

The Design of Morphological/ Linguistic Data in L1 and L2 Monolingual, Explanatory Dictionaries: A Functional and/or Linguistic Approach?

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Abstract: The contributions in Klosa (2013a) provide information on various aspects of the design of morphological data for (German) language dictionaries. Bergenholtz and Gouws (2013), however, reject most of these contributions as sources lexicographers could use for the design of language dictionaries because they are guided by linguistic theory (cf. their critique of Klosa 2013b), instead of Function Theory, and by a misguided application of methods for user research, (cf. their critique of Töpel's 2013 use of the questionnaire as method for user research). The first goal of this article is to provide a critical discussion of Bergenholtz and Gouws's (2013) views on the approach of Function Theory to the theoretical, methodological and practical aspects of the design of morphological/linguistic data in L1/L2 (language) dictionaries. It is argued that the approach of Function Theory provides lexicographers only with a usable overview of the design trends in printed and electronic dictionaries for the selection and presentation of morphological/linguistic data in dictionaries, but that the theoretical, methodological and practical approach of Function Theory is fraught with difficulties. The strategy Bergenholtz and Gouws (2013) use to debunk the linguistic approach to lexicography is not new; it is a well-known strategy used in the rhetoric of Function Theory. The second goal of this article is therefore to point out some of the general problems with a Function Theory of lexicography for the planning, production and publishing of language dictionaries. Given the problems with the theoretical, methodological and practical aspects of Function Theory, it does not offer a viable alternative to the linguistic approach to the design of morphological/linguistic data in L1/L2 (language) dictionaries. It is argued that linguistic lexicography provides lexicographers with access to a vast body of theoretical, methodological and practical research to support the design of morphological data in L1/L2 (language) dictionaries. Furthermore, it is argued that Function Theory has established the importance of functional variables in the design of (language) dictionaries, but that what lexicography needs now is a truly multidisciplinary approach to lexicography, and not an approach that reduces lexicography to the status of a hand-maiden of another discipline, for example, information science, or of a reductionist Function Theory of lexicography.

Keywords: FUNCTION THEORY OF LEXICOGRAPHY, LINGUISTIC THEORY OF LEXICOGRAPHY, THEORETICAL, METHODOLOGICAL AND PRACTICAL ASPECTS OF

LEXICOGRAPHY, THE DESIGN OF MORPHOLOGICAL DATA, THE DESIGN OF LINGUISTIC DATA

Opsomming: Die ontwerp van morfologiese/linguistiese data in eentalige, verklarende L1- en L2-woordeboeke: 'n Funksionele en/of linguistiese benadering?

Die artikels in Klosa (2013a) bied inligting oor verskeie aspekte van die ontwerp van morfologiese data in (Duitse) taalwoordeboeke. Bergenholtz and Gouws (2013) verwerp egter die meeste van die bydraes vir leksikografiese doeleindes omdat hulle steun op linguistiese teorie(ë) (sien hulle kritiek op Klosa 2013b), in plaas van die Funksieteorie, en 'n foutiewe toepassing van metodes vir gebruikersnavorsing (sien hulle kritiek van Töpel 2013 se gebruik van die vraelys as metode vir gebruikersnavorsing). Die eerste doelstelling van hierdie artikel is om 'n kritiese ontleding te gee van Bergenholtz en Gouws (2013) se siening van die Funksieteoretiese benadering tot die teoretiese, metodologiese en praktiese aspekte van die ontwerp van morfologiese/linguistiese data in L1/L2 (taal-) woordeboeke. Daar word aangevoer dat die Funksieteoretiese benadering net vir leksikograwe 'n bruikbare oorsig oor die ontwerpings in gedrukte en elektroniese woordeboeke vir die keuse en aanbieding van morfologiese/linguistiese data bied. Verder, dat die gebruik van die Funksieteorie as teoretiese, metodologiese en praktiese basis vir die leksikografie teen allerlei probleme stuit. Die strategie wat Bergenholtz en Gouws (2013) gebruik in hulle kritiek op die linguistiese benadering tot die leksikografie is nie nuut nie, maar 'n bekende strategie van die retorika van Funksieteorie. Die tweede doel van hierdie artikel is dus om sommige van die algemene probleme van die Funksieteorie vir die beplanning, produksie en publikasie van woordeboeke aan te toon. Gegee hierdie probleem met die teoretiese, metodologiese en praktiese aspekte van die Funksieteorie, bied dit nie 'n lewensvatbare alternatief vir die linguistiese benadering tot die ontwerp van morfologiese/linguistiese data in L1/L2 (taal-) woordeboeke nie. Daar word aangevoer dat leksikograwe in die linguistiese leksikografie toegang het tot 'n omvattende bron van teoretiese, metodologiese en praktiese navorsing om die ontwerp van morfologiese/linguistiese data in L1/L2 (taal-) woordeboeke te ondersteun. Verder word aangevoer dat die Funksieteorie die belang van die funksionele veranderings in die ontwerp van (taal-) woordeboeke gevestig het, maar wat nou nodig is, is 'n waarlik multidisiplinêre benadering en nie een waarin die leksikografie gereduseer word tot die dienskneg van 'n ander dissipline, soos die inligtingskunde, of tot 'n reduksionistiese Funksieteorie van leksikografie nie.

Sleutelwoorde: FUNKSIETEORIE VAN LEKSIKOGRAFIE, LINGUISTIESE TEORIE VAN LEKSIKOGRAFIE, TEORETIESE, METODOLOGIESE EN PRAKTIESE ASPEKTE VAN LEKSIKOGRAFIE, DIE ONTWERP VAN MORFOLOGIESE DATA, DIE ONTWERP VAN LINGUISTIESE DATA

1. Introduction

Lexicographers tasked with the design (selection and presentation) of the morphological data (abbreviated to: *MD*) for an explanatory, monolingual first language (abbreviated to: *L1*) or a second/foreign language (abbreviated to: *L2*) dictionary usually have a number of recent resources at their disposal for this endeavour: existing dictionaries, grammars, lexicographic manuals, research

material, corpora etc. The same applies to designers of the MD for a L1/L2 German language dictionary; most articles in Klosa (2013a), for example, focus on various aspects of the lexicographic selection and representation of MD in the planning, compilation and production of such dictionaries.

Bergenholtz and Gouws (2013: 60), however, criticise a number of the contributions on MD in Klosa (2013a) against the tenets and practices of Functional Theory as being

- theoretically misguided, by using a linguistic theory of MD and linguistic definitions of morphological terms as point of departure for the design of MD in dictionaries
- methodologically misguided, by using a typical method of empirical research but without adhering to basic criteria for such methods, viz. that a sample of representative respondents is to be selected randomly to be able to generalise the findings of such research and that the questions posed to respondents should be linguistically interesting and not those dictated by the tenets of FT (cf. Bergenholtz and Gouws 2013: 60-61; and, specifically, their critique of Töpel's 2013 questionnaire methodology)
- practically misguided, as current designs of the MD in dictionaries, especially in the case of printed language dictionaries, do not optimally support the access to and comprehension of MD in these dictionaries (cf. Bergenholtz and Gouws's 2013: 61-70 lengthy discussion of the selection and presentation of MD in printed and electronic dictionaries and where MD can be presented in dictionaries), and because they produce polyfunctional dictionaries.

The FT alternative that Bergenholtz and Gouws (2013: 60-61) propose for the theoretical, methodological and practical aspects of what will be called a linguistic approach to lexicography (abbreviated to: *LL*) can be summarised in the following well-known tenets of the Function Theory of Lexicography (again a term coined for that article, and which is abbreviated to: *FTL*):

- that the design of the MD of L1/ L2 dictionaries should theoretically be determined by the (morphological) information needs which specific types of users may have in specific types of situations or contexts of language use (prime attention being devoted in FT to the communicative functions/ situations of text production, text reception, and translation, and the cognitive function of language learning/acquisition) (cf. Bergenholtz and Gouws 2013: 61; also Tarp 2014: 62);
- (albeit implicitly) that the methodology of both theoretical and practical lexicography should be determined by the FTL approach to issues of theory and methodology; and
- that any dictionary should ideally be monofunctional, that is, support only one function, and provide users with only the data (no more and no less;

cf. Tarp 2014: 63) they might need for the solution of only one type of communicative or cognitive problem (cf. Bergenholtz and Gouws 2013: 60-61; 70-74) so that MD should be easily accessible for users and that they should be able to comprehend the MD presented.

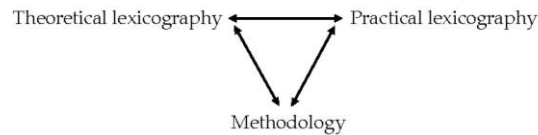
Bergenholtz and Gouws's (2013) critique of LL is not new. It is argued that the FT campaign against the theory, methodology and practical design of MD in LL is in fact only symptomatic of the general effort of FT to discredit LL. The FTL campaign against LL, especially as practised by British lexicographers, has a long, well-known history (cf., for example, Bergenholtz 2011, Gouws 2011 and Leroyer 2011 for overviews). This campaign, however, is also part and parcel of the rhetorical strategies used to promote FTL (cf., for example, various contributions to Fuertes-Olivera and Bergenholtz 2011) — a general strategy that has been criticised in, for example, Lew (2008), Piotrowski (2009), Rundell (2012) and Tono (2010). The main goal of this article, however, is not to repeat these points of critique, but to approach some of the problems of FTL via its approach to the selection and presentation of MD in L1/L2 (language) dictionaries.

The first goal of this article is to provide a critical discussion of Bergenholtz and Gouws's (2013) critique of LL and to present FTL as alternative approach to the theoretical, methodological and practical aspects of MD design in L1/L2 (language) dictionaries and, in a broader perspective, of the design of linguistic data in these dictionaries. It is argued that the FTL approach to the design of MD provides lexicographers (of whatever lexicographic persuasion, and irrespective of the planning, production and publication of printed/paper dictionaries (abbreviated to *p*-dictionaries) or electronic dictionaries (abbreviated to: *e*-dictionaries)) with a usable overview of the design trends in *p*- and *e*-dictionaries. However, it is argued that the theoretical tenets of FTL, the methods used by Bergenholtz and Gouws (2013) in the evaluation of these design trends and in determining users' needs of data on MD in text production, text perception and the acquisition and use of L1/L2, leave much to be desired.

