; thékëlo, di- (thèkëllo) impers. dev.; iets waarin jy koop // that into which one buys; thékëlo, (n-)-di- (thèkëllo) man. dev.; maat, skaal (waarin bv. bier gekoop word) // measurement; bown (one used for buying beer); RËKELANA (-rëkelâna, -rëkelâne, -rëkelâna, -rëkelâne) appl. rec.; barëkëlan (barëkëlan) pers. dev.; thékëlan, (n-)-di- (thèkëllan) man. dev.; RËKISA (-eθiθa, -eθiθiθë, -eθiθiθa, -eθiθiθiθiθëwe) caus.; koopbaar; van die hand sit // cause/help buy, sell; ~ ka leme kul, mislei, verdraai // deceive, mislead, pervert; ~ leleme praaties w., skinder // gossip, b. loquacious, b. garrulous; ~ mòko a ta phëla iemand kulk // deceive someone; ~ mòho lebëke iemand kul, 'n tvergerfse belofte maak, iemand verag weens sy slepte gedrag // deceive someone, give a vain promise, despise someone because of his bad conduct; ~ segal iets aan iemand so verkoop dat hy 'n goeie slag sian omdat hy jy vriend van familie is, asflog ge // sell to someone at bargain price because he is your friend/relative, give discount; morëkili, ba- (morëkili) pers. dev.; verkoper, koopman, winkelier // seller, salesman, store-keeper; serëkiliwâ, di- (serëkiliwâ) impers. pass. dev.; thékilo, (n-)-di- (thèkiliło) man. dev.; verkoping, uitverkoping, afset, be-marking // sale, selling, market, marketing; RËKISANA (-rëkisana, -rëkisane, -rëkisa na, -rëkisane) caus. rec.; ruil met mekaar // exchange with one another; barëkisâl (barëkisâla) pers. dev.; thékisâno, (n-)-di- (thèkisând) man. dev.; RËKISEGQA (-rëkëgë, -rëkëgëliθë) neut. < RË-KISA: verkoopbaar w. // b. sellable; RËKISETSQA (-rëkisëtsa, -rëkisëtsë, -rëkisëtsë, -rëkisëtsëwe) caus. appl.; koop vir // sell for; borëkisëte (borëkisëte) lo. dev.; verkoper // selling place; morëkëte, ba- (morëkëte) pers. dev.; tagent // t'business agent; thékisëto, (n-)-di- (thèkisëtë) man. dev.; RËKISETSANA (-rëkisëtsana, -rëkisëtsane, -rëkisëtsane, -rëkisëtsane) caus. appl. rec.; sake verlig // transact business; barëkisëtëlan (barëkisëtëlan) pers. dev.; thékisëtëlan, (n-)-di- (thèkisëtëlan) man. dev.; besighedtarsansaksie // business transaction; RËKOLLA (-rëkollâ, -rëkollë, -rëkollâ, -rëkollawâ) rev. tr.; terugkoop, terug, geld terugvra, los // buy back, exchange back, ask for a refund, redeem; morëkollâ, ba- (morëkollë) pers. dev.; serëkollâ, di- (serëkollâ) impers. pass. dev.; thékollâ, (n-)-di- (thèkollâ) man. dev.; (Bl) lossing // (Bl) redemption; RËKO LANA (-rëkolâna, -rëkolâna, -rëkolâna, -rëkolâna) rev. rec.; barëkolâlin (barëkolâlin) pers. dev.; thékolâlin, (n-)-di- (thèkolâlin) man. dev.; RËKOLLELANA (-rëkollâlanâ, -rëkollâlanâ, -rëkollâlanâ, -rëkollâlanâ) rev. appl.; barëkolâlin (barëkolâlin) pers. dev.; thékolâlin, (n-)-di- (thèkolâlin) man. dev.; RËKOLLELLA (-rëkollâlla, -rëkollâlla, -rëkollâlla, -rëkollâlla) man. dev.; RËKOLLELELA (-rëkollâlela, -rëkollâlela, -rëkollâlela, -rëkollâlela) rev. appl. rec.; barëkolâlin (barëkolâlin) pers. dev.; thékolâlin, (n-)-di- (thèkolâlin) man. dev.; RËKOLLELLANA (-rëkollâllanâ, -rëkollâllanâ, -rëkollâllanâ, -rëkollâllanâ) rev. appl.; barëkolâlin (barëkolâlin) pers. dev.; thékolâlin, (n-)-di- (thèkolâlin) man. dev.; RËKOLLELLISANA (-rëkollâllisana, -rëkollâllisane, -rëkollâllisane, -rëkollâllisane) rev. caus.; morëkollâ, ba- (morëkollili) pers. dev.; thékollâ, (n-)-di- (thèkollâ) man. dev.; RËKOLLELLISANA (-rëkollâllisana, -rëkollâllisane, -rëkollâllisane, -rëkollâllisane) rev. caus.; barëkolâlin (barëkolâlin) pers. dev.; thékolâlin, (n-)-di- (thèkolâlin) man. dev.
Thus in dictionaries such as *Groot Noord-Sotho Woordeboek* (GN) word stems and their derivations are clustered together in one huge entry with the noun or verbal root as the lemma often containing up to eighteen levels of sublemmas. Compare example (4). Where derivations are entered separately in their appropriate alphabetical positions in GN, only minimal grammatical information is given and a reference back to the cluster.

