

## Paradigmatic morphology

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### 1. Introduction

This article is meant as a reflection on Danielle Corbin's theory of derivational morphology, and thus as an homage to her important work in this domain of linguistic theory. Her basic ideas concerning derivational morphology as published in Corbin (1987) are conveniently summarized in English in an article in the *Yearbook of Morphology 1989* which I translated for her from French into English. It is this article that I will take as my starting point for a discussion of the role of paradigmatic relations in morphology. The two basic and interdependent ideas in Danielle Corbin's article are (i) that derivational morphology is word-based, (ii) that morphology is associative, i.e. non-separationist. Word-based morphology is the idea that morphology is primarily a set of systematic correspondences between the forms and meanings of the words of a language. These systematic correspondences can also be applied to new cases, and then we speak of productive morphological processes that create words from words (Schultink 1961). That is, the source of morphology is the network of paradigmatic relations between the existing words of a language. In section 2, I will present a number of arguments for this paradigmatic view of morphology. This position implies that it is the word that forms the basis of morphological operations, and that morphology cannot be defined as the concatenation of morphemes into words. As pointed out by Aronoff (1994), it is better to speak of lexeme-based morphology, because the term 'word-based' has led to the misunderstanding that it is the concrete form of a word that is the basis for morphological operations. However, it is often an abstract stem form of a lexeme that does not surface as a concrete word form that forms the basis for morphology, and hence, the term 'lexeme-based' is more appropriate. We may wonder, therefore, how Corbin's primarily syntagmatic lexeme-based approach to morphology relates to the tradition of paradigmatic, lexeme-based morphology, a tradition that is represented in the Netherlands by the work of Uhlenbeck, Schultink, van Marle and others (cf. Schultink 2000 for a survey).

The second leading idea in Corbin's work is that in morphology form and meaning are associated in a systematic way, and that these two aspects of a complex word should not be dissociated. The position that they should be separated is called 'separationist morphology', and has been defended most explicitly by Beard (1995). As Corbin has shown, it may look at

first sight as if there is a many-to-many-relationship between form and meaning in the realm of derivational morphology, but there is a number of ways of accounting for this apparent unsystematicity and mismatch: (i) we should distinguish between the actual, lexicalized and the possible, predictable meaning of a complex words, (ii) there are systematic patterns of polysemy that explain apparent distortions of the systematic form-meaning relationships, (iii) we may assume possible, non-occurring words as the bases for word formation, (iv) there is truncation (the deletion of an affix before another affix), and (v) complex words have to fit into the general morphological shape of a particular category (the paradigmatic integrator factor, as Corbin called it).

As to Beard's position, I have argued in Booij (1986) that the apparent many-to-many relationship between form and meaning in the domain of Dutch deverbal agent and instrumental nouns is only apparent, and follows from systematic patterns of polysemy. Therefore, I concluded that Beard's approach is on the wrong track. The analyses proposed by Corbin aim at making the same point: in a more sophisticated morphological analysis, the apparent distortions between form and meaning can be explained away.

Another source of polysemy mentioned both in Booij (1986) and Corbin (1989) is the vagueness of the meaning contribution of affixes (cf. also Booij 2002: 105-110). Hence, there is no reason to dissociate form and meaning in morphology.

We should realize, however, that this associative morphology position pertains primarily to derivational morphology. In the realm of inflection, another approach may be called for. There are many languages with a very complicated relation between inflectional properties and their phonological realization, and this has led to a number of theories of a dissociative nature: A-morphous Morphology (Anderson 1982), Distributed Morphology (Halle and Marantz 1993), and Paradigm-based morphology (Stump 2001). I will leave the treatment of inflection out of discussion here, but would like to note that even in inflection one might still want to defend the associative position. For instance, Carstairs-McCarthy, in his work on restrictions on the variation that one finds in inflectional paradigms, makes use of the one form-one meaning principle (in the form of the No Blur principle) that presupposes a systematic relation between form and meaning even in the inflectional domain (cf. Cameron-Faulkner and Carstairs-McCarthy 2001).