The second goal of this article is to link the theoretical, practical and methodological aspects highlighted in Section 2 to those of FTL in general, and to point out the general problems of FTL for the planning and production of L1/L2 language dictionaries.

In the conclusion of this article it is argued that lexicographers have, in LL, access to a vast body of theoretical, methodological and practical research to support the design of morphological/linguistic data in L1/L2 dictionaries. Furthermore, it is argued that Function Theory has established the importance of functional variables in the design of (language) dictionaries, but that what lexicography needs now is a truly multidisciplinary approach to lexicography, and not an approach that reduces lexicography to the status of a hand-maiden of another discipline, for example, information science, or of a reductionist Function Theory of lexicography.

The discussion of the topics mentioned above can be organised according to three of the pillars of lexicography:



As discussed below, Bergenholtz and Gouws (2013), and Tarp (2004a,b; 2009a,b; 2014), for example, either organise both their presentation and evaluation of LL and its alternative, FTL, according to these three aspects of lexicography, or their discussion can be organised into these three topics.

2. The case against LL

2.1 Bergenholtz and Gouws (2014) on the LL approach to the design of MD in general monolingual dictionaries and FT as alternative

Bergenholtz and Gouws's (2014) exposition of the LL approach to the design of MD can be summarised as follows:

Theoretical approach

- Theoretically, LL uses linguistic terms like *derivative*, *compound*, *prefix*, *affixoid*, etc. as point of departure and focuses on how these MD are currently presented in dictionaries and how their presentation can be improved.
- Dictionary users and functions are occasionally mentioned, but the approach is from linguistics, and the interest in LL is on general information regarding MD.
- Many of the contributions in Klosa (2013a), but also in Barz, Schröder and Fix (2000), regard MD in dictionaries from the perspective of the linguist, a view which is "motivated by the fact that many lexicographers regard lexicography as a subdiscipline of linguistics and therefore want to bring as much from the field of linguistics into the dictionary" (Bergenholtz and Gouws 2013: 61).

According to Bergenholtz and Gouws (2013) the linguistic approach of many of the contributions in Klosa (2013a) is evidenced by the following quotation from Klosa (2013b):

The presentation of word formation in a dictionary is primarily motivated by the fact that it enables a display of relations and interconnections of words. By means of the inclusion of compounds and derivatives, by means of the lemmatization of affixes and by means of the description of word formation rules in the

dictionary grammar the interconnectivity of the vocabulary can be successfully indicated although the alphabetical ordering of head words in the dictionary can only display these relations in an inadequate way. In general the usability and effectiveness of dictionaries should be increased by the inclusion of word formation. The reception of items giving word formation can e.g. lead to an enrichment of the vocabulary especially for learners.

As has become customary in critique of LL, Bergenholtz and Gouws (2013) evaluate the theoretical, methodological and practical approach of LL to the design of MD in dictionaries from the tenets of FTL. They (cf. Bergenholtz and Gouws 2013: 59-61) offer the FTL view that the guiding theoretical principles should be the information needs experienced by dictionary users in different types of user situations. This should be followed by a consideration of the ways MD should (practically) be designed to support the envisaged target users of a given dictionary (cf. Bergenholtz and Gouws 2013: 58-59).

This theoretical approach is set within a broader consideration when it comes to the evaluation of competing theories (such as LL and FTL): "The question should be which theory, linguistic or otherwise, is appropriate to ensure that the selection, method and lexicographic presentation for a given dictionary with a specific genuine purpose can be achieved in an optimal way" (Bergenholtz and Gouws 2013: 61).

This theoretical assumption feeds into the questions used methodologically to ascertain users' views of the information needs they experience in different types of user situations.

Methodological approach

The problems Bergenholtz and Gouws (2013) have with the methods used in LL are illustrated with Töpel's (2013) use of the questionnaire methodology. The main problems are a choice of an unrepresentative sample of respondents by way of self-selection (instead of choosing a representative sample by way of random selection), and the wrong kind of questions being asked of respondents (typically the kind of questions one would put to linguists or students of linguistics: Which of the following data categories do you regard as the most important? (Cf. Bergenholtz and Gouws 2013: 61 for a list.))

As alternative to Töpel's (2013) general question on what linguistic data users view as important, they proffer ones that probe the information needs of and their ranking by users in specific user situations: "Which items are extremely important when you use a dictionary as an aid to solve a reception problem? Or: Which items are extremely important when you are learning a language?" (Bergenholtz and Gouws 2013: 61.)

Practical approach

Bergenholtz and Gouws's (2013) presentation and evaluation of the practical design of MD in *p*- and *e*-dictionaries are spread over two large sections of the

article under the heading 2. *The presentation of word formation products in current dictionaries* (cf. Bergenholtz and Gouws 2013: 61-70). Their conclusion is that most of these design options (most of those in *e*-dictionaries excluded) do not contribute to, or do not optimise, access to and comprehension of MD.

The evaluation criteria Bergenholtz and Gouws (2013) apply in this case are also dictated by FTL, viz. that the selection and presentation of MD should optimise access to and the comprehensibility of MD. Bergenholtz and Gouws (2013) also accept the assumption of FT that any dictionary should ideally be monofunctional, that is, support only one function, and provide users with only the data (no more and no less; cf. Tarp 2014: 63) they might need for one type of communicative or cognitive problem.

From these two statements of FT, Bergenholtz and Gouws (2013: 61) raise a further problem with the linguistic approach, viz. that it designs and produces dictionaries as "polyfunctional" tools, i.e. to provide help for a number of functions in the same dictionary. This practice leads to information overload for users (cf. also Tarp 2014). As they note: "one can also make, especially in the case of electronic dictionaries, monofunctional information tools, i.e. dictionaries, available to the users" (Bergenholtz and Gouws 2013: 61).

2.2 An evaluation of Bergenholtz and Gouws's (2013) perspective on MD in dictionaries

Despite its simplicity of presentation, there are a number of problems with Bergenholtz and Gouws's (2013) presentation and evaluation of LL and the theoretical, methodological and practical aspects of FTL they present as alternative to LL.

Theoretical aspects

First of all, there is the reductionist presentation of LL. Bergenholtz and Gouws (2013: 61) claim that most lexicographers (of an LL persuasion) regard lexicography as a subdiscipline of linguistics and want to include in the dictionary as much from the wider field of linguistics as possible. However, they do not provide any reference to LL literature by way of justifying this opinion.

Secondly, no (FTL) alternative subtheory of MD is provided in Bergenholtz and Gouws (2013). It is left to the reader to try and build a general FT theory (from rather scant references) and to deduce a subtheory of MD from it.

Thirdly, the same reductionist approach to FT is followed in Bergenholtz and Gouws's (2013) account of the theoretical perspective in Klosa (2013). What is not mentioned is the fact that Klosa's (2013) reference here is to a complex theory of the content, structure and function of the mental lexicon and about its acquisition and use in such tasks as text reception, production and language learning. The theory of the content and structure of the mental lexicon as a network of interconnections between linguistic data associated with the lem-

mas/words of a L1/L2 is well-known, and is also the theoretical foundation of a project such as WordNet (cf. Felbaum 1998). Given that FTL is offered as an alternative to this linguistic-theoretical approach, one surely should expand on this linguistic theory to be able to evaluate the tenets of FTL as a theoretical alternative — a necessary step Bergenholtz and Gouws (2013) do not take.

A brief outline of the psycholinguistic theory of the mental lexicon is ample proof of the fact that it consists of a systematic collection of hypotheses that cover not only the theory of morphological knowledge, but also of its acquisition and teaching.

In the field of psycholinguistics, for example, there is strong, though not unqualified, theoretical and empirical support for the following, closely aligned, hypotheses and assumptions:

- *Morphological awareness* (abbreviated to: MA) plays a critical role in users' and learners' acquisition of the vocabulary of a language and word reading, reading comprehension and spelling development (Apel 2014: 197). Apel (2014: 200) proposes the following definition of MA (keeping in mind the proviso that MA is not static but a changing concept which develops over time, and differs according to the age and linguistic proficiency of L1/L2 users):

Morphological awareness includes: (a) awareness of spoken and written forms of morphemes; (b) the meaning of affixes and the alterations in meaning and grammatical class they bring to base words/roots...; (c) the manner in which written affixes connect to base words/roots, including changes to those words/roots (e.g., doubling or dropping of consonants — PHS)...; and (d) the relation between base words/roots and their inflected or derived forms (e.g., knowing that a variety of words are related because they share the same base word/root ... (Apel 2014: 200).

- Via the acquisition of the vocabulary of a language, users' MA plays a determining role in their acquisition and use of L1 and L2 literacy skills (i.e., narrowly defined, their reading, writing, speaking and listening skills in a language (L1 or L2)) (cf. Apel and Werfel 2014).
- MA instruction (with a control group) has some significant effects on one or more measures of MA (e.g. word reading, spelling, morphological analysis of unfamiliar words, etc.) (Carlisle 2010: 480).
- If adequately defined, and given a set of appropriate measures, users' and learners' MA of an L1 or L2 can be measured (and, as an extension to this, that users' and learners' vocabulary acquisition and use can be measured); for example, it is well known and documented with appropriate test items that EFL students have a low accuracy rate in the use of inflectional morphemes (cf. Jiang 2004: 603-604) (Apel 2014 and Apel, Diehm and Apel 2013 discuss a number of the tests tailored to the definition of MA provided by Apel 2014.)

- If necessary, users' and learners' MA can be rectified and improved by both implicit learning and explicit teaching (and acquisition) of the morphology of an L1 or/and an L2 (cf. Bowers and Kirby 2010), for which dictionaries can be used. Templeton (2011/2012) lists methods such as the following for the support of implicit and explicit learning: exercises to build awareness of the morphophonology link (morphology based spelling or the spelling-phonemic-meaning-morpheme link in, for example, *sign/signature*, *bomb/bombard*;) paradigm building (e.g., *courage*, *courageous*, *courageously*; *encourage*, *discourage*, *discouragingly*, *discourageable*); Take-Apart-Build-a-Word exercises (i.e. remove prefixes from words and then add suffixes to the remaining stem/base); word categorization activities to build awareness of the link between category and meaning in a paradigm (such as *bene-* in *benefactor*, *beneficial*, *benefit*, *benevolent*, *benediction*); unravelling the "semantic biography" (etymology) of a word to anchor its meaning.
- Given a set of appropriate instruments, the effects of various instruction techniques and strategies on users' and learners' acquisition and use of L1 and L2 literacy skills can be measured.