(5) thékólanno, (n-)/di- v. RÉKA
thékóllelano, (n-)/di- v. RÉKA
thékóllelo, (n-)/di- v. RÉKA
thékólilišano, (n-)/di- v. RÉKA
thékólilišo, (n-)/di- v. RÉKA
thékóllo, (n-)/di- v. RÉKA

In this way mediostructure is exhausted/overused for the sole purpose of maintaining structural links. Little or no realization of mediostructure as a powerful access structure is achieved. Once referred back to the main cluster (4), it is unlikely that the user will be able to work out the meaning, especially for those cases which lie relatively deep in the modular structure as in the case of dithekollisano. The user has to look up this word under the singular thekolilišano in (5) and is then referred to reka in (4) and eventually, after having struggled through this lengthy article, he finds thekolilišano at the end of (4) with no translation equivalents given. (Compare Prinsloo (1994) for similar examples and a detailed discussion on problematic aspects of the lemmatization of verbs.)

This obsession with keeping together what in their view semantically and grammatically "belong together" thus results in extremely user-unfriendly entries in which successful retrieval of information virtually becomes impossible. It could be argued that the utilization of cross-references simply for the sake of grammatical binding is nonfunctional.

It was stated in the introduction that one factor in the evaluation of a dictionary is the extent to which it is useful to the user. Dictionaries such as these fail in this main criterion. Students consequently opt for less sophisticated dictionaries with less information categories and less exhaustively treated lemmas, i.e. a lower density of information.

Cross-referencing has not been employed to its full potential in dictionaries for most African languages. Typical errors and shortcomings will be briefly outlined below.

Consider the treatment of molelo versus mollo in *New English Northern Sotho Dictionary* (NEN):

(6) (a) mo'lelo, see: mollo.
(b) 'mol'lo, n., fire, witch-weed, principal wife; ...
(c) mol'lo, n., cry, (manner of) crying.
In (6) the exact reference address to which the user is referred from (6)(a) is uncertain. The second entry for molló, (6)(c), has no relation to mollolo whatsoever. To make things worse, the reference in (6)(a) is to molló instead of 'molló. The convention ‘laughter’ is also not explained in the dictionary. Since molló in (6)(b) and molló in (6)(c) represent a fairly rare situation where two words in Sepedi can neither be distinguished phonetically (both molló) and having an identical tonal pattern (low-low-low), the compiler should therefore distinguish by means of homonym numbers, i.e. molló¹ and molló². The decision of the compiler to refer the user who looks up mollolo to molló without treating mollolo, is however acceptable in terms of frequency-of-use criteria since molló is frequently used and mollolo not. Thus no cross-reference from molló to the less frequently used mollolo is necessary or appropriate because the target user of this dictionary is looking for translation equivalents in the target language and is not interested in (more) information in the source language. However, within the article of molló¹, reference should be made to mollolo but then labeled as dialectical or treated by means of inserted text. Compare the additional information given by means of inserted text in Reader’s Digest English–Afrikaans Dictionary (RD) in the case of rekenaar versus komper:

(7) komper = computer; vid. rekenaar, rekenoutomaat.

WORDS IN ACTION
komper, rekenaar, rekenoutomaat

Komper (computer) is the word used by some speakers and writers in the Western Cape. Other people there and most people elsewhere in South Africa use rekenaar. Rekenaar is also the word preferred by people in the computer profession ...