After this short characterization of Corbin's theory and its position in current debates on morphology, I will discuss a number of issues in more detail. In Section 2, I will present a number of arguments for paradigmatic morphology, and relate them to Corbin's analyses as proposed in Corbin (1989). In section 3, I will discuss the phenomenon of paradigmatically

governed allomorphy, and argue that it can be dealt with without making use of possible but non-existing words. Section 4 will present my conclusions.

## 2. Arguments for paradigmatic morphology

There is a wealth of evidence in the morphological literature for the position that in many cases new complex words are created on the basis of relations between existing words. A well known argument is the observation that idiosyncratic properties of existing complex words recur in the polymorphemic sequences corresponding to those complex words that form part of a larger complex word (a somewhat clumsy, but theory-neutral formulation). For instance, the idiosyncratic meaning of the deverbal Dutch noun *woning* 'house' derived from the verb *woon* 'to live' by means of the suffix *-ing* used for deriving deverbal action nouns, will recur in all words derived from *woning* such as the diminutive noun *woninkje* 'small house' and the compound *woningnood* 'shortage of houses'; hence it is the established lexeme *woning* that is the basis of these word formation processes (Booij 1977: chapter 1). The same point is made by Corbin (1989: 47): once the idiosyncratic meaning of the complex word *fourchette* 'fork' has been established, this unpredictable meaning will recur in words derived from it, such as *fourchetée* 'forkful'. Therefore, the conventional lexicon must be assumed to provide inputs for the derivational component.

Particularly telling is the phenomenon of paradigmatic word formation. An example from Dutch (Van Marle 1985, Booij 2002: 6-8) is the formation of female nouns in *-ster* as counterparts to sex-neutral deverbal nouns in *-er*:

(1)	<i>verb</i>	<i>noun</i>	<i>female noun</i>
	arbeid 'work'	arbeid-er 'worker'	arbeid-ster
	spreek 'speak'	spreek-er 'speaker'	spreek-ster

Although one might assume here that the female nouns have been derived directly from verbal bases, it appears that, in fact, they have probably been derived by replacing the suffix *-er* with the suffix *-ster*. The evidence for this interpretation is that sometimes the verbal base does not exist, and that if the noun in *-er* has idiosyncratic semantic properties, these properties recur systematically. This is the case for the following pairs of words:

(2)	<i>noun</i>	<i>female noun</i>
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bet-wet-er 'lit. better-knower, pedant'	bet-weet-ster 'id., fem.'
oproer-kraaier 'lit. revolution crower, ring leader'	oproer-kraai-ster 'id., fem.'
pad-vind-er 'lit. path-finder, scout'	pad-vind-ster 'girl scout'

This is a productive way of coining female nouns, which cannot be understood in terms of concatenation of morphemes, but only as the extension of an existing form-meaning relationship between words ending in *-er* and words in *-ster* to new cases. More examples of paradigmatic word formation in Dutch can be found in Booij (2002).

The role of paradigmatic relationships between existing words also appears in the following observation in Corbin (1989):

"The choice of a particular suffix for prefixed nouns is dictated by the copy principle. For example, nothing forbids the suffixation of *-ité* '-ity' or *-itude* '-ity' to *apte* 'suitable' and *inapte* 'unsuitable'. Both suffixes attach to non-suffixed adjectives ending in /t/ (*matité* 'dullness, *promptitude* 'id.'). Yet it is the suffix *-itude* that appears in both adjectives in the attested lexicon: *aptitude*, *inaptitude*. The choice of the suffix *-itude* for *inaptitude* is thus copied from that for *aptitude*." (Corbin 1989: 39).

