

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

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1 INTRODUCTION

AIM ➤ Demonstrate 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.**

EMPIRICAL EVIDENCE ➤ Portuguese word-formation data collected from corpora (*Linguateca*, *Corpus de Referência do Português Contemporâneo* and *Corpus do Português*);

➤ experiments with Portuguese native speakers (lexical decision task with priming)

THEORETICAL BACKGROUND ➤ Libben (2014): concepts on morphological transcendence and morphological superstates; Corbin (1987); Blevins (2016); Štekauer (2014: 359): derivational paradigms as «based on formal realization of a cognitive category by an affixation process.»; Pounder (2000).

2 LEXEME-BASE-CLASS ORGANIZED PARADIGMS VS. AFFIX ORGANIZED PARADIGMS VS. CROSS-PARADIGMS

Axis of the paradigm: Word class of the Base					Axis of the paradigm: affix -ism(o)					
Class of the base: Verb	avaliar 'to evaluate'	mudar change'	'to congelar 'to freeze'	aterrar 'to land'	soldar 'to solder'	Bases: adjective	medieval 'medieval'	espiritual 'spiritual'	luterano 'Lutheran'	newtoniano 'Newtonian'
Derivative: Event noun	avaliação 'evaluation'	mudança 'change'	congelamento 'freezing'	aterragem 'landing'	soldadura 'soldering'	Derivative: Noun	medievalismo 'medievalism'	espiritualismo 'spiritualism'	luteranismo 'Lutheranism'	newtonianismo 'Newtonianism'
Affixes working in this paradigm	-ção	-nç(a)	-ment(o)	-agem	-dur(a)					

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

3 EXPERIMENT: LEXICAL DECISION TASK WITH PRIMING

Aim: evaluate response time and classification as 'words' (Y) or 'non-words' (N) of strings containing suffixes operating in event deverbal nouns, quantity denominal nouns and quality deajectival nouns, contrasting cross-paradigmatic suffixes with non-cross-paradigmatic ones.

Participants: 22 European Portuguese native speakers with normal to corrected-normal vision. Undergraduate students of IPB.

Tasks: Lexical decision task with priming
Procedure: web-base platform using the client-server model

Stimuli: 24 letter strings as primes; 86 letter strings as target.

21 real bases (7 nouns, 7 adjectives, 7 verbs (frequent)) as primes; 84 suffixed words as target

3 pseudo-words as primes: 12 pseudo-words as target

For each real base, we provided 4 words correlated with that base:

- one word corresponding to an attested word (found in corpora) (REAL);
- one word with a cross-paradigmatic suffix (-eira, -agem, -ismo) (CROSS);
- one word with a suffix not found in products from bases pertaining to that lexical category (WRONG);
- one word with a suffix found in words from bases pertaining to that lexical category, but not with that particular base (NOT PART).

Suffixes were selected from Rio-Torto et al. (2016), Rio-Torto (2014) and Rodrigues (2016).

Suffixes: -agem, -ame, -aria, -ário, -ção, -ço, -da, -dura, -eira, -ez, -eza, -ia, -idade, -idão, -io, -ismo, -mento, -nça, -ncia, -or, -ura

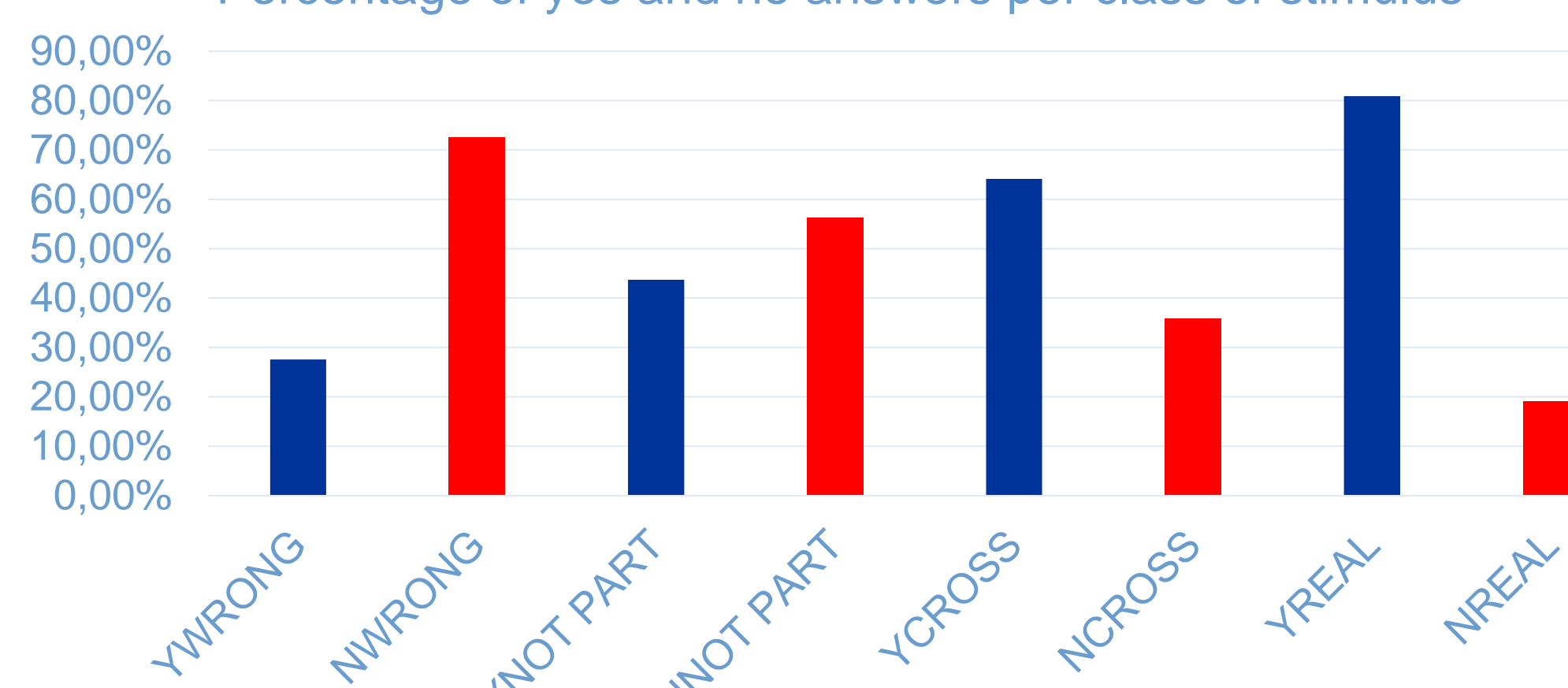
Cross-paradigmatic suffixes were provided in possible words, and not in attested (real) words.