The treatment of bracket versus brackets in Northern Sotho Terminology and Orthography (NTO) can now be considered:

(8) (a) bracket (symbol) (see: hakie leşakana brackets)
(b) brackets vierkantige hakies mašakanakhutlwana

In (8)(a) translation equivalents in Afrikaans and Sepedi are given for bracket. The cross-reference to brackets is quite appropriate since the latter is more frequently used. Also, due to considerations regarding frequency of use, no reference from brackets to bracket is necessary. However, in looking up brackets, the user does not get any additional information, e.g. in respect of types and use of brackets. On the contrary, he/she is misguided by the additional information given at the reference address namely that the lemma brackets is
translated in Afrikaans and Sepedi as necessarily square. Thus, in contrast to the singular bracket, the plural form excludes other types of brackets.

It is important that the user should find more information at the reference address, otherwise the value of cross-referencing is devalued. Cross-reference, or more specifically, the position of a cross-reference entry, indicates to the user that this is the starting-point in the process of information retrieval. The usage frequency of the item which stands in the cross-reference position, is lower than the reference address. The lexicographer may never utilize the system of cross-referencing simply because he/she does not want to give proper treatment to the items in question. If it is in the interest of the target user, a specific lemma should be entered and treated. Cross-references such as those attempted in (6) and (8), will have a negative effect on the target user. Once disappointed, it will discourage him/her from following up cross-references since it is impossible to distinguish between functional and nonfunctional references in the dictionary.

Consider also NTO's treatment of complainant versus plaintiff:

(9) (a) complainant (see: plaintiff) klaer mmelaedi, molli, mmegi (b) plaintiff eiser, klaer mmelaedi, molli, mmegi, motlalei

It is unclear why no cross-reference from plaintiff to complainant is given. Such a reference is necessary because equivalents in both target languages are given under complainant. The addition of the translation equivalents eiser in the Afrikaans column and motlalei in the Sepedi column also raise a few questions. Firstly, it implies that eiser and motlalei are suitable equivalents for plaintiff but not for complainant. Secondly, to give eiser as the first translation equivalent for plaintiff suggests that it is the best option. However, although it is added in the case of motlalei to the translation equivalent paradigm in (9)(b) for the sake of eiser, it is given at the end. Thus the entire relationship between complainant and plaintiff becomes unclear. The user cannot determine in which relation they stand to each other. Central text-internal reference should strengthen the cohesion, as is correctly done in the case of molelo versus mollo in (6) above. In the case of (9) this cohesion is actually broken off. The user who wants to find translation equivalents in Afrikaans and Sepedi is referred to another word where the same treatment is given for no reason.

An even more confusing example of cross-reference in NTO is its treatment of Brave West Wind versus anti-trade wind:

(10) (a) Brave West Wind (see: Anti-trade wind) Antipassaatwind Phefomadibakgwebo (b) anti-trade wind antipassaatwind phefomadibakgwebo, diphefo tša bodikela
Cross-reference is given from (10)(a) to (10)(b) but not vice versa. The compilers are not consistent in the use of capital versus lower case letters in Anti-/anti- and Pheo-/pheo. Ironically reference to the "West" in Sepedi, namely, tša bodikela, is added to the translation equivalent paradigm of (10)(b) instead of (10)(a).

In addition to implicit cross-referencing, two types of explicit cross-referencing are used in Thanodi ya Setswana (TS) namely:

\[ \text{(11) kgarebē TTT lekgarebē In.9. ma-. mosetsana yo o godileng mme a ise a nyalwe} \]

\[ \text{lekgarebē TTTT In.5. ma-. 1. mosetsana yo o lekaneng go nyalwa 2. mosetsana yo o ithôkômêlang a apara sentlê} \]

