Derivational paradigms and competition in English: a diachronic study on competing causative verbs and their derivatives

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Although there is no clear definition of competition in morphology, it is often described as a situation where two or more forms express the same semantic category (if no restrictions apply). Viewing word-formation as a complex network where elements are interrelated, this paper attempts to describe to which extent a description of derivation in terms of paradigms can help understand morphological competition. This paradigm-competition interaction is expected to be bidirectional, such that the paradigms of two competitors serve as extra evidence for defining competition. At the same time, paradigm theory can benefit from the identification of competing patterns as it may help to specify whether two forms compete for the same semantic niche or not. Based on a sample of 45 Present-Day English verbal clusters where forms in -ize *and zero-derivation compete (or did compete) for the expression of the semantic category* CAUSATIVE*, this paper elaborates on previous research on diachronic competition in two ways. Methodologically, this paper complements the method used in previous research by constructing the subparadigms for the competing verbs while considering both available and unavailable derivatives and using lexicographic and corpus data. At the same time, this approach allows us to offer a more complete description of competition by exploring to what extent the subparadigms of the forms in competition may be used to refine our understanding of the competition and how this can be exploited methodologically.*

Keywords: *derivational (sub)paradigm, availability, competition, -ize, zero-derivation*

1. Introduction

Competition (or *overabundance* in inflection, cf. Thornton 2011) has attracted considerable attention over the past decades as it has proved to be "an inherent and universal feature of natural languages" (Štekauer 2017: 15). With the relatively recent growth of word-based morphology (either hybrid or pure models of word-and-paradigm morphology, see Blevins 2006), there is no doubt that competition should be made part of any morphological account in terms of paradigms (Bonami & Strnadová 2018: 9), both in inflection and derivation. Bonami & Strnadová (2018: 9) suggest viewing "doublets as parallel citizens in a paradigmatic system" and conclude that the problem with doublets is not their representation in a paradigm but the identification of the features that make two or more forms synonymous, and therefore, fillers of the same slot. The definition of synonymy in competing forms remains a challenge that calls for substantial synchronic and diachronic research. This paper elaborates on previous diachronic research on competing clusters[1] by exploring the interaction between derivational paradigms and morphological competition.

Competition is defined as "the coexistence of two or more affixes for the same base and for the expression of the same semantic category, if restrictions (e.g. phonological,

[1] A cluster is defined as "a set of synonymous derivatives morphologically related by their bases but formed with a different affix that can be grouped into doublets, triplets, etc." (Fernández-Alcaina 2017: 168).

morphological) do not apply and no semantic or distributional differences are observed" (Fernández-Alcaina 2017: 166, see also Bauer 2009; Aronoff 2016; Chiba 2016; Fradin 2016).[2] Specifically, this paper relies on a sample of 45 verbal clusters in Present-Day English where forms in *-ize* and zero-derivation compete (or did compete) for the expression of the semantic category CAUSATIVE.

This paper is organized as follows: §2 deals with the interaction between derivational paradigms and competition and with the importance of this interrelation. §3 describes the method used in this paper for data collection and analysis. Results are described in §4, followed by a discussion in §5. Final conclusions are drawn in §6.

2. Derivational paradigms and competition

The *paradigm* has been traditionally viewed as a distinctive feature of canonical inflection that contrasts with the apparently arbitrary organization of derivation. However, increasing evidence against a clear-cut inflection/derivation dichotomy has proved that such distinction is not as straightforward as it was thought to be – or at least, not always (Don 2014: 66–72; Bauer et al. 2015: 533–544). Instead, an account in terms of prototypical categories (Dressler 1989; Plank 1994) and/or subcategories within inflection (Booij 1996) or derivation (Bauer 1997a on evaluative morphology) may offer a more suitable explanation for intermediate cases where the boundaries between inflection and derivation are fuzzy.

Viewing inflection and derivation as the extremes of a continuum implies that the traditional criteria may apply to prototypical instances of inflection and derivation but possibly not to in-between cases. This means that there exists an overlap between inflection and derivation where some of the criteria defined for the former may also apply to the latter – for example, paradigmatic organization. Defective paradigms illustrate the lack of applicability of this criterion in inflection, which together with more or less regular and predictable sequences of derivatives (e.g. *nation–national–nationalize–nationalization* in Bauer 1997b) support a description of derivation in terms of paradigms (van Marle 1985; Bochner 1993; Bauer 1997b; Pounder 2000; Stump 2001: 252–260; Beecher 2004; Booij & Lieber 2004; Booij 2008; Štekauer 2014). However, the definition of the term *paradigm* is still ambiguous and it has been addressed in the literature under various labels depending on the approach: *word family* (Bauer & Nation 1993), *derivational nest* (Horecký et al. 1989 in Štekauer 2014: 364), *derivational family* (Roché 2011; Bonami & Strnadová 2018), *morphological family* (Bauer et al. 2015: 519) or *derivational network* (*Projekt Monika*). Subdivisions to refer to various levels of the derivational paradigm have also been proposed by Beecher (2004) and Bonami & Strnadová (2018). In this paper, derivational paradigms are based on Beecher's (2004: 17) model for a derivational paradigm where the whole set of forms related to a bound root is called *macroparadigm*. The macroparadigm usually consists of several *subparadigms*, where the members contained are related by a common stem. At the same time, these forms can present recursive derivation. Figure 1 illustrates Beecher's model of the macroparadigm for the forms related to the root *popul-*:

[2] This definition refers to competition in complex-word formation. The ambiguity of the term allows different interpretations depending on the approach (see, e.g. Štekauer 2017 for a detailed discussion on competition in complex-word formation and complex-word interpretation).

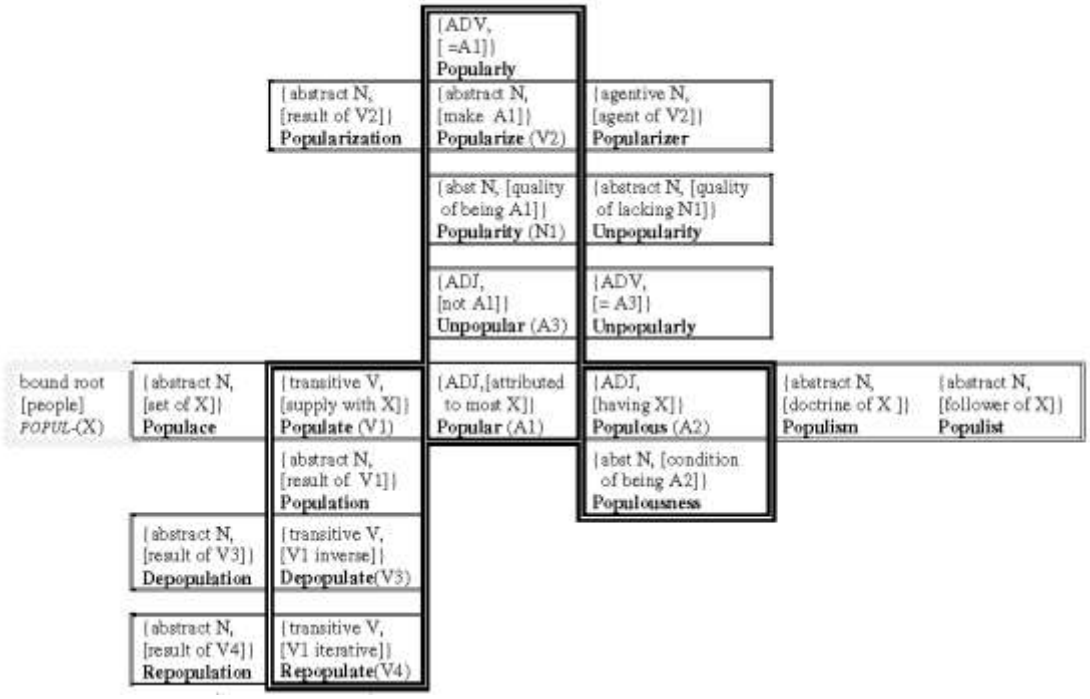

Figure 1: Model for a derivational paradigm proposed by Beecher (2004: 17). Double solid lines represent the subparadigms whose members have a common base (e.g. *populate* (V1) is the base for *population*, *depopulate* and *repopulate*) and which can make room for further derivation (e.g. *depopulation* < *depopulate* < *populate*)

As a way of organizing and systematizing inflectional and derivational data, a description in terms of paradigms must deal with special cases, such as suppletion, gaps in derivational paradigms, defective inflectional paradigms and doublets or overabundance (Bonami & Strnadová 2018), among others. At the same time, the inclusion of competing forms in a paradigm needs an unequivocal definition of competition – desirable but unfortunately still lacking as it has been already mentioned – that would establish the criteria to decide on the synonymy of two (or more) competing forms. However, it seems that, when attempting to delineate the relation between morphological competition and derivational paradigms, the inverse direction is also required.