Instead of assuming a specific copy principle, we might conclude that the formation of the word *inaptitude* has taken place on the basis of the following paradigmatic relationship:

$$(3) \quad \text{apte} : \text{aptitude} = \text{inapte} : X$$

Hence X will be *inaptitude*. Thus, we can avoid the assumption that *inaptitude* is derived from *aptitude* which would lead to a so-called bracketing paradox. Its meaning is a compositional function of the adjective *inapte* and the suffix *-itude*, whereas from a formal point of view this word seems to be derived by prefixation of *in-* to *aptitude* given the choice of *-itude* over *-ité*.

The role of paradigmatic relationships is also clear in the case of the bracketing paradoxes discussed in Spencer (1988): the formation of the expression *transformational grammarian* can only be understood on the basis of the following equation:

$$(4) \quad \text{grammar} : \text{grammarian} = \text{transformational grammar} : X$$

This equation will result in X having the value *transformational grammarian* with the meaning ‘someone who does transformational grammar’.

Paradigmatic relationships also account for the phenomenon of hypercharacterization, where a word ends in a suffix that does not contribute an additional meaning to the word to which it belongs. An example from Dutch is the addition of the denominal personal suffix *-er* to nouns that already have that person-denoting meaning. Thus, the word *Dominicaner* ‘Dominican’ has been coined on the basis of the word *Dominicaan* ‘Dominican’ in order to achieve a uniform formal expression of the category of personal nouns (Van Marle 1985). The same happens to acronyms for particular functions in which the word denoting the person is hidden. For instance, in Dutch the acronym for *universitair hoofddocent* ‘lit. university head teacher, associate professor’ is *UHD*, but many speakers of Dutch use the word *UHD-er* instead (Booij 2002). Corbin (1989: 38) mentions similar examples from French: plant names normally end in *-ier*, and hence, this suffix has also been added to words such as *peuple* ‘poplar, and *magnolia* ‘id.’ that already denote a tree or plant, resulting in the synonymous words *peuplier* and *magnolier* respectively. Corbin rightly qualifies these words as cases of ‘paradigmatic integration’ because they have been made part of a morphological category, a class of paradigmatically related words that end in the same suffix.

Paradigmatic relationships may also be used to account for another case of apparent distortion of the relationship between morphological structure and semantic interpretation discussed by Corbin (1989: 36ff). The case discussed by Corbin is the word *publiciste* ‘publicity agent’, whose semantic base is not the adjective *public* but the complex noun *publicité*. Corbin’s solution is to assume the underlying morphological structure *public-ité-iste*, and a truncation rule that deletes the suffix *-ité* before *-iste*. Such truncation rules have also been postulated by Aronoff (1976) in order to account for asymmetries between form and meaning

What we may doubt with respect to this kind of analysis is if we really want to assume a category of truncation rules. Once we make use of paradigmatic relationships, it is possible to state the form-meaning correspondence discussed here more directly, as follows:

(5) [X- ité]<sub>N<sub>i</sub></sub> < - - > [X-iste]<sub>N<sub>j</sub></sub> ‘specialist in N<sub>i</sub>’

This kind of relationships, with an asymmetry between form and meaning, is pervasive in the stratum of non-native complex words in Dutch and other Germanic languages. A classical example is the relation between nouns in *-isme* and nouns in *-ist* that denote adherents of the

ideology mentioned by the word in *-isme* such as *marxisme - marxist*. Similar pairs of words can be found in French, as the work of Corbin has shown. Once we allow for paradigmatic networks to play a role in the formation of new words, we do not need to assume a truncation rule for the truncation of *-isme* before *-ist*. Instead, we assume a systematic relation between words of the form *X-isme* and words of the form *X-ist* with the meaning 'adherent to X-ism'. An additional advantage of this approach is that we do not have to make a choice as to the direction of the relation: it is also possible to derive words in *-isme* from words in *-ist*.

The essential role of paradigmatic relationships can also be seen in the realm of compounding. As shown by Krott (2001), the choice of a linking phoneme between the two constituents of a compound in Dutch is largely based on the patterns of linking phonemes in the set of existing paradigmatically related compounds, i.e. compounds that begin or end with the same constituent. This shows that a proper account of both semantic and formal regularities needs access to paradigmatic relations between words.