The examples under (11) from TS, explicitly referring the user from kgarebē to lekgarebē is sensible since apart from the meaning "girl who can be married" which is similar to that given in sense 1 of lekgarebē, an extended meaning "a neatly, well-dressed girl" is given as sense 2. The fact that no explicit reference from lekgarebē to kgarebē is given, is also quite acceptable since the user who looks up lekgarebē will not find any new information under kgarebē. However kgarebē must be given as a synonym directly following the sense 1 definition. TS's treatment of kgarebē can also be improved in respect of the position allocated to the reference entry. The explicit cross-reference \( \text{lekgarebē} \) should not be given in the focus position of the article. It can be regarded as an unnecessary or even nonfunctional cross-reference interfering with the user's information retrieval process. Formulated differently, the information primarily needed by the user who looks up kgarebē is that given in the definition. Once given the definition, he/she might be interested to consult the reference address for additional information. It can also be argued that the wrong reference symbol is used in the case of kgarebē versus lekgarebē. The relation is one of relatedness rather than difference — thus in terms of TS's conventions "BÔNA" rather than ";:;".

\[ \text{(12) kgarebē(ma) mosetsana yo o godileng mme a ise a tsewe (nyalwe). lekgarebē(ma) kgarebē; mosetsana yo o ka tšewang.} \]

TSD's treatment of the same words are shown under (12). In the case of kgarebē only a definition is offered, while a synonym as well as a definition is given for lekgarebē. Since no cross-reference is made from kgarebē to lekgarebē, it...
suggests that kgarebê is the entry with the higher usage frequency. However, the user gets more information from lekgarebê, namely a synonym as well as a definition, than from kgarebê. This is confusing. In terms of cross-reference it can be said that the article of the lemma sign lekgarebê is a reference position of the reference entry kgarebê. Normally, for economical reasons, the same definition is not given in two places. Two definitions and the lack of cross-reference has a negative effect on cohesion. Here the user cannot establish which one is the more frequently used. The more frequently used word is the one likely to be treated. This in itself is an indication of higher frequency of use. It would thus be better to enter kgarebê with a definition, adding lekgarebê as a synonym. It is normal practice to give a list of synonyms after the definition since they meet the criteria to be lemmatized themselves. Such synonyms can be listed in order of frequency of use if such criteria is available or otherwise alphabetically. Thus, since all synonyms have to be entered as lemmas, lekgarebê will be entered as a lemma sign but only with a cross-reference to kgarebê.

It is also not clear why in both TS and TSD the definitions differ in respect of the concept "grown up". In the case of lekgarebê "a girl who can be married" and in the case of kgarebê "a grown-up girl, one who is not yet taken/married". When comparing the two, the user can get the wrong impression that kgarebê implies an adult and lekgarebê not.

Cross-references from the front matter, especially from the user's guidelines to the central text are crucial to the user for successful or optimal retrieval of information. Dead references, especially in the guidelines of a dictionary are defects which undermine the trust of the user in the dictionary as a reliable source of information, and in the value of the cross-referencing system as a whole. Such dead references often do not effect only one reference address, a key to a whole section can be lost. Consider the following example: In the guidelines to A Learner's Chichewa and English Dictionary (LCE), the compilers explain the policy not to lemmatize derived forms when the meaning is readily ascertainable from the root plus suffix combination. In support of this far-reaching decision for lemmatization of an African language, they include cross-references in the central text: "Thus, both -mva 'hear, understand' and its derived form -mvana 'get along together' are listed". However, the very examples that they quote to illustrate their policy, are not treated as such: -mva is listed but not -mvana. This dead reference to -mvana can cause the user to doubt the treatment policy not only in respect of a single entry but a whole category of entries. A similar dead reference occurs in the next sentence: "the derived verb -mverana 'listen to each other' is not listed because its meaning is readily determined from the root -mvera 'listen to' plus an affix". However, again the root -mvera is not listed, clearly violating the claim "verbs are entered according to their root forms".

The treatment of cross-references in the Dictionary of Northern Sotho Grammatical Terms (NGT) can now be considered. This dictionary is a pioneering first for Sepedi and very popular among its target users.
Cross-Referencing as a Lexicographic Device

(13) **tone** (*segalô, toon*)

Tone can be defined as *pitch variations* which affect the meaning and function of words. *Tone* is one of the distinctive features of the Bantu language family (see *Bantu languages*), and in these languages differences in *tone* between words which have exactly the same shape, result in a difference in meaning. Two basic tones (also called *tonemes*) are usually distinguished, namely a *high tone* and a *low tone*, although more detailed distinctions are often drawn between, for example *rising* and *falling tones, mid, mid-high and mid-low tones*, etc. A *tone* (or *toneme*) is always associated with a particular *syllable*, i.e. there are as many *tones* in a word as there are syllables since *tones* realise on *vowels*. This is one of the reasons why vowels are often referred to as *syllable nuclei*. (See: *nucleus*.) ...

