The semantics of Bantu noun classification: *a review and comparison of three approaches*

In this paper[1] I review and compare three studies of the semantics of Bantu noun classification.[2] The three studies have been selected mainly on account of the different perspectives they take. The first is Richardson (1967), widely cited as an example of the position that class allocation is arbitrary, and often deemed unworthy of serious consideration for that reason. It is an important study, however, because it takes a broader view, looking not just at an isolated group of words that according to a dictionary belong to a certain class but also to some other language structures relevant to noun classification. The second study is a paper by Palmer & Woodman (2000) on Shona noun class 3. As can be expected from Palmer (cf. Palmer 1996), it has a decidedly cultural linguistic outlook. It is based on dictionary data and introduces the notion of polycentric categories to account for the semantic diversity found. The third study to be reviewed here is a study by Selvik (2001), which analyses three Setswana noun classes as polysemous categories in a Langackerian fashion. Selvik's paper, in approach for a large part similar to that of Palmer & Woodman, is especially interesting because of the results of a psycholinguistic experiment she carried out to test the predictions generated by her analysis.

To facilitate comparison, I have attempted to lay out the three reviews roughly along the same lines even though the papers differ from each other in significant ways. In particular, every review starts with an overview of the paper, then surveys the methodology and results, and concludes with a discussion of some specific points raised in the paper. One last point is in order: none of these papers devotes any attention to the pairing of (singular-plural) noun classes into genders. In fact, they only treat singular classes. Although I think the issue of class pairings is important for our understanding of noun class systems as a whole, it falls outside the scope of the present paper, in which I, much like the studies reviewed, will focus mainly on the semantics of the inventory of nouns in certain classes.

The three reviews are followed by a discussion of two specific issues in the semantics of Bantu noun classification: first, the relation between arbitrariness and motivatedness (§4.1), and secondly, the status of semantic networks (4.2). Section 4.3 concludes the paper by briefly iterating the main points developed in the preceding parts.

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[1] I want to thank Maarten Mous for his thorough and helpful comments on an earlier draft of this paper. I am also grateful to Felix Ameka for fruitful discussion and for pointing me to some of the studies reviewed here. Needless to say, the responsibility for any remaining errors or inconsistencies is entirely my own.

[2] Katamba (2003) and Demuth (2000) offer useful typological overviews of Bantu noun class systems.

1. Irvine Richardson, 1967: 'Linguistic evolution and Bantu noun class systems'

This study, which Richardson presented at an international colloquium in Aix-en-Provence on 'La classification nominale dans les langues Négro-Africaines', focuses on language change and on the conclusions that can be drawn from the effects of contact-induced language change on nominal classification. This is the sense in which the term 'linguistic evolution' in its title is to be understood. To be clear, it has nothing to do with an account of the origin of human language itself, and is only sideways concerned with the question how Bantu noun class systems came into existence in the first place. The purpose of the study is primarily practical: Richardson states that it was undertaken 'in order to determine whether developments in nominal classification follow general patterns capable of being used by linguists in predicting for practical purposes future evolutionary trends in the Bantu area' (1967:374).

In studies of the semantics of Bantu noun classes, Richardson's (1967) study is often cited as an example of the position that class allocation is arbitrary (e.g. Contini-Morava 1994:2.2[3], Palmer & Woodman 2000:226, Selvik 2001:162). Although Richardson is indeed quite sceptical about hypotheses regarding the correlation of classes and conceptual categories, nowhere does he in fact state that class allocation is arbitrary. Rather, he emphasizes that there are also other factors at play in class allocation. I will return to this issue at a later point.

1.1. Overview

Richardson's paper consists of short numbered paragraphs that are grouped into four larger sections. It starts with a discussion of the 'logicality' of language change (§1), which need not concern us here. The following section (§2) presents a general overview of hypotheses concerning 'the correlation of prefix shape and conceptual categories', as Richardson calls it. Here, Richardson's scepticism towards such undertakings is most apparent. An oft-quoted statement is the following: 'it is impossible to prove conclusively by any reputable methodology that nominal classification in Proto-Bantu was indeed widely based on conceptual implication' (Richardson 1967:378). It should be noted that strictly speaking, he is right, as it would seem that no methodology is available that would enable us to administer psycholinguistic experiments to the speakers of Proto-Bantu, who are no longer among us. However, Richardson's position is more nuanced than this isolated quote suggests. To set this straight, it seems best to quote at some more length:

> '[I]t is impossible to prove conclusively by any reputable methodology that nominal classification in Proto-Bantu was indeed widely based on conceptual implication. In the

[3] Since Contini-Morava (1994) lacks pagination, I will cite section numbers. Some put the year of publication of this web document at 1996, but 1994 is the year Contini-Morava herself provides in a list of publications on her homepage.

> absence of such proof one might equally well assume that the assignment of nominals to classes was for the most part an arbitrary grammatical device. Modern evidence which has been interpreted as the survival of an old system of semantic taxonomy in nominal classification which occurred during the evolutionary process, might justifiably be ascribed to a more recent analogical classification which occurred during the evolutionary process. Instances of such behaviour are observable in modern developments. Nominals already appearing in class may be re-assigned to other classes for a variety of reasons. Furthermore, new borrowings of the same general conceptual category are often taken into a language in different classes.' (Richardson 1967:378-9)

Richardson says a lot of different things here, but one thing that should be clear is that he does acknowledge that there is something to noun classification today that is suggestive of a semantic organisation. According to him, this is due to a recent analogical classification. The picture Richardson paints here thus seems to be that noun classification historically started out as an arbitrary grammatical device, and that at one point, the speakers began to reanalyze the content of their noun classes (this probably would not need to have been a conscious process). From that point, nouns to be incorporated in the system were held to the light, as it were, of the semantic organization that was the result of this reanalysis. This process led to a partly semantically motivated classification. The 'modern developments' Richardson puts forward as evidence for this view stem from an experiment he carried out with the help of speakers of Bemba (Central Bantu, M.40; Zambia); this experiment will be discussed in §1.2 below.

The remainder of section 2 of R's study is devoted to a discussion of attempts to relate noun classes to semantic categories. Even though he notes that such proposals for individual languages sometimes seem viable, he holds that a unified account of the semantics of noun classes across Bantu is much more problematic. According to him, the only generalizations that hold across Bantu are the fact that the 1/2 gender denotes human beings, and that the 12/13 gender (where it occurs) carries a diminutive sense. This seems hardly surprising, as there is no reason to expect a perfect uniformity across the hundreds of Bantu languages spoken all over sub-Saharan Africa.

In a comment on the semantic classification of Yao noun classes by Whiteley (Whiteley 1961), Richardson uses the example of several iron objects from different classes to call attention to the fact that objects can be classified in many different ways, possible criteria including material, shape, or cultural function (p. 381). Additionally, as Richardson points out (*ibid.*), it might be the case that words that seem to fit a certain noun class may already have been in use before that class arose in the language. This implicates that not all noun classes may have originated simultaneously, an assumption that seems not at all implausible (see §4.1).

In the third part of his study (pp. 383-87), Richardson goes deeper into the various factors involved in class allocation of English loan words in Bemba. Since at least some of these

factors will prove relevant in the discussion of the two following papers, I have listed them below (quoted from pp. 383-84):

1 **a** 'Concepts inherent to certain classes may dictate grammatical affiliation' (e.g. *buu-poofwati* 14a 'poverty').
b 'Concepts inherent to certain classes may generate words that differ in meaning from the original word borrowed' (e.g. *buu-ndiyo-bwana* 14a 'sycophancy', from the Swahili for 'yes, Sir!').
2 Words may be allocated to certain classes because of their phonological form (e.g. *ubu-langeeti/ama-langeeti* 14/6 'blanket').
3 Where neither shape nor concept determines class assignment, words are allocated to loan word classes (e.g. 1a/2a, 5/6, 9/10) in a 'seemingly arbitrary manner'.
4 There may be uncertainty in class affiliation; a loan word may occur in different classes 'with no change in implication other than stylistic overtones which are sometimes present'.
5 When phonological shape and conceptual content of a word conflict in class allocation, the latter often prevails. Thus, since it does not denote an abstract quality, *buuleeti* 'bread' is assigned to 1a and not to 14a despite the initial buu-.