In that respect, Pounder (2000: 83) addresses the interaction between competition and paradigms in forms with two competing senses (e.g. *kingly* may refer both to 'belonging to a king' and 'like a king') and argues that competition is "at least partly dependent on relations holding between the complete set of lexemes related to the same base". The cases of competition dealt with in this paper are of a slightly different nature to those described in Pounder (2000). For our purpose, two or more forms are considered competitors when they share the same base but differ in the suffix (e.g. in the cluster *mongrel*/*mongrelize* both forms mean 'make mongrel'). In other words, it seems that this base/derivative dependency can be extended to competitors with different suffixes by comparing the relations between the bases and the members of their respective subparadigms.

To the best of our knowledge, previous research usually analyzed clusters of two competing affixes (Kaunisto 2007, 2009; Bauer et al. 2010; Fernández-Alcaina 2017; Lara-

Clares 2017) or groups of three or more competing affixes (Plag 1999; Kjellmer 2001; Díaz-Negrillo 2017), focusing on the forms themselves but disregarding their subparadigms. In this sense, this paper aims at elaborating on the competition between the verbal suffix *-ize* and zero-derivation[3] (Fernández-Alcaina 2017) by exploring to what extent derivational subparadigms provide information on, and possibly influence the result of, the competition of their base forms.

3. Method

3.1 *Data selection*

Previous research (Fernández-Alcaina 2017) relies on an initial sample of 816 verbs in *-ize* expressing the semantic category CAUSATIVE extracted from the *Oxford English Dictionary* (henceforth, OED).[4][5] The sample was filtered by ending (**ize*), keywords contained in the definition ('make' and 'render') and language of origin (English). All the *-ize* verbs were screened for potential competitors in zero-derivation when they express the semantic category CAUSATIVE, yielding a final sample of 45 clusters of verbs in *-ize* and zero-derivation.[6] The main results from this piece of research show that competition displays various profiles of resolution and that, in general, the suffix *-ize* is apparently preferred over zero-derivation for the expression of CAUSATIVE (see Fernández-Alcaina 2017 for further details).

Given the diachronic nature of the present study, data collection was based on two types of evidence and two kinds of sources, lexicographic and corpus. Firstly, derivatives were extracted from the OED, where both obsolete forms and forms in use are recorded. Secondly, available forms with lower frequencies not recorded in the OED were extracted from the *Corpus of Contemporary American English* (henceforth, COCA; Davies 2008–).

As the main aim of this paper is to explore the relation between derivational paradigms and competition, it was necessary to obtain the most complete picture of derivation attainable by filling as many cells in the paradigms as possible. For that reason, this paper follows an inclusive approach in that:

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[3] Or conversion. For easier reading, the term *zero-derivation* will be used in the rest of the paper.

[4] The cluster *-ize*/zero-derivation expressing CAUSATIVE was selected from a previous sample extracted from the entire frequency list of the *British National Corpus* (henceforth, BNC) (Davies 2004–).

[5] For methodological clarity, it is important to highlight that most of the data analyzed in this paper belong to entries that have been updated in the third edition of the OED (OED3). Forms whose diachronic data are still based on the OED2 will be duly specified in each case.

[6] The cluster *scheme*/*schematize* classified as CAUSATIVE in Fernández-Alcaina (2017) has been disregarded here after being re-interpreted as another semantic category such as MANNER ('represent as a scheme'). In contrast, the cluster *Latin*/*Latinize* ('make Latin'), not included in Fernández-Alcaina (2017), has been included here, again after re-interpretation.

For this reason, the number of clusters with forms in an ongoing or resolved competition as well as the profiles of resolution have been updated in order to be compared with those obtained in this paper. Specifically, the number of patterns classified as instances of ongoing competition in Fernández-Alcaina (2017) has changed from 16 to 15 and those where competition was resolved, from 29 to 30. However, the results after these changes have been made do not differ substantially as the same pattern of competition remains. In fact, the results obtained after the above-mentioned revisions point even more clearly in the direction of the resolution of competition in favor of the *-ize* form (*Latinize*) (see §4).

i) it considers available and unavailable forms in the creation of the subparadigms with bases in *-ize* and zero-derivation, and

ii) apart from affixation, the following analysis also encompasses zero-derivation, neoclassical compounding by combining forms and formations with affixoids. As we are aware of the difficulties of delimiting combining forms and affixoids from compounding (which has been excluded from the following analysis), this paper includes only the combining forms and affixoids in the derivatives extracted from the OED and the COCA. Table 1 represents the list of combining forms and affixoids classified by their position:

Table 1: Combining forms and affixoids used for data selection

Initial position						**Final position**
anti-	*mega-*	*nano-*	*pro-*	*re-*	*supra-*	*-like*
demi-	*micro-*	*non-*	*proto-*	*semi-*	*ultra-*	*-some*
half-	*mid-*	*post-*	*pseudo-*	*sub-*	*under-*	*-wise*
hyper-	*multi-*	*pre-*	*quasi-*	*super-*		

For the identification of derivatives in the OED, forms have been searched for by using the expression **lemma** (e.g. **tender*). [7] This has allowed us to obtain a list containing a high number of derivatives from a particular base. The lists were then analyzed to exclude irrelevant cases of accidental formal identity (e.g. *pretender* < *pretend* 'a person who makes a profession or assertion, esp. falsely or hypocritically') and compounds (e.g. *tender-foreheaded* 'modest, meek').

As we have already mentioned, the lexicographic data were complemented with data from the COCA. Despite the wide range of corpora available, this paper narrowed down the choice of the corpus to two of the principal corpora of English, namely, the BNC and the COCA. Table 2 offers a comparison of these two corpora that justifies the choice of the latter:

Table 2: Comparison between the BNC and the COCA

	BNC	**COCA**
Size	100,000,000	560,000,000+
Data source	1960s–1993	1990s–present day
Sample balance	10%S vs. 90%W	20%S vs. 80%W
Sample classification	Fine-grained	Less fine-grained
Hapaxes	Lower number	Higher number

As Table 2 shows, the COCA is larger in size (560,000,000 vs. 100,000,000) and contains updated information (the latest form attested in the BNC dates back to the 1990s, while the latest form in the COCA is recorded in 2017). In fact, the COCA gets expanded with 20 million words each year since 1990, evenly distributed into five genres with texts from various

[7] In some bases, such as *discipline*, the last grapheme is dropped as it is one of the requirements for some suffixes to attach (e.g. *disciplinable*, *disciplinize*).

sources.[8] Therefore, it is not surprising to find a higher number of forms (including hapaxes) contained in the COCA than in the BNC. This feature is relevant for the type of research carried out in this paper as it is conducive to obtaining as high a number of members of a paradigm as possible. For this purpose, the COCA is, to the best of our knowledge, the only corpus that "provides data for ongoing changes in English that are not available from any other source" (Davies 2011: 462).

Despite the importance of the corpus size and the number of hapaxes it contains, these features are not necessarily related proportionally to a high(er) number of forms that may be part of a specific paradigm. One of the limitations of low-frequency forms in corpora is that some of them belong, in fact, to unwanted items that may disrupt data collection. For that reason, the concordances of forms with a frequency lower than 20 occurrences were screened in order to discard names (e.g. *Bacon*, *Beghetto*) or forms from other languages (e.g. *entender* which does not correspond to the English verb *entender* 'make tender', but is recorded as part of an extract in Spanish meaning 'understand').