In this article of *tone* explicit reference is made to *Bantu languages* and *nucleus*. At the reference address, *Bantu languages*, the user finds more useful information on tone in the African languages. Likewise, the user who consults the entry *Bantu languages* first will find, in addition to other useful information given there, "tone plays a distinctive role. See *tone*". This is good lexicographical practice since for the user who consults the entry *Bantu languages*, as well as for the user who looks up *tone*, the cross-references are useful. Both contain more information at the respective reference addresses with regard to two important and closely related issues such as *African languages* and *tone*. The same holds true for the explicit reference made to *tone* in the article of *syllabic nasal*. The treatment of *syllable* and *tonal pattern* as reference positions of explicit reference to the addresses *nucleus* and *tone* respectively, can however be improved.

(14) **syllable** (*noko, sillabe/lettergreep*)

See *nucleus*.

(15) **tonal pattern** (*"patrone ya segalô, toonpatroon*)

See *tone*

Firstly, *syllable* in (14) deserves full treatment, especially in a dictionary of grammatical terms. Apart from translation equivalents in Sepedi and Afrikaans, no definition is given, only an explicit reference to *nucleus*. In the article of *nucleus*, many references are once again made to *syllable*, such as "[a nucleus] is used to characterize the nature of a *syllable*". As for *syllable*, it is maintained that "vowels form the nuclei of syllables", etc. However, *syllable* itself remains undefined. Thus *syllable* deserves a definition and treatment as for example in (16) from *South African Student’s Dictionary* (SSD) and in (17) from *New Student’s Dictionary* (NSD):
(16) **syllable ... noun: syllables**

A syllable is any of the parts, consisting of one or more sounds and usually including a vowel or a consonant acting like a vowel, that a spoken word can be divided into: The word 'telephone' has three syllables, 'te', 'le', and 'phone', and 'tiger' has two, 'ti' and 'ger'.

(17) **syllable ... syllables. N-C** A syllable is a part of a word that contains a single vowel-sound and that is pronounced as a unit. For example, 'book' has one syllable, and 'reading' has two syllables.

(18) **toneme (**segaltwana, toneem/toonfoneem)**

See tone.

An important statement in the article of tone in (13) reads: "Tone is always associated with a particular syllable." The user of NGT consulting tone could easily perceive the italicized word syllable as an implicit reference entry but find it to be nonfunctional since in looking up syllable in (14), he/she is referred to another address namely nucleus. Furthermore, although tone is one of the key issues discussed in the article of nucleus, no explicit reference is given to tone. In the case of tonal pattern, the user is referred to tone but the distinction between tone and tonal pattern is unclear. From phrases such as "depending on its tone or tonal pattern", it is not clear whether or means "equal to" or "in contrast to". The user who wishes to know the meaning of tonal pattern is referred to tone but will not know for sure after having studied the treatment of tone whether tone and tonal pattern is synonymic or not. In the case of tone versus toneme in (13) and (18), or in the phrase "a tone or toneme" means tone is equal to toneme. It should rather be clearly stated that tonal pattern is a series of tones/tonemes. This could be explained by using mosadi as an example, where mo has a low tone, -sa a high tone and -di again a low tone. The tonal pattern of these three tones/tonemes is therefore low-high-low, often indicated as LHL. This suggests that tonal pattern deserves to be treated on its own. In Wiegand's (1996) terms, it means that if the user is referred from tonal pattern, which is the reference position, to the article of the lemma sign tone, the reference address, more information on/a fuller treatment of tonal pattern must be given. Thus the cross-reference from tonal pattern to tone is not observed in the sense that tonal pattern is not really treated within the article of tone. The purpose and value of the cross-reference is lost.

Finally, key terms used in the treatment of the lemma tone which are italicized such as pitch variations, tonemes, and especially syllable are not treated in the dictionary. The user expects a clearer distinction between implicit reference to a different reference address, on the one hand, and mere instances of emphasis on the other.

This does not mean that the lexicographer should solely utilize explicit references to distinguish between emphasis and cross-referencing, since there is
no fundamental value difference between explicit and implicit reference systems. The former is only more obvious than the latter. Thus it is suggested that the lexicographer should utilize both as long as implicit references can be clearly distinguished from mere emphasis. The implicit cross-reference strategy must however be clearly apparent. This means that terms used within the articles of entries which are themselves lemmatized and treated elsewhere in the dictionary, must stand out and be treated consistently.