A few brief remarks are in order. First, with (4), Richardson refers primarily to sociolinguistic factors that play a role in variation (some Bemba speakers for example will use a 9a/6 gender to conform to urban usage). Secondly, concerning (1), it should be noted that the terms 'dictate' and 'generate' are somewhat misleading, as they take the perspective of the noun class where it would be more appropriate, in my view, to take the perspective of the language user. Consider the example of *buu-ndiyo-bwana* given in (1b). This is not an expression that looks like it has been generated by the conceptual content of a noun class; rather, it looks like an expression constructed by someone making use of the conceptual content associated with that class. This may seem 'merely' a matter of perspective, but in §4.1 I will argue that it is precisely this change of perspective that throws light on the nature of noun classification. Thirdly, it should be noted that Richardson's emphasis on 'prefix shape' leads him to disregard the oft-made distinction between operational use of a prefix and the 'inherent' inventory of a noun class. I will go into that distinction somewhat deeper in my discussion of Selvik's methodology and results in §3.2.

Richardson's concluding remarks (pp. 387-388) focus on the tendency of certain urban or pidginized Bantu varieties to have simplified noun class systems. While interesting on its own, that topic is not the concern of the present paper.

1.2. Methodology and results

In his study, Richardson draws from the results of an experiment he carried out with the help of speakers of Bemba. In this experiment, Bemba speakers with a command of English were asked to assign classes to English nouns not in current use as loan words (p. 379). Unfortunately, Richardson does not provide any details on the specifics of this experiment, such as the number of participants and the total number of items tested. From his description, it seems that there may have been just one male informant (cf. pp. 379,384). Richardson writes that to him, the results of this experiment 'proved as tantalizingly enigmatic as the situation they were intended to illuminate' (p. 379). Briefly, the results of the experiment as described by Richardson (pp. 379-80) boil down to the following: some words were duly accommodated in the class were Richardson expected them to go (e.g. 'poverty' in the abstract class *buu-* 14a), whereas others were scattered over three classes (Richardson gives the example of 'pretext' which in class 9a indicated 'an occasion when a pretext is offered', in 14a denoted 'pretext' in the abstract and which took its plural in 6). Yet others showed the influence of Town Bemba (an urbanized form of the language) in the form of less rigid agreement patterns and a general uncertainty about the 'right' class.

Looking over the examples Richardson provides, it would seem that they are, in fact, quite illuminating. Certain words for abstract concepts are placed in class 14a, the class in which such words often are found in Bantu languages; the 'pretext' example seems to show that the noun class marker, far from being an arbitrary grammatical device, has some semantic content to contribute; and lastly, as Richardson himself notes, the variation caused by the influence of Town Bemba signals that the class affiliation of borrowings depends not just on general linguistic or cultural characteristics, but also on 'the total linguistic experience—traditional and otherwise—of each speaker of the language' (p. 380).

1.3. Discussion

Summing up, the main arguments developed by Richardson that are relevant to the present paper are the following: (1) the semantic organization that can be discerned in Bantu noun classes is the result of a recent analogical classification of the Proto-Bantu system, which probably was arbitrary; (2) the influence of certain semantic, phonological, and sociolinguistic factors cannot be denied, even though class allocation of loan words is in many cases seemingly arbitrary. A closer reading however yields a few more interesting observations. Probably the most important of these is the observation that objects can be classified in many different ways, possible criteria including material substance, shape, and cultural function (p. 381). Although Richardson raises this point in the course of a critical evaluation of Whiteley's remarks on Yao, this argument actually strengthens the case of semantically-based classifications in that it provides a possible explanation of why such classifications might not always look clear-cut and simple.

Another observation concerns the evolution of noun-class systems; as Richardson notes in passing (p. 381), it is quite probable that not all classes originated simultaneously. Richardson does not devote much attention to these observations, mainly because they are not directly relevant to the stated goal of his paper.

Looking over Richardson's arguments and examples, it is clear that he does not hold the view usually ascribed to him, namely that classifier-semantics are arbitrary (Palmer & Woodman 2000:226). To the contrary, he acknowledges that today's Bantu noun class systems are suggestive of semantic organization (p. 378, 379). Moreover, the results of his experiment also show this, though not unambiguously (p. 383). It would seem that the repeated dismissal of Richardson's study as 'the view that classifier-semantics are arbitrary' has led to undue neglect of the important issues raised in it, for example its attention to other, non-semantic factors that are at play in nominal classification. Finally, one of the reasons for Richardson's scepticism towards hypotheses regarding the correlation of classes and conceptual categories may be sought in his implicit assumption that a noun class can only be 'really' semantically motivated if it is somehow governed by only one overarching notion, a 'general category of meaning' (p. 380) or a 'main conceptual category' (p. 381). This is, as we will see, probably the most important difference between his paper and the two papers reviewed below.

2. Gary B. Palmer & Claudia Woodman, 2000: 'Ontological Classifiers as Polycentric Categories, as Seen in Shona Class 3 Nouns'

2.1. Overview

Palmer & Woodman's study (henceforth P&W) consists of an elaborate semantic analysis of noun class 3 in Shona (Southern Bantu, S.10; Zimbabwe). Their approach puts special emphasis on the role of cultural scenarios in noun classification, in addition to more widely recognized classifying criteria like material substance, physical shape, and other qualities. For Palmer, this detailed analysis of one noun class is a follow-up on the general issue of Bantu noun classification, a subject he took up at some length in his (1996) monograph *Toward a Theory of Cultural Linguistics* (esp. pp. 126-141).

Shona noun class 3, according to P&W, is a complex category governed by mythical and ritual scenarios together with physical shapes and qualities of objects, all interconnected in intricate ways. Examples of scenarios relevant to this class (P&W list five in total) are "The spirits of ancestral chiefs bring rain, thunder, and lightning" and "Grain is pounded daily with a mortar and pestle". As P&W argue, many of the nouns in this class can be related to these scenarios by way of semantic extensions, schematizations, and metaphorical and metonymical links. The underlying organizational structure they propose is an elaboration of Lakoff's (1987) notion of *radial category*. P&W call this complex type of radial category a *polycentric category*, and describe it as 'a network of

radial categories based on a cross-section of the cosmos, including physical experience, domestic scenarios, ritual scenarios, and world view' (p. 229).[4]

In keeping with the complexity of Shona noun class 3, P&W introduce a set of eight principles for understanding the semantic structure of noun classes (pp. 230-32).

1. Multiple central models
2. Multiple prototypes
3. Chaining of central models by metonymy
4. Radial categories
5. Primary schematization
6. Secondary schematization and extension
7. End-point transformations
8. Extension of concepts to human behaviour

Some of these principles describe the types of entities making up the structure of noun classes (1, 2, 4), while others describe the possible relations between these entities (3, 5-8). Most of them are fairly self-explanatory, but a few need a closer look. The 'prototypes' in principle (2) refer to components of the central models and scenarios mentioned in (1); for example, the scenario of pounding grain with pestle and mortar provides the prototypes (or salient elements) of grain, pounding, grinding, and crushing (p. 231). By primary schematization in (5), P&W mean that spatial and temporal schemas may be abstracted from salient elements in the category structure. An example of a primary schematization would be the abstraction of 'repetition' from the 'pounding' prototype. The sixth principle simply means that such abstractions can be iteratively applied, or, to put it differently, that extensions can be chained so that for example, 'duration in time' can be derived from 'repetition'. An end-point transformation seems a special case of schematization; the examples P&W give concern end-point transformation of an extended spatial object or time, yielding ends of paths, beginnings, and last times (p. 232). P&W mention that in Shona noun class 9, there are signs of phonological form dictating class allocation (as has been noted by many others, including Contini-Morava 1994:4.2 and Richardson 1967:383), but they chose not to make a ninth principle out of this (p.230).