Carlisle (2010), for example, spells out the relationship between morphological awareness, phonology, orthography and meaning (or vocabulary) and reading ability, and lists a number of outcomes for the instruction of MA and to measure improvements in reading ability. These outcomes are listed here as they give some idea of the kind of morphological information dictionaries would have to contain to fulfil their cognitive function, i.e. to be a source for the acquisition of MA: learners' and users' recognition of spelling characters, morphemic segmentation, interpreting the meaning of novel words, derivation in sentence context, adding inflections, forming compounds and spelling polymorphemic words, forming and understanding morphological analogies, identifying and subtracting morphemes, spelling derivational prefixes and suffixes, spelling stems in pseudo words, reading pseudo words and reading words with morphological rules (cf. further, for example, Apel 2014, Apel and Werfel 2014, Bowers and Kirby 2010, Carlisle 2010, Carlisle and Stone 2005, Jiang 2004 and Templeton 2011/2012).

Needless to say, FT is presented as a theoretical alternative to LL, and specifically of MD in L1/L2 dictionaries, while it has nothing like the sort of complexity illustrated by the theoretical assumptions of MA in psycholinguistics.

Bergenholtz and Gouws (2013) also do not mention or discuss the fact that in the field of theoretical and practical lexicography, lexicography can rely on a number of resources, of which some are linguistic subtheories of morphology (cf., for example, Bauer, Lieber and Plag 2013) and others, for example, come from the field of computational (morphological) analysis of corpora (cf. for example De Pauw and De Schryver 2008). Schmid, Fitschen and Heid (2004) discuss how a computer program analyses German corpora morphologically,

and Evert and Lüdeling (2001) indicate how the productivity of morphological word forms can be measured automatically in corpus analysis. In all three of these cases, usable and appropriate guidelines for the design of dictionaries are presented or can be deduced.

Bergenholtz and Gouws (2013) uncritically accept and do not discuss the fact that the FLT approach is presented as a *lexicography theory*. There are various strategies one could follow if one does not want to problematize this fact: simply present the tenets of FT as a well-known, accepted and unproblematic concept; do not define the central concepts on which FT rests, such as "theory", "method", "guideline" (for practical lexicography); define the central concepts as vaguely as possible or define them in a reductionist way so that only FT as theory, FT methods and guidelines for dictionary design are acceptable (cf. the discussion below). Bergenholtz and Gouws (2013) opt for the first two options. However, simply presenting FT as an unproblematic concept does not make it so. Anyone could still question its status as a theory. Legitimate questions would be, for example: Is FT a theory at all or simply a set of guidelines for the practical design of dictionaries? Precisely of what is FT a theory, if a theory? and so on. This point is taken up again in Section 3.

Methodological problems

Bergenholtz and Gouws's (2013) critique of the LL/Töpel's (2013) application of the questionnaire as a method focuses, firstly, on the fact that it employs a self-selected, unrepresentative sample of respondents. This, however, is common practice in user research, and manuals of methods warn that researchers must account for this in their interpretation of the research results they generate. This is also a practice that researchers (such as Töpel 2013) adhere to in their discussion of the status of their research findings. To generalize one's research findings to a whole population if they are in fact based on a unrepresentative self-selected sample of respondents is simply bad research practice and as such unacceptable. However, Bergenholtz and Gouws (2013) do not discuss these well-known methodological hedges, but simply reject this kind of research methodology.

The second point is that Bergenholtz and Gouws (2013), in providing a set of alternative FTL inspired questions for user research, are highly misleading. Simply because FTL, by design (cf. Tarp 2014), does not embark on or support such empirical research on users, user needs, usage situations, etc., as proponents of FTL rely on the subjective opinions of lexicographers or trained teachers for this purpose (cf. Tarp 2014 and the discussion in Section 3 below).

Practical problems

Two alternative criteria on which Bergenholtz and Gouws (2013) rely in their critique of LL practice, are that in the design of dictionaries (a) ease of access to data and (b) the comprehensibility of the data, once found, are of prime importance. This methodology is evident in the way Bergenholtz and Gouws

(2013) evaluate the current design features (of MD and linguistic data) of printed and electronic dictionaries.

The first fact to be mentioned is that concern about the access to and comprehensibility of MD/linguistic data in monolingual dictionaries is not confined to FT. Various designs for the content and structure of entries, and their evaluation to improve access and comprehensibility, were among the focus areas in the development of the so-called "Big Five" monolingual dictionaries (cf., for example, Swanepoel 2001).

The second point one must make is that Bergenholtz and Gouws (2013), in their evaluation of the access to and comprehensibility of MD in printed and electronic dictionaries, revert to the FTL practice of substituting users and their experiences with the subjective opinions of lexicographers/linguists/researchers on these issues. This methodology is evident in the way Bergenholtz and Gouws (2013) act on behalf of the user in their analysis of the problems users (could) experience with the selection and presentation of MD in, especially, printed dictionaries. In their analysis of the techniques used to present MD in current monolingual dictionaries, Bergenholtz and Gouws (2013: 61-69) present possible or hypothetical problems users may experience when accessing information on MD, comprehending both the dictionary's selection and presentation policy or comprehending the presented MD itself as if they were the actual experiences of users. A few examples (cf. Bergenholtz and Gouws 2013: 61-69):

- on presenting derivatives and compounds as unexplained run-on lists in articles without indicating which of the polysemous meanings of a lemma apply to them: "There is no way the user will know which sense applies in the different complex forms, i.e. derivatives and compounds"
- on presenting complex forms as (unexplained) run-ons in articles and not also as (fully treated) lemmas in the main word list: "The user is at a loss when having to decide where to find a given compound or derivative: attached to the article of the lemma presenting the first stem (of derivations or compounds — PHS) or included in its own alphabetic position as guiding element of a separate article"
- on presenting linking morphemes in run-on lists with a tilde (to mark the place the lemma would occupy) and the linking morpheme as part of the next morpheme: "This form of textual condensation ... makes it difficult for the average user to quickly interpret the compound correctly. If the linking morpheme does not occur in all complex forms the presentation confuses the user even more".

Obviously their commitment to research on the functional variables that should determine the design of dictionaries is nothing but lip service as it does not guide anything in FT.

What is noticeable is the FT requirement that all dictionaries should only provide the data users need for specific functions, not more nor less, as more

information inevitably leads to information overload for users and the abortion of consultations. This view is striking for its static image of the user of dictionaries. No allowances are made in this approach for the fact that users could progress in their acquisition of lexicographic skills, or that users could be strategic users of texts: they could have different (information) goals in approaching texts, different reading and interpretation techniques which they adjust to their goals, etc. They could acquire these strategies very early in their confrontation with various kinds of printed and electronic and verbal and visual texts, and they could activate these strategies and skills when confronted with new (kinds of) texts. There is a significant body of research (too much to list comprehensively) on the acquisition and use of literacy skills to inform research on how users in fact process lexicographic texts.

This view of users as dynamic participants in their confrontation with lexicographic texts also questions the assumption of FTL that if one designs lexicographic texts according to the functional variables discerned in FTL, this ensures that users will receive the data they need and deduce from the data the correct information. Heid (2011), however, illustrates with his research on the usability of lexicographic texts that such assumptions do not align with the findings of empirical research. One could also add that most probably — and this is an assumption for empirical research — there are numerous other variables (other than those distinguished in FTL) that intervene in the complex process in the users' heads from their interpretation of the data presented in dictionaries to what they deduce as information from this data and finally apply to satisfy their information needs in text reception, production and the acquisition and use of L1/L2. One thing that the uses and gratification framework — referred to by Leroyer 2011 as a foundation of FTL — teaches (cf., for example, Pitout 2009: 391-398), is that one should not only approach the question of dictionary design from its complex effects on users, but also from the perspective of what the user, as a dynamic participant, does with lexicographic texts (cf., for example, Pitout 2009: 398-410 on the theoretical assumptions and methodology of reception studies).

If one does, however, overlook this confusion of fact and hypotheses, Bergenholtz and Gouws (2013) do provide a useful list of all the possible ways in which MD can be presented in *p*- and *e*-dictionaries. If one simply lists all the possibilities, lexicographers have a useful tool at their disposal for the selection and presentation of MD, which, however, still has to be tested empirically for effectiveness, or, as Heid (2011) illustrates, for usability. Bergenholtz and Gouws (2013: 61-67), for example, present a list of design options within a dictionary article:

- each complex form as a lemma, with a full treatment of its morphological properties
- as an unexplained run-on list, after the treatment of a lemma, with a tilde as place marker for the lemma, with alphabetic ordering of complex forms,

but with no differentiation of types of complex forms or treatment of the complex forms in the list (if complex forms are taken to be self-explanatory with regard to their meaning)

- as a run-on list in an article with indication of morpho-syntactic/morpho-semantic properties and a combination of an alphabetic and a syntactic/semantic ordering of complex forms' properties
- as a run-on list after the senses of a polysemous lemma have been treated (thus with no indication of what sense of the lemma applies to what complex forms; usually the main sense applies to all complex forms listed, but this is not necessarily so)
- as a run-on list directly after treatment of each sense of the lemma so that it is clear what sense applies to the meaning of a list of complex forms, or by explicitly linking a complex form and the sense of the lemma that applies
- placing of linking morphemes in a run-on list after the tilde (as place holder for the lemma) as following element before the last stem of compounds
- use within an article of a morphological comment
- indication of the variants of a complex lemma either in one article or in separate articles with an indication of the preferred variant

Bergenholtz and Gouws (2013: 67-70) continue the listing of design options utilised in electronic dictionaries and include a section on where else MD can be found in dictionaries (e.g. in outer texts such as the user guide and dictionary grammar).

Much the same methodology is used in Bergenholtz and Gouws (2013: 70-74) in analysing users' needs for MD/linguistic data in text production and reception and L1/L2 acquisition. No empirical research is done to establish users' information needs in these usage situations; instead, they are the result of the subjective opinion of the lexicographer/linguist/researcher.