The mediostructure has not in all instances been employed to its full potential. In a dictionary of grammatical terms, the mediostructure could be employed as a powerful access structure by ensuring that at least all keywords used within the treatment of a specific lemma which are themselves entered as lemmas in the same dictionary, are marked for cross-reference. Dictionary of Lexicography (DL) can serve as an excellent example in this regard:

(19) lexicography
The professional activity and academic field concerned with DICTIONARIES and other REFERENCE WORKS. It has two basic divisions: lexicographic practice, or DICTIONARY-MAKING, and lexicographic theory, or DICTIONARY RESEARCH. ...

It can rightfully be argued that the lexicographer should guard against excessive text condensation. However, opportunities should be utilized to strengthen the cohesion of the dictionary by optimal organization of the mediostructure as an access structure.

An excellent example in African language lexicography where mediostructure has been employed as a powerful access structure is the Lexicon Cilubà-Nederlands (LCN) compiled by De Schryver and Kabuta. This dictionary is highly successful in interconnecting the knowledge elements represented in different sectors of the dictionary on several levels of lexicographic description to form a network.

In contrast to GN, for example, the compilers of LCN are aware of the benefits of "keeping together what semantically and grammatically belong together" but also of the need (a) to avoid extremely long entries and (b) to ensure proper treatment of each derivation in terms of grammatical, tonal and lexical information. Compare the entries in LCN for -fundča and its derivations:

(20) -fundča I [tww] 1 schrijven; aantekenen; 2 aanklagen; II [adj < I] 't geschreven woord
   -dilfundčisha; -fundčangana; -fundčangeena; -fundčiibwa; -fundčika; -fundčila; -fundčilangan; -fundčisha; -fundčishangan; -fundčiibwa; -fundčishila; -fundčishilangan; -fundčishisha; -fundčilulula; kafundčila

(21) -fundčangana [tww, ass -fundča] 1 elkaar schrijven; 2 elkaar, iemand aanklagen
   -fundčangeena [tww, ass app -fundča] elkaar aanklagen ... <+ plaatsbepaling>
In contrast to cases such as dithekollisano above, the user can find even complicated derived words such as fundilangana firstly lemmatised separately in its proper alphabetical position and secondly fully treated. The user does not have to refer back to the stem entry funda to find the necessary information. An implicit cross-reference is nevertheless given to the root -funda where all the relevant derivations are listed. The compilers of LCN thus succeeded in harmonising lumping and splitting, capturing the advantages of both these approaches. It can, of course, be argued that the listing of the different derivations occupies precious space in the dictionary. However, by substantially reducing the font size, this redundancy is diminished.

Thus the compilers not only succeeded in linking stems and derivations and treating both stems and derivations satisfactorily, but they also employed a complex system of cross-referencing:

Cross-references, whether explicit or implicit, text-internal or text-external, are given from all possible slots of an article. See the following seven typical reference positions:

(22) (a) A [...] slot
Compare -funda in the article of -fundisha in (21) above.

(b) A translation/description slot
Compare nswà in the article of ciswà (-munène):
ciswà (-munène) ... 2 maanmaand gedurende dewelke nswà uitvliegen ...
A comment slot
Compare *lupòse* in the article of *kabangu:*
kabangu ... < ... de larve v deze kever heet lupòse>.

An example slot
Compare *dingisha* in the article of *enza:*
-enza ... ~ bu [ud; syn -dingisha] ...

A "compound with lemma-status" slot
Compare *kàjì* in the article of *bakàjì:*
bakàjì ... □ cn ~ [cn adj; var -kàjì] ...

A "fossilised expression with lemma-status" slot
Compare à.n. in the article of ànu:
ànu ... 0 1 ~ nànkù [ud; afk à.n.] enzovoort; ...

A tail slot
Compare » -difundisha; ... in (20) above.