After this exposition of their theoretical framework, most of the remainder of P&W's study is devoted to a detailed discussion of the semantic diversity found in Shona noun class 3 (pp. 233-243). Their methodology and results are discussed in §2.2 below. An interesting point is raised by P&W in a discussion of category members that satisfy multiple constraints (e.g. a beer can, which carries a liquid but may also be thought to resemble the mortar in the basic cultural model of mortar-and-pestle; or prayers for rain, which link both to ways of speaking and to rain, pp. 242-243). P&W hypothesize that

[4] In Palmer (1996:140) the term 'complex category' was used for this type of radial category. It is very similar to Langacker's (1991a:266-277) use of that term.

such terms 'would be among the most stable and widely shared'. While this idea has some intuitive appeal to it (presumably because it involves the imagery of category members being 'tied' to central models, and more ties imply greater fixedness), it is seems questionable on second thought. The problem lies in a confusion of *possible* semantic links with the actual situation. Put differently, the fact that it is possible for the researcher to see two conceptual links to a term does not mean that these two links have both in actuality played a role in the class allocation of that term. In fact, it is important to recognize any conceptual link devised by the researcher is nothing more than just that: something devised by the researcher. This does not mean that analyses like the one by P&W are without merit. It *does* mean, however, that independent evidence will always be needed to establish any conclusive results (see §2.3 and §4.2). With a slight change of Richardson's oft-quoted words (1967:378), we might say that the researcher volunteering a semantic interpretation of classifiers still needs to 'prove conclusively by a reputable methodology that nominal classification is indeed widely based on conceptual implication'.

P&W conclude with a discussion of some earlier approaches to Bantu classifier-semantics (p. 244-246), noting that they are not the first to bring culture into the picture (they credit Leakey and Spitulnik for that), but that their approach, through the introduction of cultural scenarios and models, greatly refines the role played by culture in noun classification.

2.2. Methodology and results

P&W's method basically consists of devising a network of probable conceptual links out of a large collection of Shona class 3 nouns. These nouns (941 in total) have been culled from the (1984) *Standard Shona Dictionary* by Hannan. The corpus is not exhaustive (i.e. containing all class 3 nouns in the dictionary), nor is it a random sample. As they say,

> 'Our sample of 941 entries includes the first 339 class 3 words in Hannan (1984). Lack of time required that the remainder of the class 3 nouns be sampled by inspection. We did this by omitting repetitions of bushes and trees, primarily recording words with definitions different from those categories we had previously recorded.' (p. 233).

CBOLD (the Comparative Bantu Online Database) offers a digitized version of an older version of the *Standard Shona Dictionary*, Hannan (1959). It is only a partial copy[5] (*a* to *nzvenzha*), but it seems to include all class 3 words (which have *mu-* or *mv-* prefixes), thus

[5] The web location is http://www.cbold.ddl.ish-lyon.cnrs.fr/CBOLD_Lexicons/Shona.Hannan1959/; the dictionary is digitized by John Lowe of UC Berkeley. The document 'Shona.Hannan1959.msw' contains the words from *a* up to *mukaha*; another document named 'Shona380-499.msw' contains the words from *mukaka* to *mutirigu* and from *mutsahwarii* to *nzvenzha*, and the missing part of that document (from *mutiro* to *mutsago*) is found in 'Shona 94,257,265,416.msw'. The reason for this split-up is unknown to me, but layout differences as well as the occurence of quite a few OCR-errors suggest that the shorter documents are non-finalized and non-proofed versions.

allowing for some crude statistical checks. The total number of terms marked '*n 3*' (noun, class 3) in the digitized part of the dictionary is 2526. Now, it is unknown how many more class 3 nouns there are in the revised and enlarged version P&W used, but even if we assume a 15% increase, P&W's sample of 941 words accounts for about one-third of the total number of class 3 nouns, which seems a reasonably large part. Of note is further that in the digitized version, 1008 lemmas (or almost 40%) of class 3 words contain the word tree, shrub, plant, herb, bush, or crop (maybe some fifty of these have to be omitted because of occurrences in example sentences). This accords fairly well with P&W's ratio of 125/339 (36%), and it certainly helps establish threes, shrubs, and herbs as the most salient central model of the class.

In discussing their methodology, P&W are not clear on the method underlying the conceptual links they propose. However, a clue is found in the brief discussion of unexplained items (p. 243), where they write that '[t]he connections that we have proposed are ones that we regard as obvious or as supported by the evidence of multiple glosses of a single term'. An example of the latter situation would be the word *mùkàchàkàchà*, which is glossed as 'act of catching many things one after the other' and as 'fast action (eating, walking)', thus providing a link between rapid series of actions and activities that are quick (p. 235). Using this method, the Shona class 3 nouns are grouped together in several clusters, including for example 'trees, shrubs, and herbs'; the basic scenario of mortar and pestle; 'groups and bundles'; 'long, thin things'; 'pounding, grain, noise'; 'repetition'; and 'crushing and witchcraft'. Unfortunately, P&W do not tell us how many nouns of their sample do *not* fit their analysis; all they say is that their list of unexplained items 'is still several pages long' (p. 243).

2.3. Discussion

P&W's study is important in its appreciation of cultural scenarios as a significant factor in noun classification. Nouns in Shona class 3 fall apart into several clusters of meaning. P&W propose that these clusters of meanings can be related to each other by a number of conceptual (metonymical and metaphorical) links. The basic scenario of mortar and pestle, for example, includes the action of pounding, which in virtue of its repetitiveness provides a link to iterated actions and events (repetition in time) as well as collections of objects (repetition of entities). The picture P&W sketch is thus that of a complex category consisting of a network of radial categories connected to each other by various motivated (i.e. non-arbitrary) links. An important virtue of this analysis lies in the fact that it provides an explanation of the seeming semantic 'irregularity' of Shona noun class 3. As P&W note, this type of analysis can be extended to other Bantu noun class systems as well.

However, an important weakness of P&W's study is that its claims are quite hard to verify empirically. If P&W say that '[p]ounding grain produces piles of grain, but it also scatters grain', and state directly thereafter that 'speech is likened to molting which is a

kind of scattering' (p. 231), does this mean that P&W are likening speech to molting or that the Shona do? Later on they explicitly attribute this link to 'Shona thought' (p. 243), but they do not provide any evidence for it. The lack of solid empirical evidence mainly stems from the method used by P&W, which involves looking at a dictionary corpus of nouns and contriving conceptual links between them. Even if most of these links employ well-documented principles such as metaphory and metonymy, this approach comes dangerously close to introspection, because the researcher devises links he or she regards as 'obvious' (p. 243) and conceivably will sometimes discard possible links because they seem to be non-obvious. Of course, introspection could provide some starting points, but as things stand, it does not provide hard empirical answers. Besides, as far as I know, both P&W are not native speakers of Shona, which raises a related issue that crops up with some seemingly far-fetched schematizations proposed by P&W: sometimes, it is hard to believe that two outsiders can make such specific claims about Shona culture.

Of course, there is not much point in noting the limitations of P&W's study without offering constructive suggestions on how to get past these limitations and evaluate their claims. There are a number of ways to do this. First, even within the dictionary corpus of P&W we can look beyond the semantics of the words for other clues that might tell us something about the class. In that respect, it seems quite significant that a substantial number of Shona class 3 words is fully or partially reduplicated (P&W do not mention this). As Table 1 below shows, reduplicated class 3 stems include words for large quantities of objects, lines and sequences of objects, repeated and distributive actions, rains, and even some names of trees.[6] This seems to be in line with the strong correlation found cross-linguistically between reduplicative morphology and repetitive, iterative, distributed, pluractional and plural meanings. It is interesting to note that repetition, large quantities, and lines of objects, which P&W propose to be conceptually linked to each other (p. 238), all share this iconic morphology. As a matter of fact, the reduplicative morphology also suggests some connections not drawn by P&W, linking for example rains to distributedness and plurality (for P&W, rain is linked to the class 'perhaps because it nourishes bushes, trees, and herbs, the central members of the class'; p. 240). It thus seems that reduplicative morphology provides corroborating evidence for quite a few of the conceptual links that P&W propose as well as for the salience of the notion of repetition (in its broadest sense) in class 3.[7]

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[6] Maarten Mous pointed out to me that reduplication may be part of a naming procedure for trees and plants.