3.2 *Data analysis*

The data thus obtained were analyzed following the template in Table 3, which is partly based on the template designed for the international *Projekt Monika* (Pavol Jozef Šafárik University, Košice, the University St. Kliment Ohridsky, Sofia, and the University of Granada) on cross-linguistic derivational networks. An example of the partial paradigm of the base *mongrel* ('the offspring or result of cross-breeding, miscegenation, mixed marriage') is given in Table 3:

Table 3: A sample of the data file where the word-class of the base, the timeline and the hyperonymic definition is based on OED data. Forms are semantically classified according to Bagasheva (2017)

Base	1st Der	W-class	Attested		Meaning	Sem.cat.	2nd Der	W-class	Attested		Meaning	Sem.cat.
			*	†					*	†		
mongrel	*mongrel*	V	1602	1662	make (mongrel)	CAUSATIVE						
	mongrelize	V	1629	-	make (mongrel)	CAUSATIVE	*mongrelization*	N	1868	-	action of making (mongrel)	ACTION
							mongrelizing	N	1922	-	action of making (mongrel)	ACTION
							mongrelized	Adj	1857	-	made (mongrel)	QUALITY

According to lexicographic data, the verbs *mongrel* and *mongrelize* began to compete around 1630 (when the form in *-ize* is first attested), but in the second half of the 17th century, the zero-derived form was lost and only the *-ize* verb remained. The preference for the *-ize* verb is

[8] For a detailed description of the sources and the number of words per genre and year see https://corpus.byu.edu/coca/.

supported by further derivation in *-ation* (*mongrelization*), *-ing* (*mongrelizing*[N]) and *-ed* (*mongrelized*).[9]

4. Results

4.1 *Overview*

A total of 510 forms extracted from the OED and the COCA as described in §3.1 were analyzed following the template in Table 3. Although our previous research focused only on the competition between *-ize* and zero-derivation, this paper also includes other verbal bases in *-ate*, *-ify*, *-en* and the prefix *en-*, for a more comprehensive picture of verbal competition.

Figure 2 shows the number of forms attested only in the OED and those attested in the OED and the COCA classified by the affix in their base (*-ize*, zero-derivation or other affixes such as *-ate*, *-ify*, *-en* and the prefix *en-*):

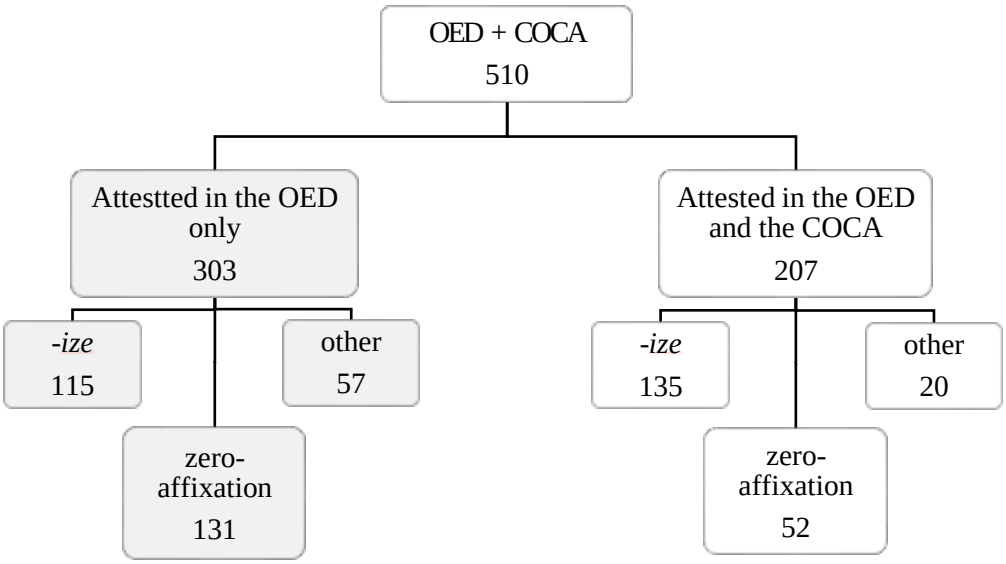

Figure 2: (Non-)attested forms with bases in *-ize*, zero-derivation and other affixes as extracted from the OED and attested in the COCA

Of the 510 forms extracted, more than a half (303) are attested only in the OED. Of those 303, 131 are forms with a base in zero-derivation, followed by 115 forms with their bases in *-ize* and 57 forms with other affixes. In contrast, of the 207 forms that are attested both in the OED and the COCA, most (135) are forms with their bases in *-ize*, while 52 are forms in zero-derivation. Again, the group containing the lowest number of forms (20) is that where bases end in affixes other than *-ize* and zero-derivation, i.e. *-ify*, *-ate*, *-en* and the prefix *en-*.

[9] In order to follow the most inclusive approach possible, the suffixes *-ed* and *-ing* are included in this paper when they are recorded in the OED as separate entries, either as adjectives (in *-ed* or *-ing*) or as nouns (in *-ing*), despite their controversial nature as in-between cases on the inflection/derivation cline.

A comparison of the total number of forms in *-ize* and zero-derivation (whether attested only in the OED or both in the OED and the COCA) shows that the two affixes follow opposite patterns. The number of forms with their bases in *-ize* that are attested in the Dictionary and the Corpus (135) is higher than those only attested lexicographically (115). In contrast, the number of attested forms in zero-derivation in the OED and the COCA is markedly lower (52) than those only attested in the OED (131). Forms in or with their bases in *-ify*, *-ate*, *-en* and the prefix *en-* represent the smallest group both as attested lemmas in the OED (57) and in both sources (20). This apparent preference for the suffix *-ize* in the COCA is in line with previous diachronic research (Fernández-Alcaina 2017). Specifically, the main results for the competition between *-ize* and zero-derived verbs showed that:

i) apparently, the suffix *-ize* has gradually replaced zero-derivation for the expression of CAUSATIVE in the clusters analyzed while zero-derivation seems to be more frequent in the expression of INSTRUMENT and MANNER, and
ii) the resolution of competition takes various shapes: the loss[10] of one of the forms, semantic specialization or the loss of the two forms, sometimes in favor of a third form. Cases of an ongoing competition are also observed where evidence does not clearly support a preference for one or the other verb. Specifically, 15[11] out of the 45 clusters analyzed were described as displaying unresolved competition.

The rest of this section is divided as follows: §4.2 describes the increasing preference observed for the suffix *-ize* over zero-derivation. §4.3 compares the outcome of competition in previous research and in this paper, with a focus on the profiles found in §4.3.1 and with a focus on the special cases observed in §4.3.2. The final section (§4.4) is a summary of the results obtained.

4.2 *Increasing replacement*

Research into the competition between the suffix *-ize* and zero-derivation over time showed that the introduction of the former led to losses in the use of zero-derivation for the expression of CAUSATIVE (Fernández-Alcaina 2017), which is especially marked from the 17th century onwards. The pattern is confirmed by the results presented in this paper where the availability of a form also depends on the availability of its derivatives in the Corpus. Figures 3 and 4 show a comparison of the diachronic development of verbs in *-ize* and zero-derivation in previous research and in this paper. The timelines for the verbs in *-ize* (Figure 3) and zero-derivation (Figure 4) are according to the number of available forms created from the 14th century onwards until the end of the 20th century (axis *y*). The green line represents forms in *-ize* and zero-derivation that were attested in the OED as in use and recorded in corpora, specifically, in the BNC and the COCA, (axis *y*). Data represented by the blue line also take into account whether *-ize* or zero-derived forms have served as bases for further derivation by considering as available those verbs that serve as bases for derivatives attested in the OED as in use and recorded in the COCA by the attachment of affixes other than *-ed* or *-ing*.[12] In other words,

[10] The term *loss* is used in this paper following Tichý's (2018) terminology.
[11] See footnote 6.
[12] Data from the BNC are not used in this paper as previous research showed that the forms recorded in the BNC were usually also recorded in the COCA. This can be exemplified using the clusters *soberize*/*sober*, and *fossilize*/*fossil*: *soberize* is recorded neither in the BNC nor in the COCA, in contrast to *sober*, which has a normalized

although *-ed* and *-ing* forms were included in data collection, if they are the only derivatives attested, they are not counted as evidence for the availability of a verb in Figures 3 and 4.

