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Pounder, A. (2000): *Processes and Paradigms in Word-Formation Morphology*. Berlin: Gruyter.

Štekauer, P. (2014): Derivational paradigms. In: R. Lieber – P. Štekauer (eds.): *The Oxford Handbook of Derivational Morphology*. Oxford: Oxford University Press, pp. 354–369.

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Cross-paradigms or word formation patterns in interface: evidence from Portuguese

Alexandra Soares Rodrigues
ESE – Instituto Politécnico de Bragança
CELGA-ILTEC – Universidade de Coimbra
afsr@ipb.pt
Pedro João Rodrigues
ESTIG – Instituto Politécnico de Bragança
pjsr@ipb.pt

Our aim is to demonstrate with Portuguese word-formation data collected from corpora (*Linguateca*, *Corpus de Referência do Português Contemporâneo* and *Corpus do Português*) and based on experiments with Portuguese native speakers that derivational paradigms are mental patterns dynamically organized around more than one axis in what we call cross-paradigms. Cross-paradigms are structured by affixes which may put different base-organized paradigms into interface.

This hypothesis is supported by recent psycholinguistic approaches to the mental lexicon such as Libben (2014) (cf. Libben's concepts on morphological transcendence and morphological superstates), according to whom the mental lexicon is not as an «inert knowledge store, [but] as a dynamic cognitive system that allows for lexical activity.» (Libben 2014: 209). Our hypothesis is also founded on linguistic works such as Corbin (1987), which, as demonstrated by Booij (2007), presents a paradigmatic perspective on word-formation, and on Blevins (2016).

Following Štekauer (2014: 359), we consider derivational paradigms as «based on formal realization of a cognitive category by an affixation process.»

According to Pounder (2000), different materials can organize each paradigm. It is not just a specific morpheme that functions as the axis of a certain paradigm. The axis may correspond also to the word-class, to semantic rules, and to other features labelled under 'lexical paradigm' by Pounder. Our work sticks to two main different paradigm relationships: the lexeme-base-class-organized paradigm and the affix-organized one.

Giving examples from Portuguese, a lexeme-base-class organized paradigm is illustrated by deverbal nouns with different suffixes such as *avaliação* 'evaluation', *matança* 'slaughter', *congelamento* 'freezing', *aterragem* 'landing' and *soldadura* 'soldering'. The axis of this paradigm corresponds to the base lexeme the nouns correlate with, which is a verb (*avaliar* 'to evaluate', *matar* 'to kill', *congelar* 'to freeze', *aterrar* 'to land', *soldar* 'to solder').

An affix-organized paradigm is illustrated by nouns such as *medievalismo* 'medievalism', *espiritualismo* 'spiritualism', *luteranismo* 'Lutheranism', *newtonianismo* 'Newtonianism' and *figurativismo* 'figurativism'. The axis of this paradigm is the suffix *-ism(o)*.

Models that propose separated paradigms like those collide with empirical data. In Table 1, we show three suffixes (*-ism(o)*, *-eir(a)* and *-agem*) that work with different lexeme-base classes. We may exemplify this assumption by means of the suffix *-ism(o)*. This suffix may form nouns correlated with lexeme classes other than adjectives: correlated with verbs (*bisbilhotar* 'to gossip' ⇔ *bisbilhotismo* 'habit of gossiping') and

correlated with nouns (*sigilo* 'stealth' ⇔ *sigilismo* 'secretiveness'). The fact that nouns with the suffix *-ismo* correlate with verbs, nouns and adjectives creates an interface between the three lexeme-base-class paradigms (Table 1).