[7] A cursory inspection of some other classes in Hannan (1984) indicates that this point may have wider applicability, i.e. that the morphology of words may provide an interesting window on the make-up of noun classes. Reduplication, for example, is not exclusive to class 3 but is also (among other classes) found in class 5 words. However, faithful reduplication is much less common there than in class 3; instead, an alternating pattern is often found, as in *bòshòpòshò* 'act of coming out in quick succession (coarse expr. of cattle defecating', *bòrìmhórí* 'flying grasshopper', *búnúpúnú* 'walking naked', *bùnyúpùnyù* 'unsuccessful attempt to catch or hold slippery object', *bùrápùrà* 'tall young person of either sex'. Of course, it remains to be seen whether this pattern can be linked (conceptually) to the class in some way; it might just be the result of some

mùràmbàràmbà	long, drawnout object
mùdhàdhàdhà	long object (e.g. low building, letter to someone); 2. cursive writing
mùdúdúdú	continuous line of tattoo marks from forehead to stomach and on the back from the buttocks to the back of the neck
mùrúrúrú	line of objects (e g growing plants) that are close together
mùròngòròngò	1. continuous line of objects; 2. continuous line of connected objects (moving)
mùgòjògòjò	collective name for a very large number of countable solid objects
mùtsvìtsví	collection of closely packed people, animals or things (e g many cattle in one kraal)
mùkùtùkùtù	1. abundance of solid objects; 2. act of pouring or tipping by many at the same time
mùtímútì	repetition of actions
mùgávhányù-gàvhànyù	repetition of an action without interruption
mùkwáchù mùkwáchù	the breaking of something (e.g. strip of meat) into many pieces < *kwachu*
mùkàshùkàshù	state of being quite full (of many containers, e.g. sacks)
mùkàchàkàchà	1. act of catching many things one after the other (e g boys catching termites coming out of hole); 2. fast action (e.g. eating, walking)
mùrùmbí múrúmbì	transmission of a message through intermediary people or places < *mùrùmbì* 'fast runner' < *-rùmbà* 'run'
mùkúshàkúshà	rain driven slantingly by the wind
mùsàkàsàkà	rain shower
mùkwènùkwènù	tree, *Pittosporum viridiflorum*
mùmbàrèmbàrè	shrub or small tree, *Bridelia cathartica*
mùnyápùmyápù	small tree, *Securidaca longepedunculata*
mùnyìmònyímó	tree, *Ekebergia benguelensis & capensis*
mùdhùdhùdhù	motor-cycle < *dhu dhu dhu*
mùpfèpfèpfè	fast, new vehicle

Table 1 — Some reduplicated nouns in Shona class 3 (source: Hannan 1984)

A second, more direct way to investigate claims like the ones made by P&W involves looking at actual usage. As shown in other studies (e.g. Contini-Morava 1994, 1996), agreement patterns in discourse can throw light on the semantics of a class prefix. A study of class-use in actual utterances (in effect, a usage-based approach) has the added advantage of providing a more direct window on cognitive processes or semantic principles that are at work. And thirdly, moving one step away from actual (spontaneous) discourse, another good way to investigate this kind of claims would be to conduct various types of psycholinguistic experimentation. One could, for example, provide speakers with artificial (but natural looking) verbs with made-up meanings, and give them the task to construct corresponding deverbal nouns from them. Now, if one were to find that speakers put the majority of nouns derived from nonce verbs denoting repetitive actions in class 3, this would constitute an interesting piece of evidence for the salience of the notion of 'repetition' in class 3. This type of psycholinguistic experimentation brings us to Kari-Anne Selvik's study of three Setswana noun classes.

morphonological process. The prevalence of reduplicated forms in a class may even be simply due to speakers using morphological similarity as a motivation for class allocation (more on that in §4.1).

3. Kari-Anne Selvik, 2001: 'When a dance resembles a tree: a polysemy analysis of three Setswana noun classes'

3.1. Overview

Selvik's (2001) study, originally presented at the 1997 International Cognitive Linguistics Conference, is a semantic analysis of three Setswana (Southern Bantu, S.30; Botswana/South Africa) noun classes. An oft-noted obstacle for semantic analyses of Bantu noun classes is the semantic diversity many classes exhibit. Recognizing the weight of this issue, Selvik takes this diversity as the starting point of her analysis. This is apparent in her choice for classes 3, 5, an 7, which according to her, together with class 9 exhibit the highest degree of semantic heterogeneity (p. 163). Her analysis, like Palmer & Woodman (2001) and also Contini-Morava (1994), employs notions developed in cognitive linguistics to make sense of the complex semantics of these classes.

After having introduced the Setswana noun class system, Selvik proceeds to present detailed analyses of classes 3 (pp. 165-169), 5 (pp. 169-173), and 7 (pp. 173-176), making use Langacker's (1987) notion of *schematic network*. According to Selvik, each of these classes has exactly one *prototype*: 'tree' for class 3, 'fruit' for class 5, and 'instrument' for class 7. Connected to these prototypes by relationships of various types are many different schemas; the schema 'long, wooden objects' for example is an extension from the prototype 'tree', and the prototype 'tree' is related to the schema 'material of live origin' in that it is an instantiation (i.e. a specific instance) of that schema. The most generalized schemas in the category are called *class schemas* by Selvik; for class 3, these are the conceptual categories 'living' and 'long'. Class schemas, like other schemas, relate to the prototype of a class by way of relationships of extension or instantiation.

At this point, the similarities between Selvik's approach and that of Palmer & Woodman (2000) are quite clear. There is an almost one to one correlation between P&W's polycentric categories and Selvik's schematic networks; in fact, perhaps the only difference is that P&W base their account on Lakoff's (1987) notion of radial category, whereas Selvik utilizes Langacker's (1987, 1991a) schematic networks. Most other differences between the two approaches seem to be traceable to differences in theoretical orientation: Palmer's *Cultural Linguistics* program (Palmer 1996) leads P&W to emphasize the importance of cultural scenarios, whereas the more Cognitive Grammar-oriented Selvik tends to focus on somewhat higher-level abstractions. A nice example of this difference is provided by Selvik's treatment of class 7 in Setswana. Selvik notes, referring to Langacker's (1991b:285-286) account of the canonical event model, that semantic extensions in class 7 reflect the typical elements and participants in an action chain. P&W on the other hand would probably argue, along the lines of their second principle (2001:231), that what we see here is the abstraction of certain prototype concepts from a cultural scenario (namely, working with tools).

Selvik goes a few steps further than P&W, however, in that she takes great pains to demonstrate the plausibility of the semantic networks she proposes. She does this in two ways: first, by providing a cross-linguistic overview of semantic principles employed in gender systems of many languages, thereby showing that many of the generalizations she proposes (for example, shape-based or animacy-based distinctions, or the putting on a par of instrument, manner and place) are also found in other languages. Of course, such a typological overview does not allow for any conclusive statements about any individual language; it does however lend credibility to the proposed analysis because it demonstrates the wider applicability of the semantic principles evoked. The second way in which Selvik attempts to demonstrate the plausibility of her approach involves a psycholinguistic experiment to test the predictions generated by her analysis. The results of this psycholinguistic experiment will be the main subject of §3.2.