A further problem is that in Bergenholtz and Gouws (2013: 70-74) the length of the discussion of users' needs is no indication of the depth of analysis of users' need for MD. If one eliminates the long-winded explanations of potential problems users may have with information on MD and analyses of examples, their discussion can be summarized as follows:

- text reception: the meaning of a morphologically complex form; apart from an explanation of the meaning of a complex form (restricted to the products of derivation and compounding), a Google-like function is needed to correct incorrect spelling of complex forms or to suggest alternative spellings;

- text production: information that a complex word exists, how it is spelled, whether or not it has a linking morpheme, what morphological variants a complex form has, what the preferred form is if it has variants, and what irregular word formation processes are involved in the production of a specific complex form. Ideally a dictionary should contain all the complex forms of language as lemmas with their own articles, as including complex forms only as run-ons in articles has a very limited supporting function;
- language learning: users often consult grammars instead of dictionaries for this purpose; dictionaries must contain dictionary grammars which spell out the general, predictable word formation rules used in a language; articles should contain information on the use of word-specific irregular word formation processes; articles and the entries in the dictionary grammar must be cross-referenced; comments with complementary info on word formation can be added to articles; linguistic terms pertaining to morphological phenomena could be included as explained lemmas in the main word list.

The first problem with this list of MD that users may need, is its reductionist nature, especially if compared to Tarp's (2004a,b) discussion of the MD that users of dictionaries need in the case of text production, reception and language acquisition or, for example, Bauer, Lieber and Plag's (2013) in-depth discussion of a wide range of morphological phenomena in English. One does not even get an idea of the selection and presentation of MD in a printed, monolingual LL dictionary such as *The Cambridge Advanced Learner's Dictionary*. This dictionary includes, for example, outer texts with information about prefixes and suffixes, plus regular word formation rules, the formation of irregular verbs, word families and an extensive list of geographical names plus (ir)regular derivation of adjectives from place names and person names from place names. Affixes are also treated as lemmas of the main list with their morphological properties. These design options support Tarp's (2004a,b) contention that polyfunctional printed L2 dictionaries can in fact provide users of the MD with information they may need in text production, reception and L2 language learning.

Bergenholtz and Gouws (2013) only work with the generic labels *derivation* and *compounding*, and working through their article, one has no idea of the complexity of MD that these two generic labels are intended to cover in the design of language dictionaries.

When evaluating Bergenholtz and Gouws's (2013) presentation and evaluation of LL and FTL as an alternative to it, it is evident that their analyses, the alternatives they provide, and their evaluation of theories, methods and practical guidelines are problematic. Their presentation of LL, for example, is utterly reductionist and their evaluations on the basis of FTL criteria are not convincing. The same holds for their exposition of the tenets of FTL: as argued extensively in the foregoing, the theoretical, methodological and practi-

cal aspects of FTL, as presented in Bergenholtz and Gouws (2013), is fraught with difficulties and as such FTL is not a viable alternative for LL.

In the next section a wider perspective of the problems of FTL is provided.

3. The tenets and rhetorical strategies of FTL: a wider perspective

As was argued in Sections 1 and 2, debunking LL and promoting FTL is not a rhetorical strategy confined to FTL views on the theoretical, methodological and practical aspects of the selection and presentation of MD in general monolingual dictionaries, but a general strategy used in the growing corpus of studies on FTL. In Section 3 this general strategy is outlined and evaluated in more detail. Given the length restrictions on articles, a choice of resources on FTL had to be made. The resources were selected to support the view that FTL underwent a large degree of expansion and precision in its formulation of the theoretical, methodological and practical aspects of FTL, but that these aspects of FTL are also highly problematic.

Reservations

Before outlining the FTL strategy, two important reservations have to be made. The first is that FTL literature in which proponents of FTL debunk LL solely on the basis of the intuitions of lexicographers/linguists/researchers, i.e. without references to relevant literature and empirical analyses to support their views, will be left out in further discussion. A typical example of this approach/method is illustrated in Bergenholtz (2011). A few examples will suffice (cf. Bergenholtz 2011 for an in-depth discussion).

- In LL, linguists "masquerade" as lexicographers (Bergenholtz 2011: 188).
- In LL, linguists regard the polyfunctional dictionary (which contains "as many items as possible in order to satisfy the largest number of different user needs") as *the* dictionary (Bergenholtz 2011: 188).
- In LL, almost "all of those who call themselves lexicographers ... are of the view that lexicography is a linguistic discipline" (Bergenholtz 2011: 189).
- In LL, linguists have robbed lexicography of its status as a scientific discipline (Bergenholtz 2011: 189-190).
- In LL, "The structural description of existing dictionaries (which I believe is a reference to Wiegandian scientific studies of dictionary structures — PHS) — became partly a mixture of hard-to-grasp theories and contemplative analyses, which, at best, do not get in the way of future dictionary concepts" (Bergenholtz 2011: 190).
- In LL, "most of the studies of dictionary usage were carried out in the most unscientific way imaginable, as they were conducted without any knowl-

edge and without use of the methods of the social sciences"; they do not satisfy the two fundamental requirements for scientific surveys, viz. that they must sample a section of the population that "can be statistically viewed as representative of the entire population" and that respondents must be selected on the basis of this principle; surveys do not probe "the real needs of users, only ... linguistic phenomena" (Bergenholtz 2011: 190).

To summarise, Bergenholtz (2011: 190) makes the following statement: "... many of the lexicographic proposals put forward during the past 40 years for changing or improving lexicographic practice were often more harmful than useful" (Bergenholtz 2011: 190). Such an approach makes any discussion of its merits or problems impossible.

The second point to be made, is that despite the differences between FTL and LL, both overlap to a large extent in the production of *e*-dictionaries. Of most English L1/L2 language dictionaries, for example, electronic versions already exist, or are in production, and given the fierce competition in the market, it would be suicide if commercial producers of language dictionaries did not optimize the use of computer technologies for this purpose and employ the necessary teams of lexicographers, subject specialists (linguists), and computer experts to do so. Research (within FTL, especially) on the architecture of electronic databases to optimize the production of various dictionary types, user customization, access and comprehensibility of data and macro- and micro-architecture, etc. is therefore of equal importance for modern FTL and for LL (cf., for example, Bothma 2011, Nielsen and Almind 2011, and Spohr 2011).

How FT and LL differ — and this is crucial — is the theory and theory-driven methods used in each of the sub-phases of dictionary planning, production and publication. FT prioritizes the intended functions of a dictionary (cf. Tarp 2004a,b; 2009a,b; 2014) as the major theoretical determinant and methodology of lexicographers'/linguists'/researchers' opinions on all aspects of users that affect the design of FTL *e*-dictionaries. LL, in contrast, draws on a larger theoretical pool of options for its theoretic foundation and prioritizes (where applicable) the methods of empirical research commonly used in the social sciences. These aspects of FTL are discussed at length in, for example, Tarp (2004a,b; 2009a,b; and 2014), and these sources are used here to explicate and evaluate FTL.

As will be argued below, both FTL and LL are based on the assumption that they have a theoretical component (itself consisting of one or more general and various subtheories) that informs the practical planning, production and publication of dictionaries or lexicographic tools. The methodological component refers to both the methods used to build relevant theories and concepts (that inform lexicography as practice) and the methods, determined or motivated by the theoretical assumptions one uses in the various phases, generally followed in the planning, production and publication of dictionaries/lexicographic works.

The general tenets of FTL

Tarp (2009b: 157-158) distinguishes between general lexicographic theories ("containing general summarizing statements about lexicography", such as FT — PHS) and specific theories (containing statements about the sub-areas of lexicography, e.g. a theory of morphology); between a specific sub-theory which is integrated in a general theory of lexicography and "which helps to enrich the general theory and strengthen its status" (p. 158), and a sub-theory which is not integrated in a general theory of lexicography.

Typical examples of the latter, according to Tarp (2009b: 158), are linguistic theories "from which linguistic concepts, theories, and methods are transferred uncritically to lexicography", i.e. not transformed and not integrated into a general theory of lexicography.

Although Tarp (2009a) rejects non-integrated linguistic theories as candidates for (sub-)theories of lexicography, Tarp (2014) is rather generous with regard to the candidate(s) for the choice of a general lexicographical theory. Tarp (2014) defines the field broadly, in correspondence with what he defines as the research object/subject field of lexicography: dictionaries and all other kinds of reference works. As Tarp (2014: 61) notes, these reference works have traditionally covered "almost every area of human activity and every discipline related to these areas". All concepts, theories and methods of these disciplines, and, one could assume, also the way in which they determined the design of these reference works, are thus potential candidates for the choice of a general theory of lexicography and relevant methods.

However, Tarp (2014) limits the choice of theory-embedded/theory-derived methods by the first general principle of methodology (of FT), which determines that the choice of concepts, theories and methods must have been "subjected to critical analysis with a view to determining what should be rejected, what can be used, and how useful factors can be adjusted and adapted to suit the particular nature of lexicography" (Tarp 2014: 62, quoted from Tarp 2008: 12). Based on this principle, a number of methods of linguistics for the analyses, description and formalization/standardization of language (i.e. linguistic theories and methods) have been evaluated and either rejected on the grounds of or adapted to the tenets of FT (cf. Tarp 2014: 62 for a discussion).

However, the only alternative theory to existing linguistic theories and methods that Tarp (2014: 62) proposes as the candidate for a general theory of lexicography is the well-known, central tenet of FTL:

The function theory is based upon the axiomatic statement that dictionaries and other lexicographic reference tools are utility tools which are, or should be, designed to attend specific types of punctual information need which specific type of user may have in specific types of situation of context.

As a theory, FT is taken as the yardstick for the choice of concepts, theories and methods because it addresses the "question of solving the concrete types of information needs which different types of users may experience in different

communicative situations" (Tarp 2014: 62). Evaluated from this perspective, linguistic concepts, theories and methods are rejected or adapted because "They are, so to say, not sufficiently focused on the specific tasks to be solved by lexicography (as specified in FT — PHS)" (Tarp 2014: 62).

From FT it also follows that the focus of empirical research for the design of dictionaries would be the types of users, their information/morphological needs and the usage situations in which these needs arise.