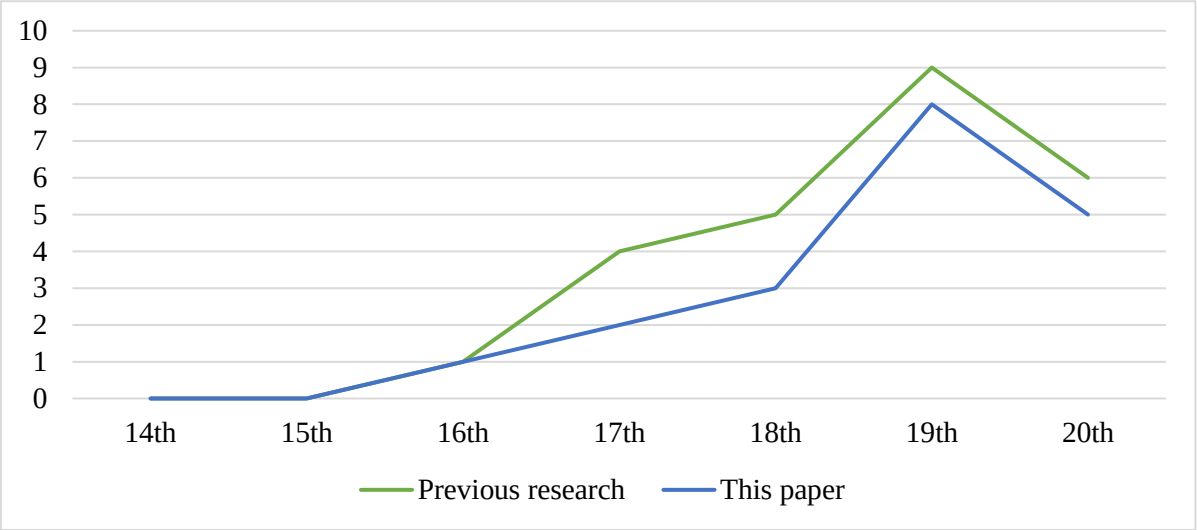

Figure 3: Comparison of the availability of forms in *-ize* from previous research (in green) in contrast to this paper (in blue), where the derivatives of the competing verbs are considered

Since the introduction of the suffix *-ize* in the 16th century, its use has gradually increased until the 19th century. Figure 3 shows that the same pattern is found occurring in this paper in which further derivation of the bases in competition is considered. Let's exemplify this difference with the cluster *ghetto*/*ghettoize*:

(1) *Jews, who are **ghettoed** under the racial legislation.*
(*Times*. 15 Feb. 11 vs. 3, 1936, OED2)

(2) *Arcand's attempt … to **ghettoize** a minority.*
(*Canadian Jewish Chron*. 4 Aug. 3, 1939, OED2)

According to the OED, both forms date back to the 1930s and are classified as in use by the OED, even if only the latter is recorded in the COCA. However, is this enough evidence to conclude that the *-ize* suffix wins out over zero-derivation? The claim that competition has been resolved in a cluster such as *ghetto*/*ghettoize* is risky because both forms are relatively new and, moreover, their entries in the OED have not been updated since 1989. However, the fact that only the *-ize* form presents further derivation suggests that it is the preferred option for the expression of CAUSATIVE because it allows further derivation related to the semantic category expressed by the base. In the same example, only *ghettoize* has derivatives attested in the COCA (e.g. *ghettoization* is recorded in the COCA with a normalized frequency of 0.08).

frequency of 1.52 in the BNC and 1.32 in the COCA. Similarly, *fossilize* is recorded in the BNC with a normalized frequency of 0.20 and of 0.22 in the COCA. Its competitor, *fossil*, is recorded in neither of the two corpora.

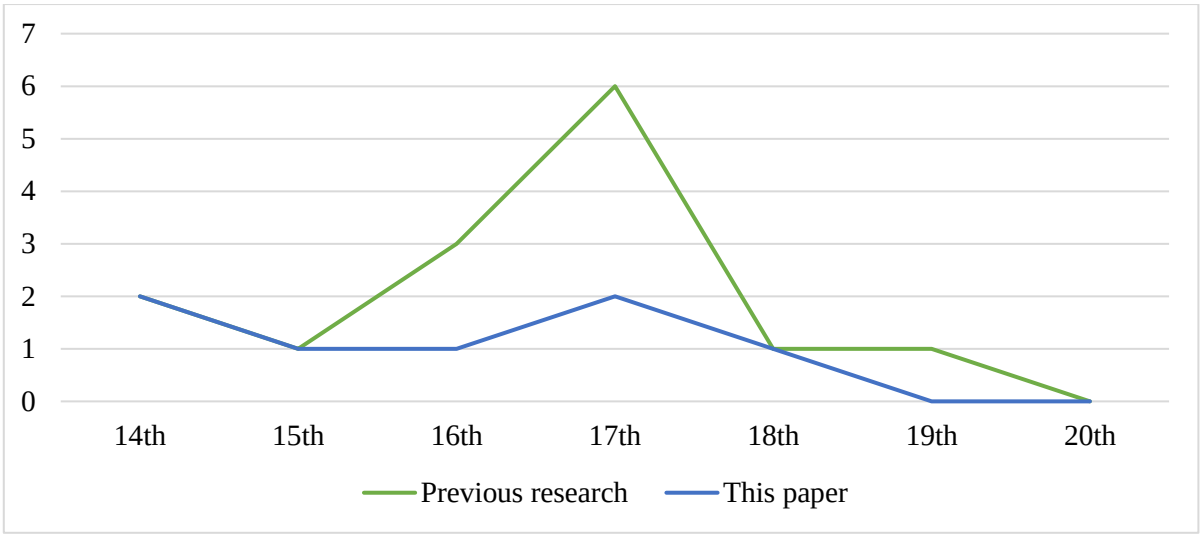

Figure 4: Comparison of the availability of forms in zero-derivation from previous research (in green) in contrast to this paper (in blue), where the derivatives of the competing verbs are considered

Likewise, the development of zero-derivation in this paper shows similarity to that observed in previous research. Consider the cluster *English*/*Englishize*:

(3) *A New York tailor is advertising: Let us take your Stateside suit and* ***English*** *it up.* (*Evening Standard* 10 Dec. 6/6, 1965, OED3)

(4) *Why then do they tend to* ***'Englishize'*** *the pronunciation of Italian words, but not the French or Hispanic?*
(*Post-Standard* (Syracuse, N.Y.) (Nexis) 19 Feb. d 3, 2006, OED3)

The two forms apparently co-exist according to the OED, but only the zero-derived form is recorded in the COCA as a verb. A look at their subparadigms shows that only *English* has derivatives recorded in the COCA (e.g. *Englishable*) or other derivatives such as *re-English*[V], which are not recorded in the Corpus but attested in the OED as neologisms.

A comparison of the patterns followed by verbs in *-ize* (Figure 3) and zero-derivation (Figure 4) in previous research and in this paper shows again that the 17th century is a turning point in the competition between the two forms. While the suffix *-ize* has been increasingly used since its first record in the 14th century (in the clusters analyzed), derivatives in zero-derivation have started to decrease from the 17th century onwards.

4.3 *Outcomes of the competition between* -ize *and zero-derivation*

The members of the subparadigms where the competing forms serve as bases also provide information regarding the outcomes of the diachronic competition between *-ize* and zero-derivation. Specifically, the existence of derivatives mapping on the competing sense of one of the verbs can provide clues about the preference for one of the forms to express a certain semantic category. Figure 5 compares the number of clusters with forms in an ongoing and resolved competition in Fernández-Alcaina (2017) and in this paper:

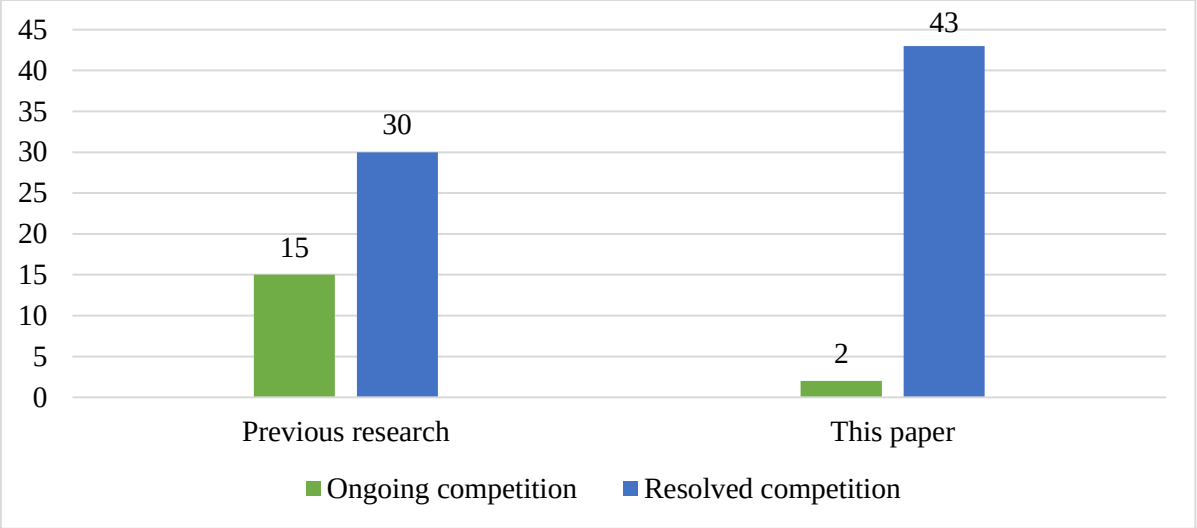

Figure 5: Total number of clusters in ongoing competition (in green) and resolved competition (in blue) both in Fernández-Alcaina (2017) and this paper