Predictions: - Classification as 'word' is higher in CROSS than in WRONG and NOT PART.

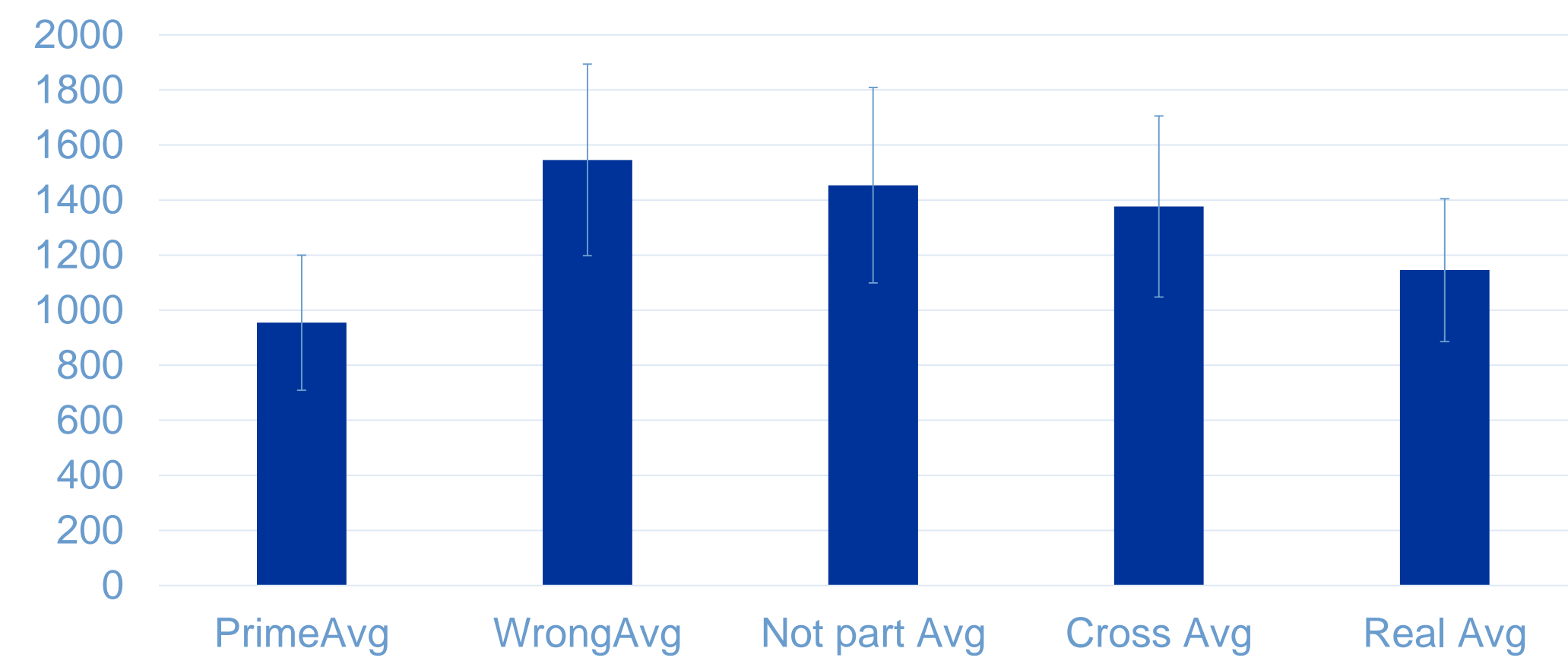
- Response time is lower in CROSS than in WRONG and NOT PART

4 RESULTS

Percentage of yes and no answers per class of stimulus



Response Time (ms)



Category of string	suffix	Y Perc	N perc
REAL	-aria	100,00%	0,00%
REAL	-da	92,86%	7,14%
CROSS	-agem	72,37%	27,63%
CROSS	-ismo	62,75%	37,25%
CROSS	-eira	58,55%	41,45%
NOT PART	-ário	42,42%	57,58%
WRONG/NOT PART	-mento	37,04%	62,96%
WRONG/NOT PART	-or	33,64%	66,36%
REAL/WRONG/NOT PART	-ção	32,73%	67,27%
NOT PART	-ia	31,82%	68,18%
WRONG	-ez	23,81%	76,19%
NOT PART	-ame	9,52%	90,48%
NOT PART	-ço	4,55%	95,45%

5 INTERPRETATION OF RESULTS

-Affixes may intervene in different paradigms, because, following Libben (2014), lexical representations in the mental lexicon 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 [correlate 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, 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 and a lower response time than those containing affixes that are not cross-paradigmatic.

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