	Axis of the paradigm: lexeme class of the correlated base		
	Adjective	Noun	Verb
Axis of the paradigm: affix <i>-ism(o)</i>	<i>medieval</i> 'medieval' ⇔ <i>medievalismo</i> 'medievalism'	<i>sigilo</i> 'stealth' ⇔ <i>sigilismo</i> 'secretiveness'	<i>bisbilhotar</i> 'to gossip' ⇔ <i>bisbilhotismo</i> 'habit of gossiping'
Axis of the paradigm: affix <i>-eir(a)</i>	<i>maluco</i> 'crazy' ⇔ <i>maluqueira</i> 'craziness'	<i>flor</i> 'flower' ⇔ <i>floreira</i> 'pot of flowers'	<i>cansar</i> 'to tire' ⇔ <i>canseira</i> 'tiredness'
Axis of the paradigm: Affix <i>-agem</i>	<i>frio</i> 'cold' ⇔ <i>friagem</i> 'coldness'	<i>pelo</i> 'hair, fur' ⇔ <i>pelagem</i> 'pelage'	<i>alunar</i> 'to land on the moon' ⇔ <i>alunagem</i> 'landing on the moon'

Table 1. Cross-paradigms constructed by the interface between affix-organized paradigms and lexeme-base-class paradigms.

This implies that an affix may function as the axis of several lexeme-base-class paradigms. Because of the action of the affix, paradigms of one level (lexeme-base-class-organized) are in interface with paradigm(s) of another level (affix-organized), forming cross-paradigms.

Our explanation for data like the one in Table 1 and for the hypothesis of cross-paradigms is based on our experiments with Portuguese native speakers (lexical decision task with priming) and it is theoretically supported on the following assumptions based on Libben's (2014; 2015) concepts of morphological transcendence and morphemes as superstates:

-Affixes may intervene in different paradigms, because, following Libben (2014), lexical representations in the mind are not fixed. Instead, they result from the lexical experience of the speaker/listener (Libben 2014: 9).

-This experience enables speakers to adequately interpret words such as *bisbilhotismo*, which does not follow the generalized lexeme-base-class paradigm where *-ism(o)* works (ADJ ⇔ N).

- Assuming that affixes have features of different structures (phonological, semantic, syntactic, morphological, etc.) (following Booij and Lieber (2004) and Lieber (2004), and denying the separationist hypothesis (Beard 1995)), when operating in a parallel paradigm, the affix may be operating only with a part of those structures. For instance, suffix *-agem* contains information about the lexeme-class of the base it can correlate with to form a new noun. When operating in a word such as *alunagem* 'landing on the moon' (whose base is the verb *alunar* 'to land on the moon'), suffix *-agem* was

not particularly selected because of the selectional feature [correlate with verb]. It operates there because of its semantic feature [composed of individuals] (cf. Lieber (2004), Rodrigues (2008; 2014); Rodrigues & Rio-Torto (2013)).

-In this sense, a different mental representation of *-agem* is created in the mind, which does not attain to the [correlation with verb] feature. This corresponds to a variable of *-agem* that is able to correlate with nouns and adjectives. This is explainable with the concept of morphological superstates by Libben (2014).

-Since the production of different variables of affixes depends on the size of the morphological family, it is expected that affixes lowly represented, such as *-or* (e.g. *ardor* 'burning'), do not awaken the formation of cross-paradigms. This is in accordance with Mosco del Prado et al. (2004), Kroot et al. (2001) and Baayen (2007).

-When a new word coinage, corresponding to the different level paradigm, is represented in the mind, it creates cross-paradigms. A cross-paradigm results from the intersection of paradigms organized around different axes, when derivatives of parallel paradigms are organized around the same semantic patterns by means of the same affix.

-Our experiments with native speakers demonstrate that created words containing the affixes *-agem*, *-eir(a)* and *-ism(o)*, which work in cross-paradigms, show a higher acceptancy rate than those containing affixes that are not cross-paradigmatic.

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Corpora:

Corpus de Referência do Português Contemporâneo: <http://alflclul.clul.ul.pt/CQPweb/>

Corpus do Português: <http://www.corpusdoportugues.org/>

Linguatca: www.linguatca.pt