As Figure 5 shows, the number of clusters where forms co-exist decreases when the subparadigms created by the bases are considered as additional evidence. Thus, of the 15 clusters (out of 45) that were found to exhibit an ongoing competition in previous research, only two clusters remain as cases of ongoing competition in this paper. Table 4 expands upon the new classification of the 13 clusters, now most of them classified as instances of resolved competition:

Table 4: Data comparison between previous and the present paper

	Previous research	**This paper**
PDE competition?	15	2
-ize = CAUSATIVE	12	19
Zero-derivation = CAUSATIVE	4	7
Semantic specialization	8	8
Both forms are obsolete	6	9

Of the 13 clusters that have changed their status from an ongoing to resolved competition, in seven of them the suffix *-ize* is preferred over zero-derivation for the expression of CAUSATIVE, while only in three clusters zero-derivation wins out over the suffix *-ize*. For example, based

on lexicographic data, forms in the cluster *ghetto*/*ghettoize* were initially considered to co-exist in use, but only *ghettoize* was found attested in the COCA. Besides, only the form in *-ize* presents further derivation by derivatives recorded in the Corpus (e.g. *ghettoization*). Therefore, the resolution of competition points at a preference for the suffix *-ize* over zero-derivation for the expression of CAUSATIVE.

The opposite pattern is found in clusters such as *discipline*/*disciplinize*. The latter was marked as rare by the OED, and the latest attestation in the Dictionary dates back to 2003. Furthermore, only *discipline*^{V} has attested derivatives in the COCA (e.g. *disciplining*^{N}, *undisciplinedness*). The only derivative found for *disciplinize* (*disciplization*) is marked as obsolete by the OED (1706–1706) and is not attested in the COCA.

The verbs in the remaining nine clusters are obsolete either because a third form may be preferred (e.g. *grand*/*grandize*/*aggrandize*) or because the forms simply disappear (e.g. *pemmican*/*pemmicanize*). According to the OED, *grand*^{V} was last attested in the 17th century while *grandize* was last attested in 2014. A closer look at this specific cluster reveals that:

i) none of the forms presents further derivation, and
ii) other forms have competed for the expression of the same semantic category CAUSATIVE at some point in history: *aggrandize* (1634–), *engrandize* (1652–1883), *engrand* (1655–1655) and *grandify* (1665–).[13]

Apart from the OED dates of attestation, none of the verbs in (ii) is recorded in the COCA, except for *aggrandize* and its derivatives. However, it is worth mentioning that, in forms such as *grandify* and *grandize* (both last attested in the 20th century in the OED), there is an interval of around a century between the last two records, as (5) and (6) show:[14]

(5) *Repudiating, as I do, all idea of grandifying London at a coup, or to any great extent formalising it.*
(*Brit. Architect* 6 Aug. 93/2, 1897, OED3)

(6) *It would have been two cottages that were joined in the 18th century, with the pediment added in an attempt to 'grandify' it.*
(*Sunday Tel.* (Nexis) 21 Aug. Stella 42, 2011, OED3)

A similar case is observed in the OED records for *grandize*, where the time gap is even bigger because the record leaps from the 17th century (7) to the 19th century (8) and to the 21th century (9):

(7) *Both [love and fear] together, are to the sanctified Soul, as Ballast to a Ship, to keep it steady, and doth grandize, elevate, and enlarge each affection.*
(J. Harrington, *Horæ Consecratæ* (1682) 154, a1680, OED3)

[13] Even though the form is marked as rare by the OED, there is an attestation dating back to 2011.
[14] The observed leaps in lexicographic records may be a consequence of the well-known limitations of historical dictionaries (see §5). However, we cannot exclude the possibility of dealing, in cases such as these, with instances of Bauer's (2014) renewed availability (see §5 for further details).

(8) *I have been so grandized, so dazzled, so overawed, that I have scarcely been able to breathe.*
(F. J. Hall, *Next of Kin II*. i. 32, 1854, OED3)

(9) *The more beautiful I made her, the more she hated it. She accused me of grandising her journey*.
(*Newcastle* (Austral.) *Herald* (Nexis) 8 Mar. 28, 2014, OED3)

4.3.1 *Profiles of resolved competition*

Table 4 has presented the possible paths of resolution of competition in the 45 verbal clusters under study. This section elaborates on clusters where competition is resolved (or is on its way to be resolved) by describing the profiles observed in the clusters when subparadigms are considered. Profiles have been labeled using a representative cluster within each group: *revolutionize*-like clusters, *ghettoize*-like clusters and *sober*-like clusters. In the first two profiles, the *-ize* form is the preferred option to express the CAUSATIVE meaning. The difference lies in the fact that in *ghettoize*-like clusters, both forms in zero-derivation and in *-ize* present further derivation whereas only the *-ize* verb has derivatives in *revolutionize*-like clusters. In the case of *sober*-like clusters, the resolution of competition occurs in favor of the zero-derived verb.

***Revolutionize*-like clusters**

In these clusters only the *-ize* form has derivatives that convey the sense 'make X'. These derivatives may be recorded in the Corpus and some of them show recursive derivation through the attachment of combining forms or affixoids.

A first set of clusters displaying this profile was already identified as exhibiting cases of resolved competition in Fernández-Alcaina (2017), where the information provided by their derivatives supported a scenario of competition resolved in favor of the suffix *-ize*:

i) *public*/*publicize*
ii) *coward*/*cowardize*
iii) *mongrel*/*mongrelize*
iv) *idol*/*idolize*
v) *parallel*/*parallelize*
vi) *romantic*/*romanticize*
vii) *oxide*/*oxidize*

Other clusters were described as displaying an ongoing competition in previous research, usually because lexicographic and corpus data did not point at any clear preference between *-ize* and zero-derivation. However, when their derivatives have been taken into account, they indicate a preference for the *-ize* form as its derivatives map on the sense 'make X':

i) *revolution*/*revolutionize*
ii) *glamour*/*glamourize*
iii) *pauper*/*pauperize*
iv) *slender*/*slenderize*
v) *aerosol*/*aerosolize*

vi) *legend*/*legendize*
vii) *canal*/*canalize*

Table 5 exemplifies this profile using the cluster *revolution*/*revolutionize*. Although *revolutionize* and *revolution*^{V} are first attested within a short span of time (1795 and 1805, respectively) and both forms are recorded as in use by the OED, only the former allows further derivation:

Table 5: Subparadigms for the cluster *revolution*/*revolutionize* with specification of their base (*revolution*^{N}), the level of derivation, the dates of the earliest and latest attestation based on the OED and the semantic category following Bagasheva (2017)

Base	1st. Der.	W-class	Attested *	†	Sem.cat.	2nd Der.	W-class	Attested *	†	Sem.cat.	3rd Der.	W-class	Attested *	†	Sem.cat
revolution	*revolutionize*	V	1795	-	CAUSATIVE	*re-revolutionize*	V	1803	-	ITERATIVE					
						revolutionization	N	1871	-	ACTION					
						revolutionized	Adj	1798	-	QUALITY	*unrevolutionized*	Adj	1797	-	PRIVATIVE
						revolutionizing	N	1797	-	ACTION					
						revolutionizing	Adj	1797	-	QUALITY					
						revolutionizement	N	1820	1820	ACTION					
						revolutionizer	N	1798	-	AGENT					
						counter-revolutionize	V	1827	1827	OPPOSITIVE					
	revolution	V	1805	-	CAUSATIVE										

Other clusters, such as *uniform*/*uniformize* and *tender*/*tenderize*, were initially classified as exhibiting semantic specialization where the zero-derived verb expressed the semantic category CAUSATIVE, whereas the *-ize* verb was restricted to a specific domain. Specifically, according to the OED, *uniformize* is used in mathematics, whereas *tenderize* is used about food with the meaning 'make meat tender'. This has been partly confirmed in this paper: in both cases the *-ize* verb is specialized in meaning, but in none of the clusters does the zero-derived form keep conveying the general sense of 'make X'. For example, *uniformization* is not shown to be restricted to the field of mathematics in the COCA:

(10) *The Nazarite matrons' IsiZulu represents the first-ever true **"uniformization"** of one regional variant of twentieth century Zulu speakers' folk attire.*
(COCA: 2004 ACAD African Arts)

In the cluster *tender*/*tenderize*, the corpus data support the latter as a term specifically used about food:

(11) *It called for more research but concluded the risk was only slightly higher: about seven additional illnesses due to **tenderization** for every billion steak servings.*
(COCA: 2003 NEWS Atlanta)