According to Tarp (2014: 63), lexicographical functions are the data a dictionary provides for the information needs specific users may have in specific situations of use. These functions, communicative (i.e. text production and reception, translation) and cognitive (i.e., knowledge in general, L1 and L2 acquisition and use in particular), are, according to a second general principle of methodology, the cornerstone of any decision regarding the selection and presentation of (linguistic/morphological) data and users' access to it.

Tarp (2009b: 156) formalizes as a general principle of methodology for the conception and production of dictionaries that it is necessary:

1. to determine the types of categories of data to be included in the dictionary;
2. to present these data in such a way that it is easy for the user to retrieve the needed information;
3. to guarantee quick and easy access to these data; and
4. to ensure that the data are correct.

1-3 require lexicographic principles which allow quick and easy data access for consultation purposes (Tarp 2009b: 160); and 1-3 must be the task of a person with specialized knowledge of lexicography; 4 requires the contribution of an expert in the specific field in question (cf. Tarp 2009a: 156-157).

To the requirement of easy access to data and the requirement that such data be comprehensible, Tarp (2014: 63) introduces by a third general rule of methodology that methods should be selected, designed and adapted "with a view to selecting, preparing and presenting as *little data as possible* to the users in each consultation", i.e. to present users with enough data to solve their information problems, but to avoid an overload of information, or, that dictionaries should provide users with the exact amount of data (a quantitative criterion) and data types (the qualitative criterion).

This restriction arises from the "well-known" fact that data overload in both printed and electronic dictionaries "tends to obstruct both access to the relevant data and retrieval of the needed information" (Tarp 2014: 63). According to Tarp (2014: 63), however, the information overload is unavoidable in polyfunctional printed dictionaries. In contrast, though, it is possible to avoid this problem by producing monofunctional electronic dictionaries (from polyfunctional databases, one must add) by utilising available computer technologies and techniques.

Tarp (2014: 60) explicitly notes that methods "should not only be com-

pared and evaluated in the light of their final result, i.e. whether or not they do lead to the desired goal" but also in terms of "the time it takes to reach this goal and the resources employed". Given, amongst others, these evaluation criteria, Tarp (2014: 61) proffers FT as a theory "capable of guiding the development of goal-focused methods which, with the employment of lesser time and resources than other methods, can lead to the desired results in the form of high-quality online lexicographical works".

In essence, FT is summarized in its central tenet (methodological principle 1), to the exclusion of all other alternative theories; a very restricted approach to research (only on the functional variables determined in the central tenet of FT); and a number of sub-statements (read: guidelines) for the planning and production of dictionaries according to the FTL theory and method. One must also note that these tenets/statements of FT are not only explicated, but also presented and used as criteria for the evaluation of concepts, theories, methods and design guidelines of any alternatives to the FT.

Of importance here is also the fact that, although not as clearly systematized and elaborated, the central tenet of FT outlined above is essentially the concept of FT as presented in Bergenholtz and Gouws (2013) and used as evaluation (and rejection) of LL theory, method and practical design and production of dictionaries.

A critical assessment of the theoretical, methodological and practical assumptions of FT

As mentioned in Section 2, Bergenholtz and Gouws (2013) uncritically accept and do not discuss the fact that FT is presented as a *lexicography theory*. Tarp (2014), on the other hand, discusses and tries to refute in this regard two claims made against FT: (1) the assumption that lexicography is a craft and as such does not have a theoretical foundation (often ascribed in FTL literature to Atkins and Rundell 2008), and (2) the claim that FT is not a theory because it is not formulated as a set of falsifiable claims/hypotheses (cf. in this regard especially Piotrowski 2009 and Tono 2010).

Given both the (linguistic-)theoretical foundation of LL and the claims of FTL about its theoretical foundation, the first claim — amended, in Rundell 2012 — will not be discussed further.

Tarp's (2014) refutation of the second claim, viz. that FT is not a theory because it is not presented as a set of falsifiable statements (as should be evident from its tenets provided above) is to reject it as an inapplicable criterion for disciplines such as lexicography, and to present an alternative set of criteria from Fuertes-Olivera and Tarp (2014) for the *evaluation* and *validation* of a theory such as FT (cf. Tarp 2014: 73).

The main assumption of his argument is that a functional theory, such as FT, "where a lot of empirically grounded theories — i.e. theories built on practice-based evidence" (Tarp 2014: 72) serve as basis for theory deduction, should not be evaluated by criteria used for (other) scientific theories. As an alternative, Tarp (2014) proposes a set of practice-based criteria for the evaluation of

FT as a theory. According to Tarp (2014: 73) practice has three dimensions which can be validated (as opposed to the criterion of falsifiability): (1) the product (a dictionary/dictionaries/lexicographic works), (2) the production process (i.e. the steps suggested for the process of the practical planning, production and publication of a dictionary) and (3) the quality of the final product (dictionary/lexicographic work).

To validate each of these dimensions, Tarp (2014) presents a number of research/validation questions plus — at times — the method(s) to be used in answering each of them:

- Can lexicographic works be produced when guided by the tenets of FT or another theory?
- Can lexicographic works be produced in less time and employing fewer human and material resources when guided by the tenets of FT or another theory? (Measure these variables (time, resources) and compare various theories in terms of their productivity (output of lexicographical works).)
- Is it possible to produce lexicographic works of higher quality when guided by the tenets of FT or another theory, i.e. works satisfying users' (information) needs in all respects? (This requires the use of time-consuming quantitative methods.)

Obviously the first question can be answered with a simple "yes" or "no", or, even, "perhaps", by simply checking if a dictionary has been produced by following the tenets of some theory. A complicating factor is, of course, that various theories are used as guidelines for the production of dictionaries so that the first question and answer really does not help lexicographers in assessing which competing theories are the best for supporting the production of dictionaries.

The second question assumes that FT, with its deductivist methodology, differs from other theories, and must be contrasted and evaluated in terms of lexicographic projects which all base their planning, production and publication of dictionaries on time-consuming and expensive user research. Whether or not this is so, is an empirical question that has to be verified/validated by empirical research. However, the mere fact of Function Theory's opposition to dictionaries produced under the guidance of linguistic theories (of which there are many) would suggest that not all other dictionaries are produced on the basis of time-consuming and expensive user research. In addition, nothing has stopped dictionary producers from freely utilising whatever user research has already been done by others in the planning, production and publication of their dictionaries. One could also consult the many manuals available to guide lexicographers through the theoretical, practical and methodological aspects of dictionary production, which try and consolidate the best of practices in lexicography. The question of whether or not the use of a specific method or methods can be used as a criterion for the evaluation of competing theories must

clearly be answered by a simple "no".

By conceding that one will need all kinds of quantitative methods to answer the third question, the whole exercise of Tarp's (2014) and Fuertes-Olivera and Tarp's (2014) attempts to come up with a new set of guidelines for the validation of dictionaries produced under guidance of FT, or of comparing and evaluating alternative theories, collapses.

To summarize: All of the criteria proposed in Tarp (2014) for the evaluation of FT as a functional theory based on practice collapse when scrutinized for their usability as an evaluation tool for theories.

In Section 2 it was mentioned that two other strategies to address the problems posed by claiming FT to be a lexicographic theory are (1) to define theory in such vague terms that any set of pronouncements could be classified as a theory, or (2) to define theory in such a reductionist way that only FT could be classified as a theory (thus excluding any other competing theories). Both of these strategies are used in Tarp (2009a, 2014). An example of a very vague definition of theory is a reference to a theory as "a systematically organized set of statements about the subject treated" (Tarp 2014: 72). Another, equally vague definition of the term *lexicographic theory* is the following in as much as its key concepts ("a systematically organized set of statements" and "specific types of social need") are not defined and do not exclude all linguistic theories as alternatives:

... in the following discussion the term *lexicographic theory* is taken to mean a *systematically organized set of statements about the conception, production, usage and history of dictionaries and their relationship with specific types of social need*. (Tarp 2009b: 157)

The central tenet of FT (as provided in Section 2) is a reductionist definition of a theory, and it clearly excludes any linguistic theories as competing alternatives. Tarp (2009b: 158), for example, rejects all linguistic theories "from which linguistic concepts, theories, and methods are frequently transferred uncritically to lexicography" (Tarp 2009a: 158) unless they have gone through the mill of the tenets of FT.

Another questionable strategy used in FT is to derive its tenets from other existing theories.

Examples would be the way in which FT is derived from a theory of L2 acquisition and used in Tarp (2004a,b), its derivation from a theory of translation in Tarp (2008) and "a simple model of communication" referred to in Tarp (2014). Tarp (2014: 72) himself mentions that at the origin of FT, "Tarp ... deduced relevant functions from a simple communication model using mother tongue and foreign language as variables". In all cases, however, the theory from which FT is deduced is nothing more than Tarp's own rendition of what these theories in fact are all about. Tarp's discussion of these theories, for example, has no references to the vast literature on theories of L2 acquisition and use, translation theory (cf. Piotrowski 2009), and, especially, the short-

comings of early theories of communication. It is rather disturbing that Tarp presents these theories as facts about L2 acquisition and use, translation and communication, and not as theories of these phenomena, that is, in empirical research, as a (systematic) set of *hypotheses* about these phenomena that still have to be tested in order to accumulate support for them.

The same approach is taken in Leroyer (2011), where the guidelines of FT (seen as "the triangulation of three interrelated sets of parameters: the user, the access and the data parameters" (Leroyer 2011: 128)) are embedded (although not discussed in any detail) in a "use and gratification theory in a functional framework" (Leroyer 2011: 128). This "new" combination of a (rather old) theory plus the functional approach to the design of dictionaries (cf. Leroyer 2011: 128-129) provides a new definition of FTL and, more generally, of lexicography, which combines the theoretical approach of a reinterpreted theory of use and gratification with the practical guidelines of FT for the design of dictionaries and other lexicographic tools: "Lexicography ... (is an — PHS) interdisciplinary discipline concerned with the study, design and development of functional tools aimed solely at the gratification of human information needs and problems" (Leroyer 2011: 129). The functionalist aims of this new FTL is clearly stated at the end of Leroyer (2011: 139) where, however, the development of relevant, usable lexicographic theories has completely vanished from lexicography as an interdisciplinary science: "The new science of lexicography is devoted to the development of unique, functional tools to match and satisfy a great variety of needs for information and experience in modern human societies."