3.2. Methodology and results

Selvik's network models of classes 3, 5 and 7 are based on 'a random selection of nouns from the standard Setswana dictionary' (p. 165). Unfortunately, she does not offer any information on the size of her sample, nor does she mention the number of nouns in her sample that fit her analysis. Selvik is more outspoken on the specifics of the psycholinguistic experiment, which as far as I know is the first systematic attempt at assessing the cognitive reality of a semantic analysis of a Bantu noun class system.

This experiment, carried out in the course of research for Selvik (1996), was presented to seventy-eight native speakers of Setswana, and its aim was 'to examine whether or not (or to what degree) native speakers would establish semantic associations between selected class meanings and noun class prefixes when these prefixes were attached to nonsense stems.' (Selvik 2001:178). It is interesting to note that there are some similarities with the experiment Richardson carried out (Richardson 1967). Richardson had bilingual speakers determine what would be the most suitable class for new loan words from English; Selvik gives speakers the task of determining the most suitable class for nonce words with a pre-determined meaning. Both involve pre-determined meanings, and a task of 'on the fly' determination of the most suitable class prefix. Arguably, Selvik's set-up (shown in more detail below) is more reliable, as it avoids the interference that results from trying to incorporate foreign language words (with deviating phonology) into a language's system. However, even in this less than ideal form, Richardson's results showed the relevance of some form of semantic association. Interestingly, Selvik's results seem to show the same effect, only much stronger.

(a) *serutsa* ‘a small, round ball’
‘a tree that grows in Europe’
‘a tool that is used for making soap’
‘a person’

(b) ‘a tool that is used for making soap’ *lebôrôlêta*
sebôrôlêta
mobôrôlêta (babôrôlêta)
mobôrôlêta (mebôrôlêta)

Selvik designed two sets of test-items, both based on the principle of correlating nonce words+class prefixes with pre-determined meanings. In the first set, test-items look like (a) above: a nonsense-word with a prefix (in this case *se-*, CL7) has to be matched with one of four possible meanings. The hypothesis is that the meaning chosen will tend to correlate with the class schema connected to this class (in this case ‘instrument’). In the second set (see (b) above), a meaning is provided which has to be matched with one of four possible nonsense-words, only distinguished in the noun class prefix they bear. Again, if a particular choice surfaces particularly often, this indicates that there is some semantic correlation between the given meaning and the class prefix of that choice; in particular, the hypothesis is that this will confirm the class schema or semantic prototype associated with the prefix.

Fifty items in total were constructed, with a view to testing the most general class schemas as well as certain more peripheral conceptual categories. According to Selvik, the results show that ‘the combinations that were chosen most frequently by participants are those that associate the prototype meaning or [sic] a particular class with the class prefix that is appropriate for that class’[8] (p. 180). In other words, the Setswana speakers that participated in Selvik’s experiment consistently correlated certain prefixes with certain types of meanings (e.g. *se-* with a tool), and these semantic associations are quite similar to the prototype meanings Selvik proposed for the noun classes connected to these prefixes (e.g. INSTRUMENT for class 7). Selvik’s conclusion is that these associations at least partly support her analysis of the semantics of the noun classes (p. 161, 181).

At this point, some might argue that Selvik glosses over an important distinction often made in discussions of Bantu noun class systems: that between operational, ‘on-the-fly’ use of class prefixes to generate predictable meanings on the one hand, and the ‘inherent’ lexical classification of nominals on the other hand (Contini-Morava 1994:2.2). Along these lines, one possible critique of Selvik’s methodology would be that she employs an essentially operational use of noun class prefixes to say something about the distinct issue of the semantics of the inventory of a class (Schadeberg 1985:76). However,

[8] Note that ‘*or* a particular class’ probably should read ‘*of* a particular class’.

this argument is not without problems. First, even if one grants that the distinction is a useful one to make, this does not in the least rule out the possibility of a relation between the two uses. Indeed, the fact that the same morphology is used for both types of use is strongly suggestive of a relationship between the two (Contini-Morava, *ibid.*). Secondly, framing this issue in terms of a distinction (involving the imagery of a binary choice) obscures the fact that it is more likely to be a continuum, much like productivity versus non-productivity (Langacker 1991a:278-87). These two points suggest that, rather than the two uses having nothing to do with each other, we may expect them to be historically and semantically related. It appears therefore that there may be some justification for treating Selvik's experimental results as indicative of the semantics of noun classes. It should be noted that for Selvik, the whole distinction seems a non-issue to begin with—she simply equates the semantics of this 'operational' use of the prefix with the proposed prototype meaning connected to the class.

3.3. Discussion

It seems useful to dwell for a moment on some implications of Selvik's use of the Langackerian notion of *schematic networks*. In *Concept, Image, and Symbol*, Langacker explains that '[t]he members of a category are analyzed as nodes in a network, linked to one another by various sorts of categorizing relationships' (1991a:266). Crucially, these categorizing relationships involve similarity judgements in which three cognitive entities figure prominently: the prototype (a 'schematized representation of typical instances'[9], Langacker *ibid.*); the target (the entity being compared to the prototype); and the schema, the perceived commonality between prototype and target.

Turning to Selvik's use of this network model, it is noteworthy that Selvik proposes exactly one prototype for each of the classes she treats (e.g. 'tree' for class 3). It would seem, however, that there is no need to assume that a class is governed by just one prototype (recall that P&W explicitly posit multiple prototypes for Shona noun classes). Of course, a class may well start out that way[10], but extensions and abstractions to other schemas can easily lead to the emergence of peripheral prototypes. In fact, one could argue that every schema not directly connected to the prototype necessarily involves a local prototype of some cognitive salience. To give an example, the class 7 schemas 'negatively acting persons' and 'positively acting persons' (Selvik 2001:175) are neither instantiations of, nor extensions from, the prototype 'instruments'; instead, they relate to the schema 'persons with extreme manners of action', which may therefore be

[9] I am citing Langackers' (1991a) definition of prototype here, because it seems to me that the definition Selvik uses ('the typical instance of a category', p. 164) is too narrow as it does not allow for the (likely) possibility that prototypes are schematized on the basis of more than one typical instance of a category.

[10] And it may even stay that way: it seems that in many Bantu languages, class 1 is a good example of a class that seems to be governed by one prototype of especially high cognitive salience, namely 'human beings' (cf. Richardson 1967:380, Schadeberg 1985:72,76, Katamba 2003:115, Contini-Morava 1994:4, Selvik 2001:162).

considered a prototype (in the sense that it represents a schematization of typical instances). At first sight, Langacker's (1991a:266-68) distinction between global and local prototypes seems to be helpful here, but this distinction may turn out to be vacuous as it seems to me that even a global prototype could eventually fade into the background of a category and be replaced by other, previously peripheral ones.

Selvik seems to have chosen the prototypes primarily on the basis of numerical superiority (cf. p. 165). This is an intuitive choice, but ideally, the choice should not be motivated on the basis of the statistical distribution of members within the noun class only, as the relation between the centrality of a prototype (in Selvik's sense) and the number of nouns fitting that prototype is at best an indirect one. It is therefore reassuring that the results of Selvik's experiment in most cases seem to confirm the cognitive salience of the prototypes she has chosen. Interestingly, however, the results also establish the cognitive salience of one schema that was not chosen as the prototype. As Selvik notes, test-items for class 5 were designed with the schema 'small round objects' in mind, since 'fruit' had not yet been established as the prototype of the class (p. 182n5). This provides another reason to question the uniqueness of the prototypes, as it seems to indicate that 'small round objects' is also a salient prototype in class 5.

4. General discussion and conclusions

In this part of the paper, I take a closer look at the notions of arbitrariness and motivation (§4.1), as well as at the theoretical status of semantic networks (§4.2). Section 4.3 concludes with a brief overview of the points developed in this paper.