The endeavour to achieve an optimal transfer of information

Dictionaries are containers of knowledge (cf. McArthur 1986). Although lexicographers have to take this into account, they should also be alert to the fact that a dictionary has to be compiled in such a way that the intended target user can employ it as a practical linguistic instrument. One of the components of a dictionary aimed at a better retrieval of information by the target user is the access structure. The access structure can be regarded as the search route of the user on his way to the lexicographic data needed. The internal access structure, that is the search route followed within the article, can display a variety of so-called structural markers. These markers signpost various microstructural data categories. Because reference markers indicate the reference entry, it can be argued that they are also part of the access structure, functioning as nontypographical structural markers. A reference marker does not only indicate the fact that a specific text segment relates to another text segment but it sometimes also explicates the type of relation that holds between the two segments. In the W9 different strategies, elucidated in the explanatory notes in the front matter, are used to accomplish successful cross-referencing. One kind of cross-reference used is the reference to a variant of the lemma. The reference position in this mediostructural category accommodates the marker *var. of.* In the article of the lemma-sign *inclose* a cross-reference "var. of ENCLOSE, ENCLOSURE" explicates the kind of mediostructural relation between the lemma-sign and the reference address. This lexicographic procedure does not only constitute a valuable type of cross-referencing but it also assists in presenting the lexicon as a structured collection characterised by a network of internal relations.

Within a multilingual and multicultural society dictionaries have an important role to play as instruments to promote mutual understanding and communicative competence. South African lexicographers should employ all available strategies to create a dictionary culture and to enhance the dictionary-
using skills of their intended target users. This approach compels lexicographers to structure their dictionaries in such a way that the retrieval of information exceeds the traditional domains. It will always be important to find comments on specific lexical items in a dictionary and it will always be important to find information linking a specific lemma or a microstructural entry like a sense discrimination, to other text segments in the dictionary. However, dictionaries compiled for the South African linguistic environment should go further than this. Besides information regarding a specific lemma or article component as treatment unit, it is of vital importance that dictionaries should expose the underlying system by focusing on a lexical item as part of an overall linguistic or grammatical pattern.

According to Jackson (1985: 53) grammar and dictionary are complementary parts of the overall description of language. However, the average member of a speech community uses a dictionary much more than a grammar. One of the assignments of the lexicographer in a multilingual society is to make his/her target user aware of aspects regarding both the lexicon and the grammar of the specific language. The first step to achieve this goal is to include a mini-grammar as a separate text in the front or back matter of the dictionary (cf. Gouws 1989). The fact that the average dictionary user focuses his attention exclusively on the data presented in the central word-list, compels the lexicographer to employ innovative strategies to ensure a successful utilisation of the grammar as one of the other texts in the dictionary. The most obvious strategy would be the establishment of text-external mediostructural relations between the central list and the mini-grammar. Dictionaries compiled for use in South Africa should be text carriers that include, among others, separate texts in which the grammatical system of the treated language is explained. Lexicographers have to employ an extended mediostructural application to guide their users from a variety of reference positions in the central list to specific reference addresses in the mini-grammar.

The front matter texts should also include a systematic exposition of other language-specific characteristics and these texts have to be addressed from the central list by means of a well-developed mediostructural network.

In conclusion

There is nothing as practical as a good theory. Therefore the success of a dictionary as a practical instrument depends on its theoretical basis. If a lexicographer cannot base his practical applications on sound theoretical principles, the dictionary is bound to be of a lesser quality. Knowledge of the structural components of a dictionary as a carrier of texts equips the lexicographer with the expertise to produce a better dictionary. Understanding the importance of cross-referencing as a functional lexicographic device enables the lexicographer to compile a dictionary which offers the target user friendly access to participa-
tion in the language game. This is desperately needed in the multilingual and multicultural South Africa.

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Abbreviations used in reference to dictionaries

A Learner's Chichewa and English Dictionary (LCE)
Collins Dictionary of the English Language (CED)
Dictionary of Lexicography (DL)
Dictionary of Northern Sotho Grammatical Terms (NGT).
Groot Noord-Sotho Woordeboek (GN)
Lexicon Cilubà-Nederlands (LCN)
Longman Dictionary of Contemporary English (LDOCE)
New English Northern Sotho Dictionary (NEN)
New Student's Dictionary (NSD)
Northern Sotho Terminology and Orthography (NTO)
Reader's Digest English-Afrikaans Dictionary (RD)
South African Student's Dictionary (SSD)
Thanodi ya Setswana (TS)
Thanodi ya Setswana ya Dikole (TSD)
Webster's Ninth New Collegiate Dictionary (W9)