The name of FT ("Function Theory") and Leroyer's (2011) link of FT to the users and gratification theory makes these two theoretical paradigms (functionalism and users and gratification theory) obvious candidates to try and analyse, describe, and explain the theoretical, methodological and practical aspects of FT, but none of the proponents of FT makes this link between FT and these two theoretical paradigms clear. Literature on these two theories does, however, suggest possible links between them and FT, but also a number of differences with regard to their theoretical, methodological and practical assumptions. (Cf. in this regard, for example, Jansen 1989 on the tenets of functionalism and Pitout 2009 on those of the users and gratification theory.)

Leroyer's (2011) suggestion of a link between FT and users and gratification theory has one important implication worth pursuing in further research. While FT (as in Functionalism) still clings to a view of a static, passive user who is influenced by outer sources (dictionaries designed according to FTL), the major change that the users and gratification theory brought was the view of users as dynamic participants who strategically select and scrutinize sources using different techniques to gratify their needs for information. As argued, nothing of this is raised in Leroyer (2011) or in FT literature. The view of the user clearly opposes the single set of criteria FT proposes for all users: optimizing access and comprehensibility and minimization of data. Although these

guidelines could benefit all types of users, they should not be elevated as the sole criteria for the presentation and evaluation of data in dictionaries.

The further point to be made with regard to the theoretical foundation of FT is that Tarp (2014) utilises deduction and axiomatization as methods for the formulation of the tenets of FT. This is in itself a widely used method for the formulation of theories, but it does not follow that the central tenet of FT states precisely of what FT is a theory.

Tarp (2014: 71-73) is very clear on the methods used in the formulation of FT and those needed for the practical execution of the tenets of FT: FT is a product of the application of three methods: the axiomatic method, the deductive method and (expert) observation. Although Tarp does not define these methods or provide any reference to sources used in their application — they are simply presented as "well-known methods developed long ago within other disciplines" (Tarp 2014: 71), he summarizes their use in the generation of FT as a general theory and its sub-theories as follows:

The basic statement that dictionaries are utility products was formulated axiomatically based on observation of practice and the study of relevant literature including pre-theoretical reflection as other more or less developed theories ... the axiomatic formulation of the complementary statements on the main functions were the result of a combination of observation and deduction.

Tarp (2014) also refers to sub-theories of FT (not yet developed as theories, e.g. the description of meaning in dictionaries) which are the result of observation, analysis of empirical data and the use of text corpora (cf. Tarp 2014: 72).

Tarp (2014) does not discuss in any detail the axiomatic method or the deductive method as methods for the formulation of lexicographic theories, but as presented in FT literature (cf. the references above), it is also clear what method proponents mostly follow in the case of FT: the lexicographer's/linguist's/researcher's subjective interpretation of theory is presented as a theoretical framework from which (s)he deduces a number of guidelines (or a general theory and/or sub-theories) to serve as bases for the deduction of lexicographically appropriate methods and practical guidelines for the design of L1/L2 dictionaries. What we are thus confronted with is a lexicography theory, method and practice driven solely by the subjective impressions, interpretations, gut feelings etc. of individuals, despite the fact that it is also claimed that these views are based on empirical perception, a study of a vast body of literature, dictionaries etc. These sources are seldom if ever mentioned, and the views are presented without acknowledgement of how fraught with problems personal interpretations of these sources could be.

From the discussion of empirical lexicographic inquiry above, however, it is evident that it really does not matter precisely how lexicographers come upon their theories (inductive or deductive, or whether a proposed theory is axiomatized or not) as long as its status as a set of to-be-validated hypotheses is acknowledged. This is made clear in Botha's (1981) discussion of the empirical

method. In empirical inquiry a theory is defined as a set of hypotheses, where a hypothesis refers to two aspects of this kind of statement:

the functional aspect: the function of a hypothesis is to give a certain amount of information about an aspect of reality which is unknown and which cannot be known in a direct way. In this context, a direct way of getting to know something is, for instance, that of elementary sense perception ... the epistemological one: the idea embodied in a hypothesis, or the information contained in a hypothesis is by nature tentative. In other words, a hypothesis represents a unit of thought of which the correctness has not been established. (Botha 1981: 108)

As Botha (1981: 108) notes, calling something a "hypothesis" gives no indication of precisely how someone arrived at the idea embodied in that hypothesis (for example, in a rational or nonrational way, by deriving axioms by way of deduction, etc.). Scientists, or for that matter lexicographers and linguists, arrive at their discoveries or knowledge of some aspect of reality (e.g. dictionary users, user needs in specific contexts of use etc.) by

- (a) making assumptions about the regularity, pattern, structure, mechanism or cause underlying that which is problematic,
- (b) regarding these assumptions (or *hypotheses* — PHS) as tentative, and
- (c) attempting to test and justify these assumptions.

Efforts of testing and justifying the assumptions of FT are, however, excluded from FT: the methods (see below) of empirical enquiry are simply rejected and substituted by Tarp (2014) by the subjective assessments of all aspects of FT by an experienced language teacher or lexicographer. The status of these assumptions is not discussed and not presented as a systematic set of hypotheses. What Tarp (2014) in fact does is to substitute the empirical method of the status of theories with a set of assumptions of which the status is unclear and a methodology for research that substitutes the subjective interpretation of lexicographers and teachers for a very long tradition of empirical research.

If one defines a theory as a set of hypotheses about some empirically unobservable phenomenon or process, one has the suspicion that FT as currently formulated is guided by some implicit theoretical assumption (that one can indeed verify). A guess would be that the planning, production and publication of a L1/L2 (language) dictionary, which is guided by the practical guidelines of FT, will result in a better dictionary to assist/address the users' information needs in text production, reception and language learning. Formulated as such, we have a theoretical hypothesis that could provide guidelines for the practical design of a dictionary, in which case one can try and find support for this hypothesis by comparing the effects of a dictionary designed according to the guidelines of FT on text production, reception and language learning, and those of a dictionary designed according to the guidelines of LL.

Whether or not FT could be interpreted as a theory is much more complicated. Firstly, because the term can be defined in many ways; secondly, the

problem of precisely what the term *theory* means becomes even more problematic when you start using terms like *action theory* as label for Wiegand's version of function theory or refer to the FT as a theory built on practice-based evidence (cf. Tarp 2014: 72). Do these terms, for example, all refer to a theory defined as a set of hypotheses, where a hypothesis refers in empirical inquiry to two aspects of this kind of statement?

FT methodology

The term *method* is defined in Tarp (2014: 59), following Buhr and Klaus (1971), as

a system of (methodological) rules determining classes of potential operation systems which may lead to a specific goal from a specific point of departure.

As Tarp (2014: 58-59) indicates, methods apply both to the elaboration and formulation of the general (such as FT) and specific lexicographic theories (a theory of L2 acquisition and use) and to each of the phases of practical lexicography work to accomplish the various tasks outlined in each step of planning and production of dictionary models.

The FT approach to the second kinds of methods is to reject all methods of empirical linguistic inquiry (typical of LL) to determine the variables of FT on the basis that they are too costly and time consuming, besides the fact that they, in the view of Bergenholtz and Tarp (cf. for example, Bergenholtz 2011; Tarp 2009a,b; 2014) have hardly produced anything to support practical lexicography.

Tarp (2014: 62) notes, for example, that the methods developed within linguistics "in order to analyse, describe or normalize language may be perfectly adequate for this purpose", but they may not be the most appropriate given the goals/tenets of FT, viz. when "it is a question of solving the concrete types of information need which different types of users may experience in different communicative situations", for example, when these linguistic methods are not "sufficiently focused on the specific tasks to be solved by lexicography" (Tarp 2014: 62). (Cf. Tarp 2014: 62 for a brief discussion of a number of concepts, theories and methods from Linguistics which proponents of FT have reanalysed to suit the goals of FT.)

Tarp (2009a) provides an in-depth and critical discussion of the methods commonly used in user research (in LL): questionnaires, interviews, observation, protocols, experiments and log files. The method he uses in this article is (1) to support up front the opinion of others that the use and the results of such methods of user research are in fact a waste of time and money (cf. Tarp 2009a: 276-277) — a method carried through to his final evaluation of most well-known methods of user research (cf. Tarp 2009a: 290-293); (2) by explicating each method, followed (3) by an evaluation of a method in terms of its "advantages, disadvantages and limitations" (Tarp 2009a: 277) (as mainly seen, however, from what is required for FT goals as spelled out up front in the article, cf.

Tarp 2009a: 277-283).

As questionnaires are the most common methods used in user research, and as this is the method criticized by Bergenholtz and Gouws (2013), it could serve as example of Tarp's (2009a) analysis.

Tarp (2009a: 284) classifies questionnaires as consisting typically of

- closed questions to which respondents have to give the answers to predetermined categories, and
- open questions to which respondents may add answers to other categories than the predetermined ones

Following Welker (2006), Tarp (2009a: 284) indicates that the questions asked in questionnaires can be divided into three types (with the example questions changed to reflect questions):

- (a) about facts that can be easily remembered by the respondents (for instance: How many dictionaries do you have? When did you buy them? Why did you buy them?)
- (b) about the usage of dictionaries, and
- (c) about the user's opinion (for instance: Are you satisfied with the dictionaries? What type do you prefer? What improvements would you like?); what Tarp (2009a: 284) calls "retrospective questions".

According to Tarp (2009a: 284), Welker is of the opinion that answers to type (a) questions offer data that are reasonably reliable, while answers to the type (c) retrospective questions are all subjective, demanding a lot from respondents' memories, but that "they may guide lexicographers and publishers to an extent". Tarp, however, contrasts Welker's evaluation of type (c) questions with the opinion of Hansen and Andersen (2000: 146), i.e. that they can cause reliability problems. Welker also mentions that type (c) questions (even such as those of FT listed below) only reveal users' perception of their consultation of dictionaries, not their real usage — criticism also levelled by Hatherall (1984: 184).

According to Tarp (2009a: 284) the only advantages of questionnaires are that they can be used to involve a large number of respondents and that it is relatively easy to analyse the answers (especially closed questions that require no coding). Questionnaires, according to Tarp (2009a: 284), have a number of "serious disadvantages" of which the reliability of type (c) question is his main objection.