Moreover, the position of *tender* in the competition as reflected by the COCA appears to be further weakened by the fact that the concordances for *tender* in the COCA mostly refer to its

homonym *tender*^{V} (from French *tendre*^{V} 'extend, give') meaning 'to offer or present formally for acceptance', and not to 'make tender':

(12) *Therefore, I have no choice but to* ***tender*** *my resignation.*
(COCA: 2017 FIC Analog Science Fiction & Fact)

Figure 6 shows the timelines for *revolutionize*-like clusters based on the dates of the earliest and latest attestation provided by the OED:

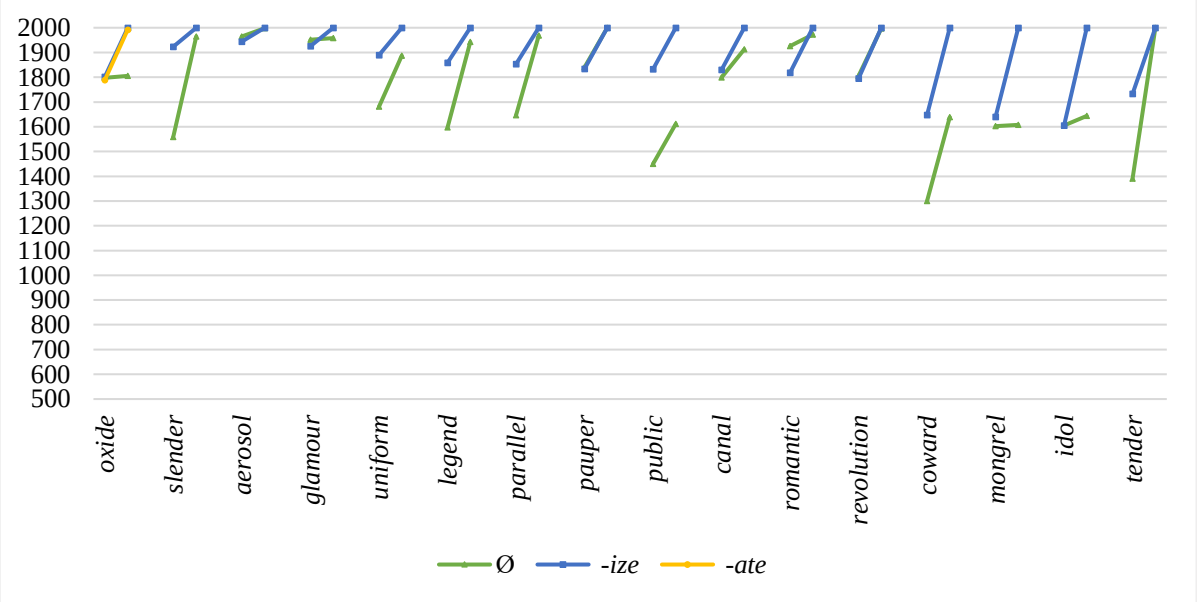

Figure 6: Timeline for the *revolutionize*-like clusters in Ø (in green), *-ize* (in blue) and *-ate* (in yellow) when forms compete for the expression of CAUSATIVE

All the zero-derived forms in the clusters shown in Figure 6 are first attested well before their *-ize* competitors (*slender*/*slenderize*, *uniform*/*uniformize*, *legend*/*legendize*, *parallel*/*parallelize*, *public*/*publicize*, *coward*/*cowardize* and *tender*/*tenderize*), or within a short interval of time with respect to the *-ize* verb (*oxide*/*oxidize*, *aerosol*/*aerosolize*, *glamour*/*glamourize*, *pauper*/*pauperize*, *canal*/*canalize*, *romantic*/*romanticize*, *revolution*/*revolutionize*, *mongrel*/*mongrelize* and *idol*/*idolize*). In general, what all the clusters have in common is that zero-derived forms fail to be further derived, unlike their competitors in *-ize*, including cases when *-ize* is first attested much later.

Ghettoize-like clusters

The second profile groups clusters where both forms in *-ize* and in zero-derivation have derivatives attested in the OED, but where the former seems to be preferred.

Some of the clusters had already been identified as cases of resolved competition in previous research, either due to the loss of the zero-derived verb, as with the zero-derived form in the cluster *immune*/*immunize*, or via semantic specialization, as in *union*/*unionize* (Fernández-Alcaina 2017: 196). The remaining clusters were originally classified as instances

of ongoing competition, but the existence of derivatives with *-ize* bases may indicate a preference for this suffix over zero-derivation:

i) *ghetto*/*ghettoize*
ii) *oval*/*ovalize*
iii) *fossil*/*fossilize*
iv) *proselyte*/*proselytize*
v) *Latin*/*Latinize*

Table 6 illustrates this profile using the cluster *ghetto*/*ghettoize*:

Table 6: Subparadigms for the cluster *ghetto*/*ghettoize* with specification of their base (*ghetto*^{N}), the level of derivation, the dates of the earliest and latest attestation based on the OED and the semantic category following Bagasheva (2017)

Base	1st. Der.	W-class	Attested		Sem.cat.	2nd Der.	W-class	Attested		Sem.cat.
			*	†				*	†	
ghetto	*ghetto*	V	1936	-	CAUSATIVE	*ghettoed*	Adj	1970	-	QUALITY
	ghettoize	V	1939	-	CAUSATIVE	*ghettoization*	N	1939	-	ACTION
						ghettoized	Adj	1990	-	QUALITY
						ghettoizing	N	1990	-	ACTION
						ghettoizer	N	1997	-	AGENT

In all the cases, *-ize* forms are recorded in the COCA, as well as most of their derivatives: *ghettoized* is recorded in the COCA with a frequency of 0.05, and *ghettoization*, 0.08. *Ghettoizing*^{N} is recorded only once.[15] In contrast, apart from *-ed* adjectives, zero-derived verbs do not show further derivation through the attachment of other affixes, unlike *-ize*. None of the zero-derived verbs has prefixed derivatives, except for *proselyte*^{V} and its negative form *unproselyte*, which is marked as obsolete by the OED and is not recorded in the COCA.

Figure 7 shows the timelines for the forms in *ghettoize*-like clusters with the dates of the earliest and latest attestation provided by the OED:

[15] In some clusters, only *-ize* derivatives serve as bases for compounds (e.g. *self-ghettoization*). As compounding has fallen out of the scope of this paper such cases have not been considered, even if they may prove relevant in the interaction between paradigms and competition within clusters.

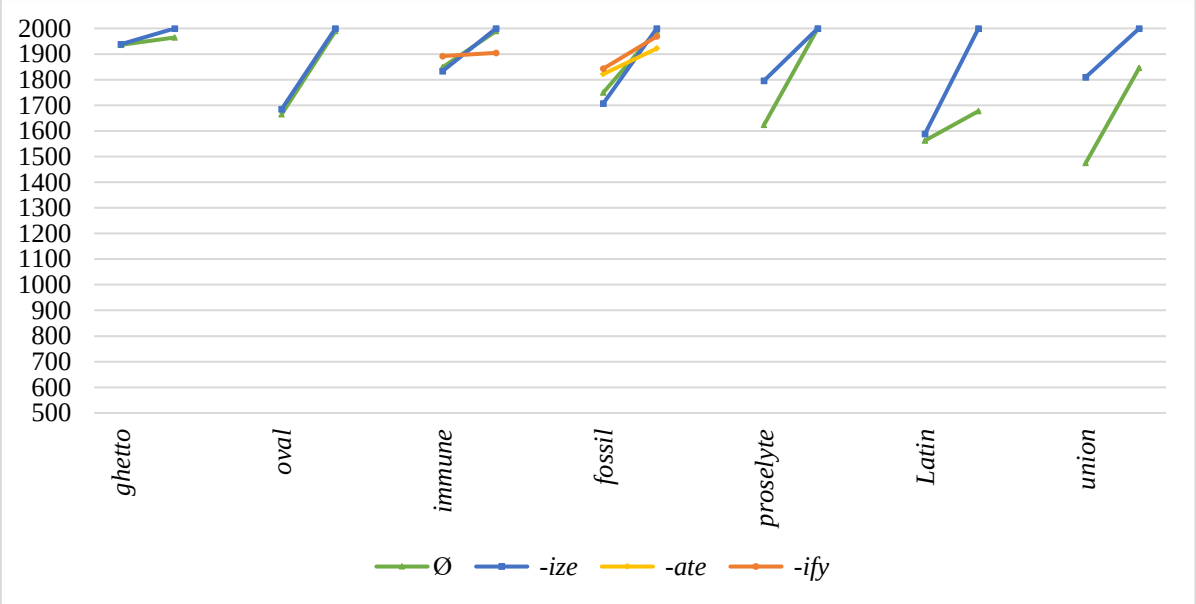

Figure 7: Timelines for the *ghettoize*-like clusters in Ø (in green), *-ize* (in blue), *-ate* (in yellow) and *-ify* (in orange) when forms compete for the expression of CAUSATIVE

Figure 7 shows that there are clusters (*immune*/*immunize*, *fossil*/*fossilize*) where more than two forms have competed for the expression of CAUSATIVE, either in *-ify* (*immunify*, *fossilify*) or in *-ate* (*fossilate*). In both clusters, *-ify* and *-ate* forms are first attested in the 19th century, later than their competitors in *-ize* and zero-derivation. However, they are marked as obsolete by the OED in the first half of the 20th century, thereby reducing competition, in theory, to two forms. As for dates of attestation, the pattern found is similar to that in Figure 6. Zero-derived forms are usually attested before their *-ize* competitors in the clusters *proselyte*/*proselytize* and *union*/*unionize*, or attested within a short timespan as regards their competitors in the clusters *ghetto*/*ghettoize*, *oval*/*ovalize*, *immune*/*immunize*, *fossil*/*fossilize* and *Latin*/*Latinize*.