4.1. Arbitrariness and motivation: an evolutionary perspective

Richardson proposed that the original system of noun classification in Proto-Bantu may have been 'largely arbitrary' (1967:378), and that analogical classification at a later point caused the apparent semantic motivation we see today in some classes. Leaving aside the fact that Bantu noun class systems probably date from well before Proto-Bantu (a little more on that below), I want to focus on one question prompted by Richardson's proposal, namely how easy or how difficult it is for a grammatical device to be arbitrary. The answer, I think, depends largely on one's theory of language. If we take human language to be an elaborately structured system of arbitrary form-meaning pairings, it does not matter much if a grammatical device is motivated or arbitrary — it just needs to do its job along with the other grammatical devices to mark those distinctions that have to be marked in the language. Even an arbitrary system of noun classification is useful in communication because, as Contini-Morava (1996:268) notes, it helps narrow the range of possible referents during communication. However, the question then still remains how this arbitrary system came into being in the first place.

For that, we will have to look beyond language to its users, and this involves thinking of language first and foremost as something serving to fulfil the communicative needs of its speakers. But first, a caveat is in order: of course, explaining the possible genesis of a system of noun classification in a culture is wholly beyond the scope of the present paper. Consequently, I will largely pass by important historical issues that relate to present-day Bantu noun-class systems, such as the well-known hypothesis by Greenberg that the Bantu class prefixes historically derive from suffixes (Greenberg 1978), or the fact that traces of a noun class system can be found all throughout the Niger-Congo phylum (Williamson 1989) so that we have to look beyond Proto-Bantu to at least Proto-Niger-Congo for the inception of the well-known Bantu systems (Schadeberg 1985). Instead, what I will do in this section is walk through a brief thought experiment which I hope will throw some light on the issue of arbitrariness and motivation in systems of nominal classification in general.

Clearly, a fully-fledged noun class system does not simply spring into existence, nor is it likely to be a matter of conscious design on the part of the speakers. Instead, it would seem that the most promising hypotheses would involve a more gradual evolution of such a system. Whatever the specifics, it is difficult to see how any system of noun classification could start out as fully or even largely arbitrary: after all, there has to be some criterion according to which the nouns are classified. Much simplified, what it boils down to is the question 'how do I classify this noun?'. If there is no apparent convention in place which answers this question, it is only human to make a motivated choice. This choice will likely be motivated on the basis of such distinctions as are salient in the culture (including the language). Moreover, it will in all likelihood utilize routine strategies like metaphor and metonymy (for example, again much simplified, 'this new type of bow is much like a wooden stick' (making it a good candidate for class 3, where other wooden sticks are found) or 'this new type of bow is an instrument used for hunting' — i.e. it would go well with the other instrumental artefacts in class 7). Now, when such choices become practices, and the practices become conventions in the community, the net effect will be a system that is motivated in a broad sense. Another way to put this would be to say that a system of noun classification will tend to grammaticize important dimensions of world view (Palmer 1996:126; Palmer & Woodman 2000:225).

It thus seems that if we put language more firmly in its socio-cultural context, we are led to expect motivatedness in any system of noun classification. In other words, in a natural language it seems actually more difficult to start with an arbitrary grammatical system than to start with a motivated system. At the same time, it is important to note that this motivatedness does not imply a coherent system of perfect, clear-cut distinctions without any exceptions.[11] One very practical reason why this could not be so lies in the endless

[11] The difference made here between 'motivatedness' and 'coherency' may need some clarification. Whereas the latter (quite ill-defined) notion implies a 'logically sound' classification, the former merely requires some

variation provided by the nouns to be classified; as Palmer puts it, 'the world contains such infinitely variable phenomena that perfect rationality would require so many hundreds or thousands of classes as to be altogether impractical' (1996:139). In fact, we can safely leave aside the question whether a perfectly coherent classification would be at all possible, since there does not seem to be a reason to *expect* something like that in the first place. To the contrary, just like any evolving system, we should expect the evolution of linguistic categories to be 'shamelessly utilitarian' (Keller 1998:65).

This evolutionary view yields two more reasons to expect irregularity. First, it is improbable to assume that all noun classes originated simultaneously (here, historical linguistics could provide clues[12]). Any change in the system (for example the advent of a new class, or the merger of two classes) will change the dynamics of the class system as a whole. This leads us to expect different layers of semantic structuring (Spitulnik's term) in the system; after a class merger for example, the sedimented patterns found in the old classes will still occasionally shine through; also, assuming that not all nouns are reassigned upon the advent of a new class, we may find nouns in a class that to us in retrospective look like they fit equally well, or even better, in another class (as noted by Richardson, 1967:381). Secondly, and related to this, it is of course equally improbable that all words in a noun class have become members of that class simultaneously. In other words, a noun class is not a monolithic unit, but rather an elaborately structured network that is continuously evolving (Breedveld (1995:300) makes the same point on the Fulfulde noun class system). The allocation of new members to the class will change the internal dynamics of the semantic network of that class, enabling new conceptual links and abstractions to be made, and old ones to be changed or weakened.

That last point is quite important, as it offers one reason[13] for the occurrence of words that seem difficult to reconcile with conceptual schemas identified in a class. It is interesting to note that some semantic accounts of classifiers seem to overlook this possibility. P&W for example write that their long list of unexplained items does not

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kind of motivation—and in the typical communicative scenario, this motivation can be anything that is *jointly salient* to both speaker and hearer, i.e. anything that is useful to make communication succeed (Clark 1996, Croft 2000:IV). In case of the question of class allocation, this joint salience may be provided by a metaphorical or metonymical link to items already in a class. However, simple similarity, including phonological similarity, will also work sometimes ('all *ki*-words are in this class, so *kioski* has to go there too'; or 'all reduplications are in this class, so this one probably will go there too'). Keller, making a related point, puts it as follows: 'From a logical perspective, the categories produced by a natural language often are rather confused and crazy. *What counts in evolutionary processes is not logic, but utility.*' (1998:65; emphasis mine).

[12] Spitulnik (1987) uses De Wolf's (1971) reconstruction of the noun class system of Proto-Benue-Congo (for example his conclusion that historically, classes 1 and 3 have the same source) to argue that there are sedimentations of earlier patterns in the current systems of noun classification (as cited in Palmer & Woodman (2000:245)). Similarly, Contini-Morava points out that class 11 in Swahili is derived from a merger of Proto-Bantu classes 11 and 14 (1994:4.4).

[13] We have come across another possible reason in Richardson's (1967) discussion of loan words in Bemba: sometimes, phonological form may partly or fully dictate class allocation. Contini-Morava 1994:4.2 makes the same point for Swahili and as was noted above, P&W (2000:230) also admit that it seems relevant for Shona class 9.

necessarily refute the theory they propose, since 'it could just as well reflect deficiencies in our understanding of Shona culture' (p. 243). This may well be the case indeed, but additionally, it should be recognized that even a full understanding of present-day Shona culture may not reveal all possible conceptual links, past and present, that played a role in the evolution of its noun class system.[14]

In this context it is good to recall that the apparent lack of a coherent system has been the main reason for some to postulate arbitrariness as the starting point (as Richardson (1967) does for Proto-Bantu). This choice, however, is based on a false dichotomy, and we are now in the position to see why. As I have argued above, the opposition is not ARBITRARINESS vs. COHERENCY, but rather ARBITRARINESS vs. MOTIVATEDNESS. The reason is that coherency is an essentially synchronic notion, asking the question 'does the system *now* look like a logical system?'. Motivatedness on the other hand, enables us to factor in the crucial element of *time*: it assumes that for each and every noun in a noun class, a motivated choice was made at some point in time; but it does not give us any reason to expect that the aggregate of these choices looks like a 'coherent' system at any point in time (it may of course look like a *motivated* system). In sum, it appears that the factor of time is crucial for the understanding of systems of noun classification — just as crucial in fact as it is to any evolutionary process.