In short, once we recognize the essential role of paradigmatic relationships in morphology, a number of apparent complications with respect to form-meaning relationships in morphology appear to be due to a fundamental architectural principle of the morphological module, its being paradigmatic in nature.

Finally, let me point out another paradigmatic aspect of Corbin's morphological theory: the postulation of morphological paradigms. A morphological paradigm in Corbin's view is a set of word formation processes with the same semantic contribution, and the same category of base and derived word. We need the notion 'morphological paradigm' in particular for understanding type blocking (Van Marle 1985, Rainer 1988), the phenomenon that word formation processes within the same morphological paradigm compete, and may impede each other's applicability and productivity (see also Bauer 1997). Indeed, such observations can be found in Corbin's work, and thus it can be seen as a clear contribution to paradigmatic morphology.

### 3. Paradigmatically governed allomorphy.

The phenomenon of allomorphy may also seem to form a threat to the assumption of a systematic relation between form and meaning in morphology. There are many sources of allomorphy (for instance, alternations caused by phonological processes), but an important one is obviously the history of a language. Take for instance, the following example from Corbin (1989):

"For instance, the consonantal variation in *nager* 'to swim'/ *natation* 'swimming' is, as far as I know, unique in French. Therefore, *natation* is not derived from *nager*, but from <sup>o</sup>*nater*, a synonym of *nager*. The plausability of this word as a base of *natation* is confirmed by the fact that the word is not attested in present-day French [...], but [...] did occur in the 14th century, that is, before the appearance of *natation* in 1550."  
 (Corbin 1989: 44)

There is one disadvantage in Corbin's approach: she is forced to assume possible simplex words such as *nater* that do not occur as actual words. In fact, we expect such possible words to become actual words very easily, but this is not the case: if someone coined the verb *nater*, this would clearly be felt as a case of back formation, a kind of word formation with a strongly incidental, non-systematic character.

The alternative to Corbin's analysis is to list *natat-ion* as an existing, formally complex noun in *-ation*, with its meaning specified, and without any formal relation to *nager*. As pointed out to me by Georgette Dal, *natation* is a borrowing from Latin (*natatio*). In fact the relation between the two words will only be perceived on the basis of their semantic relationship, and it is on this basis that we might also observe the formal similarity between the verbal stem *nag-* and the first part of *nat-ation*. If a new word, say *natative*, is derived, we do not need *nater* as a base; instead it will be derived directly from the formally complex noun *nat-ation* through suffix replacement, i.e. paradigmatic word formation.

A classical case of apparent mismatch between form and meaning in French that relates to allomorphy is the use of feminine adjectives as stems for the derivation of adverbs in *-ment*, although there is no feminine or female meaning involved in the derived words:

(6)	<i>masc.</i>	<i>fem.</i>	<i>adverb</i>
	faux 'false'	fausse	faussement
	lent 'slow'	lente	lentement
	heureux 'happy'	heureuse	heureusement

In these cases one might still think that it is the latent stem-final consonant of the adjectival stem that surface before the suffix *-ement*, and that, therefore, it is still the masculine (or rather, the gender-neuter) form that functions as the stem. However, this analysis fails to

explain why, if an adjective has an irregular feminine form, it is this irregular form that shows up before *-ement*:

(7)	beau 'beautiful'	belle	bellement
	blanc 'white'	blanche	blanchement
	fou 'stupid'	folle	follement
	sec 'dry'	sèche	sèchement
	vieux 'old'	vieille	vieillement

Instead of saying that these adverbs are derived from the feminine form of adjectives, as the facts in (7) might seem to force us to (an analysis that implies a semantic mismatch), the following paradigmatic allomorphy rule can be stated: the allomorph for deadjectival derivation in French is formally identical to the feminine form of the adjective (Booij 1997a: 45). The schwa-less variant of these allomorphs is used in other context, as in *un bel ami*, *un vieil idiot*. Similar patterns of paradigmatically governed allomorphy can be found in many other languages, as shown in Booij (1997a;b). It will be clear that putative semantic mismatches disappear once we accept the idea that allomorphs for a particular morphological process may be identical with the form of other words without being associated with the meaning of those other words. The same point is made by Aronoff (1994) with respect to allomorphy in inflectional paradigms.