***Sober*-like clusters**

In all the clusters where zero-derivation is preferred over the suffix *-ize*, most forms have derivatives but only zero-derivation shows further derivation apart form *-ed* and *-ing*. Clusters such as *cuckold*/*cuckoldize* and *gentle*/*gentilize* were already described as cases of resolved competition: *cuckoldize* is marked as obsolete in the OED and *gentilize* refers to 'live like a Gentleman', rather than to 'make gentle'. In contrast, the clusters *sober*/*soberize*, *English*/*Englishize*, *discipline*/*disciplinize* and *quiet*/*quietize* were initially identified as instances of ongoing competition. Table 7 exemplifies this profile with the cluster *sober*/*soberize*:

Table 7: Subparadigms for the cluster *sober*/*soberize* with specification of their base (*sober*[ADJ]), the level of derivation, the dates of the earliest and latest attestation based on the OED and the semantic category following Bagasheva (2017)[16]

Base	1st Der.	W-class	Attested *	Attested †	Sem.cat.	2nd Der.	W-class	Attested *	Attested †	Sem.cat.	3rd Der.	W-class	Attested *	Attested †	Sem.cat.
sober	*ensober*	V	1651	1651	CAUSATIVE										
	sober	V	1797	-	CAUSATIVE	*sobered*	Adj	1797	-	QUALITY					
		V	1820	-	PROCESS	*soberer*	N	1849	-	AGENT					
						sobering	Adj	1510	-	QUALITY	*soberingly*	Adv	1923	-	MANNER
						sobering	N	1510	-	ACTION					
						unsober	V	1856	-	PRIVATIVE					
	soberize	V	1707	-	CAUSATIVE	*soberized*	Adj	1840	-	QUALITY					
						soberizing	Adj	1860	-	QUALITY					
		V	1831	1831	PROCESS										

Figure 8 shows the timelines for the *sober*-like clusters:

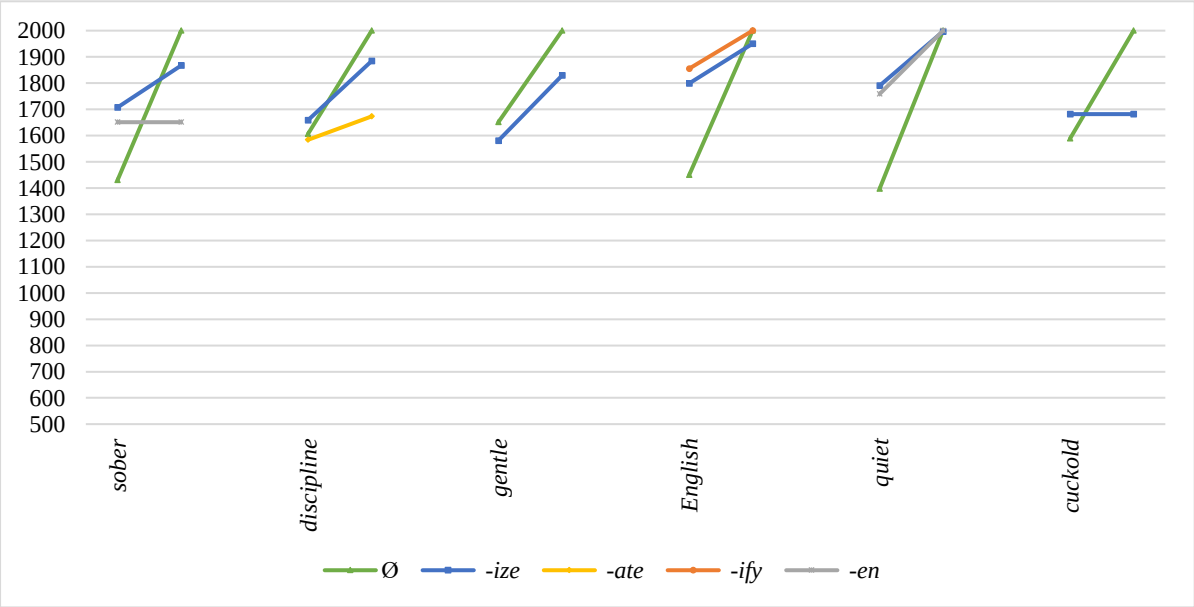

Figure 8: Timelines for the *sober*-like clusters in Ø (in green), *-ize* (in blue), *-ate* (in yellow) and *-ify* (in orange) and *en-* (in grey) when forms compete for the expression of CAUSATIVE

In all the clusters, and in line with Figures 6 and 7, zero-derived verbs appear much earlier than the *-ize* form (*English*/*Englishize*, *quiet*/*quietize*) or within a short timespan (*sober*/*soberize*, *discipline*/*disciplinize*, *gentle*/*gentilize* and *cuckold*/*cuckoldize*). The difference from *revolutionize*-like clusters and *ghettoize*-like clusters is that, in the clusters in Figure 8, the zero-derived form presents further derivation mapping on the sense 'make X'. It is possible

[16] The subparadigm for *soberize* is a case of an impoverished set as it does not contain forms derived by affixes other than *-ed* and *-ing*.

that the *-ize* verbs in this particular cluster appeared as unsuccessful innovations, even if some of them may not be marked as obsolete by the OED.

4.3.2 *Special cases*

Although the clusters in §4.3.1 were described as cases of resolved competition, some of them may still overlap in meaning, especially if those are attested in the 20th century.[17] For instance, the boundary between the semantic categories CAUSATIVE and INSTRUMENT or MANNER sometimes appears fuzzy in the cluster *aerosol*/*aerosolize*. Examples (13) and (14) illustrate this:

(13) *Self-assembling nano-bots can be **aerosoled** (perhaps "have been" would be more appropriate) and breathed…*
(http://forbiddenknowledgetv.net/stockholm-the-mark-of-the-beast-is-here/)

(14) […] *experiment, which is being conducted to determine the maximum temperature output of the coils used to **aerosolize** the e-liquid in the e-cigs under different configurations and conditions.*
(COCA: 2016 MAG Medical Xpress)

Likewise, the study of competition is also hindered by incomplete lexicographic information and/or lack of corpus data. For example, information in the OED (2) on the cluster *finite*/*finitize* is scarce and neither of the forms is recorded in the COCA. Any assumption about the resolution of competition in this cluster can therefore only be tentative:

(15) *The Lord to be in them, there to personate and **finite** himself.*
(H. Bushnell, *Christian Nurture* ii. v. 301, 1861, OED2)

(16) *The Unconditional has been under a necessity to **finitise** Itself.*
(S. S. Laurie, *Synthetica II*. 859, 1906, OED2)

In some other cases, the senses that are marked as in use by the OED do not reflect in the data provided by the Corpus. For example, according to the OED, *woman*^{V} and *womanize* have competed for the sense 'make womanly', but competition has apparently been resolved in favor of *womanize*. Nevertheless, the corpus data usually refer to the intransitive sense 'to engage in casual sexual or romantic encounters with women'. Some derivatives (e.g. *womanizer*, *womanizing*) appear to map on this sense:[18]

(17) *Dara may have tolerated Jon's **womanizing**, but according to the FBI, Jon's latest romance with a Thai woman seemed like more than a fling…*
(COCA: 2010 SPOKEN)

[17] Corpus frequency may be a guiding factor in the resolution of the competition in this type of cases, but as the information on the (un)availability of forms provided by the COCA is sometimes scarce or lacking altogether, the description of the resolution of competition could again benefit from the use of historical corpora.