4.2. The status of semantic networks

Although analyses involving elaborate semantic networks like Contini-Morava (1994), Palmer & Woodman (2000), and Selvik (2001) do a fine job in identifying clusters of related meanings in noun classes, it remains somewhat unclear what exactly they are picturing. None of these three accounts is fully explicit about the theoretical status of the category structures they are proposing[15], yet they all leave the strong impression that they are not just depicting the linguists' way of making sense of Bantu noun classes. This raises some important questions. Is each and every conceptual schema identified in these networks cognitively real? Or shouldn't we read this claim of cognitive reality in it at all, and is the semantic network merely a convenient way to visualize the results of centuries of speaker's choices and predispositions, no more, no less? What about the conceptual links between clusters of meanings — are all of them still active or is the claim merely that they once were?

It seems that Selvik's psycholinguistic experiments answer some of these questions. First, there is no question that certain prototype meanings that can be connected to class

[14] It is quite surprising that Palmer & Woodman do not point out this possibility, since Palmer (1996:139) in earlier work explicitly points to the evolution of Bantu languages and cultures as a source of diversity in their noun class systems.

[15] Selvik comes closest in her remark that 'the networks I will present should not be read as taxonomic hierarchies grouping together and ordering 'real world objects', but rather that all its [sic] nodes should be understood as concepts' (p. 165). This does seem to imply the claim that all nodes are cognitive units.

prefixes are cognitively real, or, as she puts it, that 'participants do employ semantic associations when dealing with the test items' (p. 180). This is an important result, as it establishes a relation between noun class prefixes and certain conceptual categories (future research will have to show whether this reflects live conceptual structure, or whether speakers make their decision on the basis of an *a posteriori* schematization; I will briefly touch this point below). Selvik also relates that on one occasion, a native Setswana speaker explicitly expressed his feeling that class 5 nouns refer to 'deader' things than class 3 nouns do. This introspective comment seems to indicate that 'for this speaker, the Class 3 schema 'living' has cognitive salience' (p. 181). At the same time however, Selvik notes that her attempts at testing more peripheral schemas 'do not give fully convincing evidence that *all* proposed network schemas represent cognitive units' (*ibid.*). Selvik does not offer an explanation for this negative result.

However, a negative result is a result too, and as a matter of fact, this mixed situation is precisely the scenario we are led to expect in the evolutionary perspective on noun classification developed in §4.1 above. In the picture I have sketched there, every present-day noun class represents the sedimentation of the choices and (socio-cultural) predispositions of many generations of language users. Some clusters of meanings and conceptual links in this complex category are cognitively salient and semantically productive, others less so, or not anymore at all. Some nouns are perceived to be central to the class, others are more peripheral and yet others seem to be linked to the class only by pure convention, which has replaced the original motivation. There is no reason to expect that all clusters of related meanings that can be identified retrospectively by us linguists are live cognitive units. The notion of 'conceptual link' needs to be accorded the same diachronical dimension: the original motivation to place a noun in a certain class may well have involved a conceptual link with some noun already residing in that class (e.g. a metonymical or metaphorical association), but that does not imply nor require that this same link is still relevant, active, or cognitively real today.

This leaves us with a serious ambiguity. Parts of networks may represent cognitive units, but other parts merely depict the linguist's reconstruction of likely historical motivations for class allocation. As I take it, this jeopardizes the notion of a semantic network devised solely on the basis of the contents of a noun class. Additionally, these networks may be susceptible to the kind of criticism Keysar and Bly (1999) pass on the analysis of idioms, which according to some reveal conceptual structure, but according to them merely do so *a posteriori*. As they say, some idioms are 'expressions that are transparent but not motivated by systematic conceptual mapping' and that these 'are transparent only because people already know the meaning and are able to construct a 'story' to make sense of them' (1999:1572). I think it is important to recognize the difference made here between conceptual mappings that are actively part of the knowledge of a speaker on the one hand, and conceptual mappings that can be constructed by the speaker on the basis of his knowledge of linguistic convention (including class allocation) on the other hand. In other words, the fact that we can see that class allocation is *motivated* does not in

itself warrant the claim that this reflects an underlying *active* semantic network. At a certain level of abstraction, this seems analogous to the fact that we are not forced to conclude that speakers actively construe space by means of online extension of body part terms, just because we see that certain body part terms often are recruited as spatial adpositions.

In sum, it is important to recognize that not all conceptual links that can be retrospectively identified in a noun class necessarily are part of a speaker's knowledge of that class. In fact, acquisition evidence suggests that it is quite likely that many of them aren't part of the speaker's knowledge in any conventional sense. Acquisition of gender systems, for example, never takes place on purely semantic grounds; to the contrary, in the majority of cases class allocation simply has to be learned as a 'formal' property (Müller 2000), although some evidence of semantic generalizations is found in Bantu for the human classes (Demuth 2000:283-5). This makes it likely that the semantic nets that can be constructed for the non-human classes are at least partly picturing historical relics rather than representing 'something alive in the minds of speakers' (as Lakoff 1987:111 argues for his radial categories in Dyirbal and Japanese).

No doubt Contini-Morava, Palmer & Woodman, and Selvik agree with me on the point that their analyses do not necessarily reflect fully live cognitive structures[16]; yet all have chosen to frame their proposals in terms of networks with a strong implication of cognitive reality. In doing so, they silently pass by the question as to the exact theoretical status of these networks. This is, however, very much an open empirical question. Langacker, in laying out the network model adopted by Selvik, writes:

> 'We cannot be certain how far "upward" a speaker extends this network through the proces of abstraction (schematization), and in particular, whether he extracts a "superschema" having all other nodes as direct or indirect instantiations.' (1991a:267)

As I said, I do think that Selvik's results are indicative of the cognitive reality of certain schematizations. At the same time, I have argued that not all parts of the proposed network can be taken to have this same status. Langacker continues the above passage by describing his goal as 'to properly characterize a speaker's knowledge of linguistic convention' (p. 268). As I take it, a rigorous adherence to this goal calls for a refinement of our hypotheses about the nature of a speaker's knowledge of the semantics of noun classes.

Finally, it is probably good to note that this does not in the least render the search for a semantic basis of the noun class system irrelevant or futile. To the contrary: the many

[16] Selvik for example seems to concede this much when she notes in passing that 'it proves hard to analyze the categorization of animal terms in to the different classes without extensive knowledge of beliefs, myths, etc. (*which may or may not be known to contemporary speakers of Setswana*)' (2001:163, emphasis mine). The point is that Selvik recognizes the possibility of speakers knowing in which class a word is without being aware of the motivation.

thousand years of human experience embodied in these systems forms a vast repository of cultural knowledge at the disposal of the language user (Keller 1998:65, Breedveld 1995:300, Tomasello 2001:129), and the ways in which speakers go about using this repository is a subject well worth researching.

4.3. Conclusions

In this paper, I have reviewed three approaches to the semantics of Bantu noun classification, all significant in their own right. Richardson's (1967) study offers some important observations, for example the idea that not all classes may have originated simultaneously and the observation that phonological form may in certain cases determine the class allocation of loan words. Although in retrospective, some of its proposals have to be dismissed as untenable (such as the view that the Proto-Bantu noun class system started out as an arbitrary grammatical device; see §4.1), it continues to be of relevance in its insistence on the importance of certain non-semantic factors influencing noun class allocation.

Palmer & Woodman's (2001) study is important in its appreciation of cultural scenarios as an important factor in noun classification. Their analysis of Shona noun class 3 as a polycentric category is an insightful one. It is, however, hampered by the fact that its claims are very much in need of empirical verification. I have suggested three ways in which these claims can be put to test. The first involves looking beyond the semantics to other signs of semantic organization in the class; in this case, a clue is provided by the widespread occurrence of reduplicated stems. This iconic morphology can be seen as a sign of the salience of the central model of 'repetition' in the class, and its occurrence across several clusters of meaning seems to provide independent evidence for some of the conceptual links proposed by P&W. A second way involves the investigation of agreement patterns in actual discourse; this provides a more direct window on cognitive processes and constraints that are at work in noun classification. The third way of assessing claims like the ones made by P&W would involve carrying out psycholinguistic experiments.