#### 4. Conclusions

In this article, I have tried to show that the impressive work on the derivational morphology of French done by Danielle Corbin can very well be integrated into a paradigmatic approach to word formation. In order to support this interpretation of Corbin's morphology, I highlighted a number of basic claims as put forward in Corbin (1989), and related these to similar claims and analyses in Dutch and of other languages. Thus, I have made an (admittedly modest) attempt to make Corbin's work and insights fruitful for the non-French part of the morphological community, and to show in this way how much respect she has earned and deserves for her work on French morphology.

## References

- Anderson, Stephen (1992), *A-morphous morphology*. Cambridge: Cambridge University Press.
- Aronoff, Mark (1976), *Word formation in generative grammar*. Cambridge Mass.: MIT Press.
- Aronoff, Mark (1994), *Morphology by itself*. Cambridge Mass.: MIT Press.
- Bauer, Laurie (1997), Derivational paradigms. In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology 1996*. Dordrecht: Kluwer, 243-256.
- Beard, Robert (1995), *Lexeme-morpheme base morphology*. Albany N.Y.: SUNY Press.
- Booij, Geert (1977), *Dutch morphology. A study of word formation in generative grammar*. Dordrecht: Foris.
- Booij, Geert (1986), Form and meaning in morphology: the case of Dutch 'agent' nouns. *Linguistics* 24, 503-517.
- Booij, Geert (1997a), Allomorphy and the autonomy of morphology. *Folia Linguistica* 31, 25-56.
- Booij, Geert (1997b), Autonomous morphology and paradigmatic relations. In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology 1996*. Dordrecht: Kluwer, 35-54.
- Booij, Geert (2002), *The morphology of Dutch*. Oxford: Oxford University Press.
- Cameron-Faulkner, Thera and Carstairs-McCarthy, Andrew (2001), Stem alternants as morphological signata: evidence from blur avoidance in Polish nouns. *Natural Language and Linguistic Theory* 18, 813-835.
- Corbin, Danielle (1987), *Morphologie dérivationnelle et structuration du lexique*. Tübingen: Niemeyer (2 vols.).
- Corbin, Danielle (1989), Form, structure and meaning of constructed words in an associative and stratified lexical component. In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology 1989*. Dordrecht: Foris, 31-54.
- Halle, Morris and Alec Marantz (1993), Distributed morphology and the pieces of inflection. In Kenneth Hale and Samuel J. Keyser (eds.) *The view from Building 20, essays in honor of Sylvain Bromberger*. Cambridge Mass.: MIT Press, 111-176.
- Krott, Andrea (2001), *Analogy in morphology. The selection of linking elements in Dutch compounds*. Nijmegen: Max Planck Institut für Psycholinguistik [Ph. D. dissertation, Catholic University of Nijmegen]
- Marle, Jaap van (1985), *On the paradigmatic dimension of morphological creativity*. Dordrecht: Foris.
- Rainer, Franz (1988), Toward a theory of blocking: the case of Italian and German quality

- nouns. In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology 1988*. Dordrecht: Foris, 155-186.
- Schultink, H. (1961), Produktiviteit als morfologisch fenomeen. *Forum der Letteren* 2, 110-125.
- Schultink, Henk (2000), History of morphological research: the Netherlands. In Geert Booij, Christian Lehman, and Joachim Mugdan (eds.), *Morphology. An international handbook on inflection and word formation*. Berlin /New York: Walter de Gruyter, 162-170.
- Spencer, Andrew (1988), Bracketing paradoxes and the English lexicon. *Language* 64, 663-682.
- Stump, Gregory T. (2001), *Inflectional morphology. A theory of paradigm structure*. Cambridge: Cambridge University Press.