Tarp's (2009a: 285) final evaluation of the typical questionnaire method in dictionary user research is stated (rather bluntly) as follows:

many lexicographers still carry out research by means of questionnaires, arriving at conclusions which even a modest sociological knowledge would show to have no scientific warranty.

Tarp (2009a: 284-285) does, however, accept the following type of research questions put by Welker, questions, it should be obvious, that probe the answers to questions which would typically be put by proponents of FT:

What are you looking for in the dictionaries?

Under what conditions do you consult it (a/the relevant dictionary/dictionaries under scrutiny — PHS) most frequently?

In which percentage of the look-ups does the dictionary provide assistance?

Which part of the information (provided in the dictionary — PHS) is most useful?

It also comes as no surprise that according to Tarp (2009a: 291) the best user research has been that which probes the variables of FT: the usage situation, different look-up strategies and search routes of users, where users look for information and what information they look for.

It is also important to mention that Hansen and Andersen in their discussion of the problem of the reliability of the answers to (c) type questions also mention that one need not avoid using such questions as long as the reliability problems can be anticipated and taken into consideration when interpreting the answers to these questions (cf. Tarp 2009a: 284). That is exactly the kind of warning (and presentation of solutions) one finds, for example, in Babbie and Mouton's (2001) discussion of the way researchers must build the necessary precautionary measures into the design and application of any method to avoid possible problems in the use of the many methods discussed by Tarp (2009a, 2014) (cf., for example, Babbie and Mouton 2001: 239-249 on the design/construction of questionnaire). The point has to be emphasized that the possible problems researchers may experience with the application and interpretation of the results of any of these methods is well-known and that (good) manuals on social research build the necessary precautionary measures into the design and application of various methods, and in the interpretation of the results of the research done with these methods. They do not see these possible problems merely as disadvantages that justify the abandon of the use of these methods. (For an alternative approach to the kinds of methods used in LL/lexicography research, also on the functional variables distinguished in FT, see, for example, Geyken 2014, Mann and Schierholz 2014, and Töpel 2014.)

Tarp (2009a: 291) laments the lack of research on the objective and subjective dictionary needs of users, and criticizes attempts to conduct such research by trying to deduce these needs from the linguistic information users search for. As Tarp (2009a: 292) notes, this approach is inherently circular. To do so would require that researchers move from a focus on the dictionary usage situation to the extra-lexicographic situation. For research on the latter a number of methods can be used, including: the deductive method, tests and inter-

views (How much have readers understood of a text? What reception problems did they have during reading?), text revision and marking (Which non-recognised needs occur during text reproduction and translation?) (Tarp 2009c: 293). However, according to Tarp (2009c: 293), most of these methods (other than deduction) are time consuming and too expensive to use. He also advises (cf. Tarp 2009c: 293) that (1) meticulous planning of research projects is needed as well as a critical approach to the usability of quantitative methods, i.e. whether they are "at all relevant to lexicography", and (2) research be based on FT with its distinction of scientific categories of user needs, user typology, user situation, usage situations, access routes etc.

Tarp (2014: 65) explicitly rejects (empirical) user research as a method for determining the relevant range of users, needs, functions and situations on the grounds that although it may lead to the detection of relevant needs (if based on "scientific principles": Tarp 2014: 65) they are too costly and time consuming "to be used in every dictionary project with its own characteristics" (Tarp 2014). Given Tarp's (2009a) method of the exposition and evaluation of a number of methods, his final conclusion is to be expected, viz. that quantitative user research, in particular, suffers from the following: bias in the selection of respondents (e.g. mostly or only students), lack of random selection of respondents, the size of the respondent group being too small to provide statistically significant and relevant results, problems with the formulation of questions (questions are ambiguous, informants do not understand questions, they do not have the memory to answer questions) and so on.

Instead, Tarp (2014) opts for a method where users are themselves completely omitted from the exercise, and it is up to experts on the topic of the dictionary, situation(s) and foreseen users, i.e. lexicographers, alone or together with experts (who, according to the long quotation in Tarp (2014: 66), could be experienced L1/L2 teachers or teachers of translation), to use their expertise to deduce the needs that have to be covered by a given dictionary. The main argument for this methodology is that it is "relatively easy and quick to apply" (Tarp 2014: 65), and that it has proven to be effective in the planning and production of a number of FT conceptualized dictionaries. Tarp (2014: 65) adds:

The method may not be perfect but it is capable of determining the huge majority of relevant user needs, even some occurring only very seldom. The results can easily compete with those obtained by user research but using only a fraction of the time and resources required to base the dictionary concept on such research in each case.

There are, however, a number of pitfalls in Tarp's methodological assumptions. The first is that he expects his users to accept his pronouncements of the success of his methodology, but provides no references to relevant sources that could back up his claims. The second is that, by accepting the FT-based questions of Welker as guidelines for empirical research, Tarp exposes himself to the same critique Hatherall (1984: 184) has voiced against the questions used in

questionnaires: they could reveal users' perception of their consultation of dictionaries rather than their real usage. A third problem is the questions Tarp proposes to be answered by lexicographers or experienced teachers. Tarp (2009a) does not problematize the status of the answers to these questions. Heid (2011), however, in testing the usability of dictionaries, indicates clearly the limitations of a single expert to identify problems of usability — one needs a group of 5 to 10 experts plus 30 lay testers of a homogeneous user group to identify a significant number of problems with a given piece of software (for example, an *e*-dictionary). In addition, quantitative and qualitative research is necessary to identify such problems. Data such as that provided by Heid (2011) should warn one to be very careful in elevating the answers of lexicographers and experienced teachers as being representative of the problems and information needs of (different groups of) users of dictionaries in different situations of use.

One can only wonder what the possible source(s) for such a view of appropriate methods for lexicographic inquiry could be. Perhaps the following view of Gouws (2014: 23) on the planning, compilation and production of *e*-dictionaries sanctions this methodology in which the determination of the large category of users, situations of use and functions of monolingual language dictionaries is seen as a once-off exercise (already completed for past and future research needed for FTL):

Lexicographers working in the field of electronic dictionaries should realise that the planning and compilation of this medium need not go through all the same phases that crossed the way of the development of printed dictionaries. We have already identified the user, the needs of the user and the functions to ensure the satisfaction of these needs.

Gouws (2014) does not reference the sources of empirical research which could/should support this FTL methodology, and nor does he indicate, for example, whether or not it implicitly refers to the use of the same methodology in Tarp (2004a,b), which provides Tarp's view of the complex variables of users, functions, information needs and users' ability to access linguistic data/MD.

To add to these pitfalls, one must also note that Tarp (2014), in defining theory, method and the interaction between them, follows the positivistic views of his sources in as much as he notes (Tarp 2014: 59) that methods are embedded in or based upon theories or constituent parts of different theories in scientific disciplines such as lexicography, which means that methods are anchored in theories by a set of "objective laws", or, if interpreted correctly, that theory-based methods (for the tasks of practical lexicography) can be deduced from lexicographic theories by means of objective laws. The existence of such "objective laws" also governing reality (and the reality of theories and dictionaries, one would assume — PHS) is suggested by Tarp (2014: 71) in the following:

theory and method ... have evolved together in a fruitful dialectic relationship, in this case mediated by practice and the observation of the objective law-governed reality.

"Practice" as the basis of determining appropriate methods for practical lexicography may in this context refer to what has been and is done in practical lexicography (irrespective of how these methods may be justified), but it is unclear how lexicographers could get from their theories to their methods based on the kind of laws proposed as governing reality.

Finally, one must also note one of the major problems of the FT's criterion that monofunctional (*e*-)dictionaries have to be produced to assist users with their information needs in different situations of use — in effect, in text reception, production and L2 language acquisition. Given that the linguistic categories that L2 dictionaries would have to contain to assist users in text production and L2 use, as outlined in Tarp (2004b: 308, 312-317), overlap to such an extent that the production of separate dictionaries for these two functions can hardly be justified. Although text reception requires, first and foremost, an explanation of the meaning of L2 words (plus a few other linguistic features), this hardly justifies the production of a separate dictionary for dynamic and experienced users for this function, given that L2 dictionaries use all kinds of strategies to make the meaning explanations in articles as accessible and comprehensible as possible (for example, signposts to differentiate polysemous distinctions, the use of dedicated information zones in articles etc.).

The plea for the design of monofunctional dictionaries in the case of electronic dictionaries is understandable, as electronic mechanisms allow for this. *E*-dictionaries can be designed in such a way that users have the opportunity of defining both themselves and relevant user situations to get access to exactly the data they need in each situation, and to change their navigation options between monolingual and bilingual access in a consultation. The design of a multifunctional lexicographic database from which to generate these monofunctional options does not necessitate that it has to be designed according to the tenets of FT. The possibilities for customization of user interfaces are also utilised in L2 dictionaries designed according to the tenets of LL.

Given these considerations, it is understandable that Tarp (2004b: 317-322) argues, and illustrates abundantly from a number of existing monolingual L2 language dictionaries, that it is possible and preferred in the case of printed dictionaries to produce only one L2 dictionary that can serve text production, reception and L2 acquisition.

4. Back to LL and FT

Hass and Schmitz (2010: 12-13) note in their overview of recent developments in electronic lexicography that the strong focus on the possibilities of the design of *e*-dictionaries has led to an abolition of the theoretical, methodological and

design issues that took centre stage in the eighties and nineties, as if the key issues raised by linguistic theories then were all resolved long ago. However, the discussion of the theoretical, methodological and practical aspects of FTL and LL in the growing FTL literature testifies to the fact that these issues are not forgotten but still take centre stage in discussions of lexicography theory, method and practice.

The argument that has been made in this article is that the theoretical, methodological and practical assumptions of FT are fraught with difficulties and that it is hardly a viable contender for LL. There is also no doubt that LL, if thoroughly scrutinized using justifiable methods, also has a number of shortcomings in its theoretical, methodological and practical assumptions. This points to an approach in which these two lexicographic approaches should not be evaluated in a dichotomous usable/unusable way, especially when the criteria for such an evaluation prove to be problematic. FT should, therefore, not be presented as an alternative to the linguistic and Wiegandian structuralism that preceded FTL (cf., for example, Gouws 2011) but as complementary to it.