Selvik's study, also cast in a cognitive linguistic framework, is especially notable for offering one of the first systematic psycholinguistic investigations in the domain of Bantu noun classification. The results establish a clear relationship between noun class prefixes and certain conceptual categories, showing that noun class prefixes are anything but void of meaning. Still, these results have a somewhat limited application, and more psycholinguistic research will be needed to throw light on the nature of the relationship between operational use of a noun class prefix and the semantics of the inventory of the corresponding noun class.

Although they clearly offer important insights, it is important to note that the exact theoretical status of the semantic networks proposed in studies like Contini-Morava

(1994), P&W (2000), and Selvik (2001) has remained somewhat unclear, and in fact is still very much an open empirical question. In §4.2 I have tried to clear up this issue by arguing that these networks are best understood as having a historical dimension. Thus, although some entitities of the semantic networks arrived at in these analyses may represent live cognitive units, other parts of them in fact picture the sedimentation of the choices and socio-cultural predispositions of generations of language users (§4.1). Failure to appreciate this diachronical dimension may lead to the misguided expectation that all entities of the semantic network represent cognitive units.

Without a doubt, the ideas developed in this paper have their own blind spots and shortcomings; I nonetheless want to express the hope that the perspective taken here contributes to a more complete understanding of (Bantu) noun class systems. In particular, I want to advocate what might be called a more 'user-based' perspective on language, in which noun classification, like any language structure, is seen first and foremost as something serving to fulfil the communicative needs of its speakers. This perspective prompts a redistribution of emphasis: instead of being concerned solely with noun class systems as purely grammatical systems or, for that matter, as purely semantic categories, we need to place these systems more firmly in their socio-cultural context. Doing so results in a historical and evolutionary perspective on noun class systems that enables us to understand and explain both regularity and irregularity in Bantu noun classification. To me, this perspective sums up where the priorities lie of future research into Bantu noun classification, encouraging us to find out not just how *we* can make sense of noun class systems, but also, and more importantly perhaps, how speakers 'make sense' using them.

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References

Boroditsky, Lera, Lauren A. Schmidt & Webb Phillips. 2003. 'Sex, syntax, and semantics', in Gentner, D. & S. Goldin-Meadow (eds.) *Language in mind: advances in the study of language and cognition*. Cambridge, MA: MIT Press, 61 – 79.

Breedveld, J.O. 1995. *Form and meaning in Fulfulde. A morphophonological study of Maasinankoore*. Dissertation. Leiden: Research School CNWS.

CBOLD. n.d. *Comparative Bantu Online Dictionary* (website). http://www.cbold.ddl.ish-lyon.cnrs.fr/

Clark, Herbert. 1996. *Using Language*. Cambridge: Cambridge University Press.

Contini-Morava, Ellen. 1994. *Noun Classification in Swahili*. Report available at http://iath.virginia.edu/swahili/swahili.html.

Contini-Morava, Ellen. 1996. ''Things' in a noun-class language. Semantic functions of agreement in Swahili', in Edna Andrews and Yishai Tobin (eds.) *Toward a Calculus of Meaning. Studies in markedness, distinctive features and deixis*. (Studies in functional and structural linguistics, vol. 43). Amsterdam/Philadelphia: John Benjamins, 251-290.

Croft, William. 2000. *Explaining Language Change: An Evolutionary Approach*. Harlow: Pearson Education Limited.

Demuth, Katherine. 2000. 'Bantu noun class systems: loanword and acquisition evidence of semantic productivity', in Gunter Senft (ed.), *Systems of nominal classification*. Cambridge: Cambridge University Press, 270-292.

De Wolf, Paul P. 1971. *The Noun Class System of Proto-Benue-Congo*. The Hague: Mouton.

Greenberg, Joseph H. 1978. 'How does a language acquire gender markers?', in Greenberg (ed.), *Universals of Human Language*, Vol. 3: *Word structure*. Stanford, CA: Stanford University Press, 47-82.

Hannan, M., 1959. *Standard Shona Dictionary*. London: Southern Rhodesia Native Affairs Development.

Hannan, M. 1984. *Standard Shona Dictionary*. Revised and enlarged edition. Harare, Zimbabwe: The College Press.

Katamba, Francis. 2003. 'Bantu nominal morphology', in Derek Nurse & Gerard Philippson (eds.), *Bantu languages*. London: Routledge, 103-120.

Keller, Rudi. 1998. *A Theory of Linguistic Signs* [tr. by Kimberley Duenwald]. Oxford [etc.]: Oxford University Press.

Keysar, B. & Bly, B.M. 1999. 'Swimming against the current: Do idioms reflect conceptual structure?', *Journal of Pragmatics*, 31, 1559-1578.

Lakoff, George. 1987. *Women, Fire, and Dangerous Things: what categories reveal about the mind*. Chicago: University of Chicago Press.

Langacker, Ronald W. 1987. *Foundations of Cognitiv e Grammar*. Vol. 1, *Theoretical Prerequisites*. Stanford: Stanford University Press.

Langacker, Ronald W. 1991a. *Concept, Image, Symbol* (Cognitive Linguistics Research, vol. 1). Berlin/New York: Mouton de Gruyter.

Langacker, Ronald W. 1991b. *Foundations of Cognitive Grammar*. Vol. 2, *Descriptive Application*. Stanford: Stanford University Press.

Leakey, Louis S.B. 1959. *First lessons in Kikuyu*. Nairobi: East African Literature Bureau.

Müller, Natascha. 2000. 'Gender and number in acquisition', in Barbara Unterbeck (ed.) *Gender in Grammar and Cognition. I: Approaches to Gender*. Berlin/New York: Mouton de Gruyter, 351-400.

Palmer, Gary B. 1996. *Toward a Theory of Cultural Linguistics*. Austin: University of Texas Press.

Palmer, Gary B. and Claudia Woodman. 2000. 'Ontological Classifiers as Polycentric Categories, as Seen in Shona Class 3 Nouns', in Martin Pütz & Marjolijn H. Verspoor, *Explorations in Linguistics Relativity*. Amsterdam/Philadelphia: John Benjamins, 225-249.

Payne, Thomas E. 1997. *Describing Morphosyntax. A Guide for Field Linguists*. Cambridge: Cambridge University Press.

Richardson, Irvine. 1967. 'Linguistic Evolution and Bantu Noun Class Systems', in Gabriel Manessy & André Martinet (eds.) *La Classification Nominale dans les Langues Négro-Africaines*. Aix-en-Provence: Éditions du Centre National de la Recherche Scientifique, 373-390.

Schadeberg, Thilo C. 1985. 'Classificatie van naamwoorden en dingen in het Bantoe' [classification of nouns and things in Bantu], *Afrika Focus* (University of Ghent), 1, 67-85.

Sagna, Serge. 2006. 'Noun classification in Gújjólay Eegima: the semantics of classes 5 *bu-/bi-*; 7 *fu-/fi-* and 9 *ga-*'. Unpublished paper presented at the 36th Colloquium on African Languages and Linguistics, Leiden University, August 28-30, 2006.

Selvik, Kari-Anne. 1996. *Setswana noun classes: Conceptual categories marked by grammar?* Unpublished Cand. philol. Thesis, University of Oslo, Oslo.

Selvik, Kari-Anne. 2001. 'When a dance resembles a tree: a polysemy analysis of three Setswana noun classes', in Hubert Cuykens & Britta Zawada (eds.) *Polysemy in Cognitive Linguistics: Selected papers from the fifth International Cognitive Linguistics Conference.* Amsterdam/Philadelphia: John Benjamins, 161-184.

Spitulnik, Debra A. 1987. *Semantic Superstructuring and Infrastructuring: Nominal Class Struggle in ChiBemba*. Bloomington, Indiana: Indiana University Linguistics Club.

Whiteley, W.H. 1961. 'Shape and meaning in Yao nominal classes', *African Language Studies*, II, 1-24.

Williamson, Kay (1989) 'Niger-Congo overview', in Bendor-Samuel & Hartell (eds.) *The Niger-Congo Languages*, 3-45.