As acknowledged in Tarp (2004a,b), a concern that the functional variables of FT should play a major role in the design of L2 dictionaries is not new. Historically, dictionaries have always been designed with explicit users and functions in mind, although the methods used for this purpose may be called "artisanal" methods (Tarp 2014); but since the inception of empirical research with scientific methods, research on the functional variables has certainly received a large boost. This is not to deny that the application of these methods has faced many problems, but research on these methods and the tweaking of the requirements for their application have helped to establish a large body of knowledge on the functional variables that are of importance in the design of usable L2 dictionaries.

Lexicographers have in linguistic lexicography access to a vast body of theoretical, methodological and practical research to support the design of morphological data in L1/L2 (language) dictionaries. Furthermore, Function Theory has established the importance of functional variables in the design of (language) dictionaries, but what lexicography needs now is a truly multidisciplinary approach to lexicography, and not an approach that reduces lexicography to the status of a hand-maiden of another discipline, for example, information science, or of a reductionist Function Theory of lexicography.

Bibliography

- Apel, K. 2014. A Comprehensive Definition of Morphological Awareness: Implications for Assessment. *Topics in Language Disorders* 34(3): 197-209.
- Apel, K., E. Diehm and L. Apel. 2013. Using Multiple Measures of Morphological Awareness to Assess its Relation to Reading. *Topics in Language Disorders* 33(1): 42-56.
- Apel, K. and K. Werfel. 2014. Using Morphological Awareness Instruction to Improve Written Language Skills. *Language, Speech, and Hearing Services in Schools* 45: 251-260.

- Atkins, B.T. Sue and M. Rundell.** 2008. *The Oxford Guide to Practical Lexicography*. Oxford/New York: Oxford University Press.
- Babbie, E. and J. Mouton.** 2001. *The Practice of Social Research*. Oxford: Oxford University Press.
- Barz, I., M. Schröder and U. Fix (Eds.).** 2000. *Praxis- und Integrationsfelder der Wortbildungsforschung*. Heidelberg: Winter.
- Bauer, L., R. Lieber and I. Plag.** 2013. *The Oxford Reference Guide to English Morphology*. Oxford: Oxford University Press.
- Bergenholtz, Henning.** 2011. Access to and Presentation of Needs-adapted Data in Monofunctional Internet Dictionaries. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 30-53.
- Bergenholtz, H. and R.H. Gouws.** 2013. The Presentation of Word Formation in General Monolingual Dictionaries. *Lexikos* 23: 59-76.
- Botha, R.P.** 1981. *The Conduct of Linguistic Inquiry. A Systematic Introduction to the Methodology of Generative Grammar*. The Hague: Mouton.
- Bothma, Theo JD.** 2011. Filtering and Adapting Data and Information in an Online Environment in Response to User Needs. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 71-102.
- Bowers, P.N. and J.R. Kirby.** 2010. Effects of Morphological Instruction on Vocabulary Acquisition. *Reading and Writing: An Interdisciplinary Journal* 23: 515-537.
- Buhr, M. and G. Klaus (Eds.).** 1971. *Philosophisches Wörterbuch*. Band 1-2. Berlin: Das europäische Buch.
- Carlisle, J.F.** 2010. Effects of Instruction in Morphological Awareness on Literacy Achievement: An Integrative Review. *Reading Research Quarterly* 45(4): 464-487.
- Carlisle, J.F. and C.A. Stone.** 2005. Exploring the Role of Morphemes in Word Reading. *Reading Research Quarterly* 40(4): 428-449.
- De Pauw, G. and G.-M. de Schryver.** 2008. Improving the Computational Morphological Analysis of a Swahili Corpus for Lexicographic Purposes. *Lexikos* 18: 303-318.
- Evert, S. and A. Lüdeling.** 2001. Measuring Morphological Productivity: Is Automatic Preprocessing Sufficient? Rayson, P., A. Wilson, T. McEnery, A. Hardie and S. Khoja (Eds.). 2001: 167-175.
- Felbaum, C.** 1998. *WordNet: An Electronic Lexical Database*. Cambridge, MA: MIT Press.
- Fourie, Pieter J. (Ed.).** 2009. *Media Studies. Volume 3. Media Content and Media Audiences*. Cape Town: Juta.
- Fuertes-Olivera, Pedro, A. and Henning Bergenholtz (Eds.).** 2011. *e-Lexicography. The Internet, Digital Initiatives and Lexicography*. London/New York: Continuum.
- Fuertes-Olivera, Pedro A. and Sven Tarp.** 2014. *Theory and Practice of Specialised Online Dictionaries: Lexicography versus Terminology*. Berlin/Boston: De Gruyter.
- Geyken, A.** 2014. Methoden bei der Wörterbuchplanung in Zeiten der Internetlexikographie. *Lexicographica* 30: 77-111.
- Gouws, R.** 2011. Learning, Unlearning and Innovation in the Planning of Electronic Dictionaries. Fuertes-Olivera, Pedro A. and H. Bergenholtz (Eds.). 2011: 17-29.
- Hansen, E.J. and B.H. Andersen.** 2000. *Et sociologisk værktøj. Introduktion til den kvantitative metode*. Copenhagen: Hans Reitzels Forlag.
- Hartmann, R.R.K. (Ed.).** 1984. *LEXeter '83 Proceedings. Papers from the International Conference on Lexicography at Exeter, 9-12 September 1983*. Lexicographica. Series Maior 1. Tübingen: Max Niemeyer.

- Hass, U. and U. Schmitz.** 2010. Lexikographie im Internet 2010 — Einleitung. *Lexicographica* 26: 1-18.
- Hatherall, G.** 1984. Studying Dictionary Use: Some Findings and Proposals: Hartmann, R.R.K. (Ed.). 1984: 183-189.
- Heid, U.** 2011. Electronic Dictionaries as Tools: Towards an Assessment of Usability. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 287-304.
- Jansen, N.** 1989. Functionalism. Jansen, N. 1989. *Philosophy of Mass Communication Research*: 14-28. Cape Town: Juta.
- Jiang, N.** 2004. Morphological Insensitivity in Second Language Processing. *Applied Psycholinguistics* 25: 603-634.
- Klosa, A.** 2013a. Einleitung. Klosa, A. (Ed.). 2013: 7-11.
- Klosa, A. (Ed.).** 2013b. *Wortbildung im elektronischen Wörterbuch*. Studien zur Deutschen Sprache 63. Tübingen: Narr.
- Leroyer, P.** 2011. Change of Paradigm: From Linguistics to Information Science and from Dictionaries to Lexicographic Information Tools. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 121-167.
- Lew, R.** 2008. Lexicographic Functions and Pedagogical Lexicography: Some Critical Notes on Sven Tarp's *Lexicography in the Borderland between Knowledge and Non-Knowledge*. *Pedagogika. Politologia. Filologia* 2008: 114-123.
- Mann, Michael and Stefan J. Schierholz.** 2014. Methoden in der Lexikographie und Wörterbuchforschung. Ein Überblick mit einer Auswahlbibliographie. *Lexicographica* 30: 3-57.
- Nielsen, S. and R. Almind.** 2011. From Data to Dictionary. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 141-167.
- Piotrowski, T.** 2009. [Review of] Sven Tarp. 2008. *Lexicography in the Borderland Between Knowledge and Non-knowledge*. *General Lexicographical Theory with Particular Focus on Learner's Lexicography*. *International Journal of Lexicography* 22(4): 480-486.
- Pitout, M.** 2009. Media Audience Theory. Fourie, Pieter J. (Ed.). 2009: 390-420.
- Rayson, P., A. Wilson, T. McEnery, A. Hardie and S. Khoja (Eds.).** 2001. *Proceedings of the Corpus Linguistics 2001 Conference*. Lancaster: UCREL.
- Rundell, M.** 2012. 'It Works in Practice but will it Work in Theory?' *The Uneasy Relationship between Lexicography and Matters Theoretical*. http://www.euralex.org/elx_proceedings/Euralex2012/pp47-92%2520Rundell.pdf.
- Schmid, H., A. Fitschen and U. Heid.** 2004. SMOR: A German Computational Morphology Covering Derivation, Composition, and Inflection. *Proceedings of the 4th International Conference on Language Resources and Evaluation (LREC 2004)*. Volume 4: 1263-1266. Lisbon, Portugal: European Language Resources Association.
- Spohr, D.** 2011. A Multi-Layer Architecture for "Pluri-Monofunctional" Dictionaries. Fuertes-Olivera, Pedro A. and Henning Bergenholtz (Eds.). 2011: 103-120.
- Swanepoel, P.** 2001. Dictionary Quality and Dictionary Design: A Methodology for Improving the Functional Quality of Dictionaries. *Lexikos* 11: 160-190.
- Tarp, Sven.** 2004a. Basic Problems of Learner's Lexicography. *Lexikos* 14: 222-252.
- Tarp, Sven.** 2004b. Reflections on Dictionaries Designed to Assist Users with Text Production in a Foreign Language. *Lexikos* 14: 299-325.
- Tarp, Sven.** 2008. *Lexicography in the Borderland between Knowledge and Non-Knowledge*. *General Lexicographical Theory with Particular Focus on Learner's Lexicography*. Lexicographica Series Maior 134. Tübingen: Max Niemeyer.

- Tarp, Sven.** 2009a. Reflections on Lexicographical User Research. *Lexikos* 19: 275-296.
- Tarp, Sven.** 2009b. The Foundations of a Theory of Learners' Dictionaries. *Lexicographica* 25: 155-168.
- Tarp, Sven.** 2014. Theory-based Lexicographical Methods in a Functional Perspective. An Overview. *Lexicographica* 30: 58-76.
- Templeton, S.** 2011/2012. Teaching and Learning Morphology: A Reflection on Generative Vocabulary Instruction. *Journal of Education* 192(2/3): 101-107.
- Töpel, A.** 2013. Die Wortbildungsangaben im Online-Wörterbuch und wie Nutzer sie beurteilen — eine Umfrage zu *elexiko*. Klosa, A. (Ed.). 2013b: 197-214.
- Töpel, A.** 2014. Methoden zur Erstellung van Bedeutungsparaphrasenangaben. . *Lexicographica* 30: 291-322.
- Tono, Y.** 2010. A Critical Review of the Theory of Lexicographical Functions. *Lexicon* 40: 1-26.
- Welker, H.A.** 2006. O uso de dicionários: Panorama geral das pesquisas empíricas. Brasília: The-saurus.