[18] This assumption must be taken with caution as it is based on mere observation. More information on this issue could be extracted from a thorough analysis of the semantic categories or senses expressed by their corpus concordances. For details on the relevance of this type of analysis for the study of competition see Lara-Clares (2017) and Lara-Clares (2018) on nominal competition.

In some other cases, the OED marks one of the forms as associated with a special use. For instance, the zero-derived form in the cluster *wanton*/*wantonize* is marked as *poetic*, but corpus evidence is again lacking:

(18) *The same breeze that had uncivilized him seemed to have* ***wantoned*** *her.*
(S. Carroll, *Bride Finder* xvi. 232, 1998, OED3)

(19) *If they meet a girl who is not wanton, they* ***wantonize*** *her in their minds.*[19]
(C. Stead, *Letty Fox* xiii. 116, 1946, OED3)

There are also examples where the resolution of competition between zero-derivation and the suffix *-ize* occurs, but the remaining form is in a complementary distribution with a third form. A case in point is the *quiet*/*quietize*/*quieten* cluster. With *quietize* ousted, the use of the verbs in the reduced cluster *quiet*/*quieten* seems to depend on regional varieties of English: the verb *quiet* shows a frequency of 0.39 in the BNC and 2.77 in the COCA. By contrast, *quieten* is recorded in the BNC with a frequency of 1.64, and 0.06 in the COCA. No obvious semantic difference has been observed in their use:

(20) *He tried to find a compromise that would satisfy his artistic urge and* ***quieten*** *his conscience*.
(BNC: K8R W_fic_prose)

(21) *Daniel held up his hand to* ***quiet*** *them, and it took them longer than usual to fall silent…*
(COCA: FIC_Analog Science Fiction & Fact)

4.4 *Recapitulation*

The results presented in this paper confirm previous research regarding the increasing preference for the suffix *-ize* for the expression of CAUSATIVE in clusters where it competes with zero-derivation. In particular, of the 510 forms extracted from the OED and the COCA for the creation of the subparadigms, 131 derivatives with bases in zero-derivation are not recorded in the COCA, in contrast to the 52 forms recorded. On the other hand, 115 *-ize* derivatives do not appear in the Corpus whereas 135 do. Opposite patterns regarding the number of derivatives attested and not attested in the COCA are supported from a diachronic perspective. In fact, the development of both affixes in Figures 3 and 4 above shows that the introduction of the suffix *-ize* led to losses of the zero-derived verbs expressing the semantic category CAUSATIVE from the 17th century onwards, when zero-derivation reached its peak. At the same time, this decrease in the use of zero-derivation was accompanied by an increase in the number of *-ize* verbs, which continued growing until the 19th century.

Regarding the profile displayed by the clusters where competition is resolved (or, apparently, on its way to resolution), CAUSATIVE is mainly expressed by forms in *-ize*, although there is a small group of clusters where zero-derivation wins out over forms in *-ize*. In all these clusters, labeled here as *sober*-like clusters, zero-derived forms are attested before their *-ize*

[19] The choice for the form *-ize* in this particular example may be influenced by the role of immediate language context by contrasting to the adjective *wanton* in the same sentence. Context-based lexical and stylistic choices of this type may be worth considering among influential factors in the future study of competition in word-formation.

competitors (i.e. before the 17th century) and are the only ones of this type whose derivatives are recorded in the COCA. This implies that *-ize* forms are usually preferred but, once a paradigm has been created around a zero-derived verb, a change in favor of the *-ize* counterpart appears to be less likely.

5. Discussion

The results in §4 show that the description of the subparadigms created by two competing forms contributes to the study of morphological competition because subparadigms may provide additional data on the preference for one or the other form.

The fact that the one form rather than the other triggers further derivation may indicate that this form is better established in English, and thus tends to determine the outcome of the competition of forms within a cluster. Even if it were the case that the two competitors have derivatives, it would not necessarily imply that they co-exist. In fact, although the sense in the derivatives usually map on the sense of their bases, "the mapping is never complete, and it is not infrequently narrowed down to the central senses of the base" (Bauer & Valera 2015: 83). Therefore, identifying the sense to which the derivatives refer is relevant for the study of competition, as it may indicate whether the sense for which two or more forms compete is more central in some competitors. In fact, a comparison between the results in this paper and those of a previous study (Fernández-Alcaina 2017) shows that cluster classification may change if members in the subparadigms are considered.

Another aspect of competition that can be better understood if the role of subparadigms is taken into account is the profile displayed by the clusters where competition has been resolved (or is on the way to be resolved). In the set of competitors where the suffix *-ize* wins out over zero-derivation for the expression of CAUSATIVE, the zero-derived form is usually attested earlier than its *-ize* counterpart. This leaves some room for zero-derived verbs to be derived further. In contrast, in the clusters where zero-derivation wins out over the suffix *-ize* in CAUSATIVE senses, the latter is usually short-lived and does not act as the base for any derivative. It seems that, in the clusters analyzed, once a causative zero-derived verb has derivatives mapping on this sense, *-ize* verbs are less likely to replace them, and thus, the subparadigm of the zero-derived competitor seems to support a preference for its base. Figure 9 shows the timelines for the verbs *English* and *Englishize* and their respective derivatives:

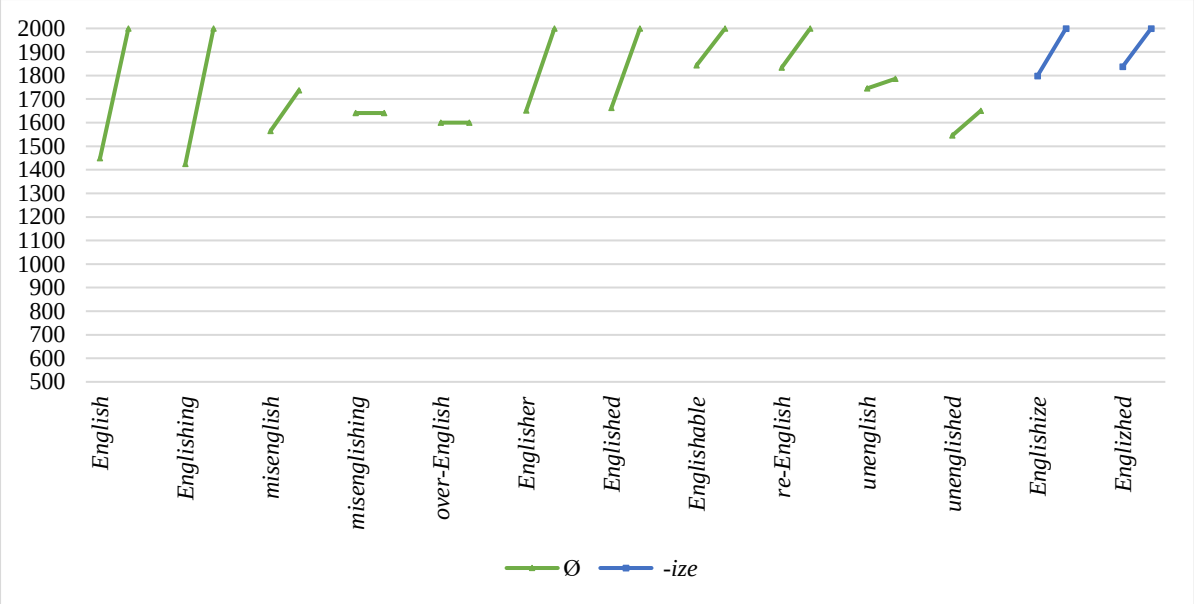

Figure 9: Timelines for the forms in Ø (in green) and in *-ize* (in blue) and their derivatives in the cluster *English*/*Englishize*

The subparadigm of *English* exemplifies cases where the derivatives from the zero-derived form are attested earlier than the *-ize* competitor, including those that remain in use. In contrast, although the latest dates of attestation for *Englishize* and *Englishized* belong to the 20th century, it may be partly a consequence of the relative youth of these forms.

However, there are clusters where it is difficult to prove whether the subparadigm indicates the direction in which the resolution of competition will occur or not. This appears especially so if the two forms are attested within a short timespan, e.g. *ghetto* (1936–, OED2)/*ghettoize* (1939–, OED2). Confirmation of the extent to which this applies requires an analysis of the same pattern in clusters where the two forms have close dates of the earliest attestation and where the competition has been resolved, e.g. *Latin*/*Latinize*. The timelines for the verbs in this cluster and their derivatives are shown in Figure 10:

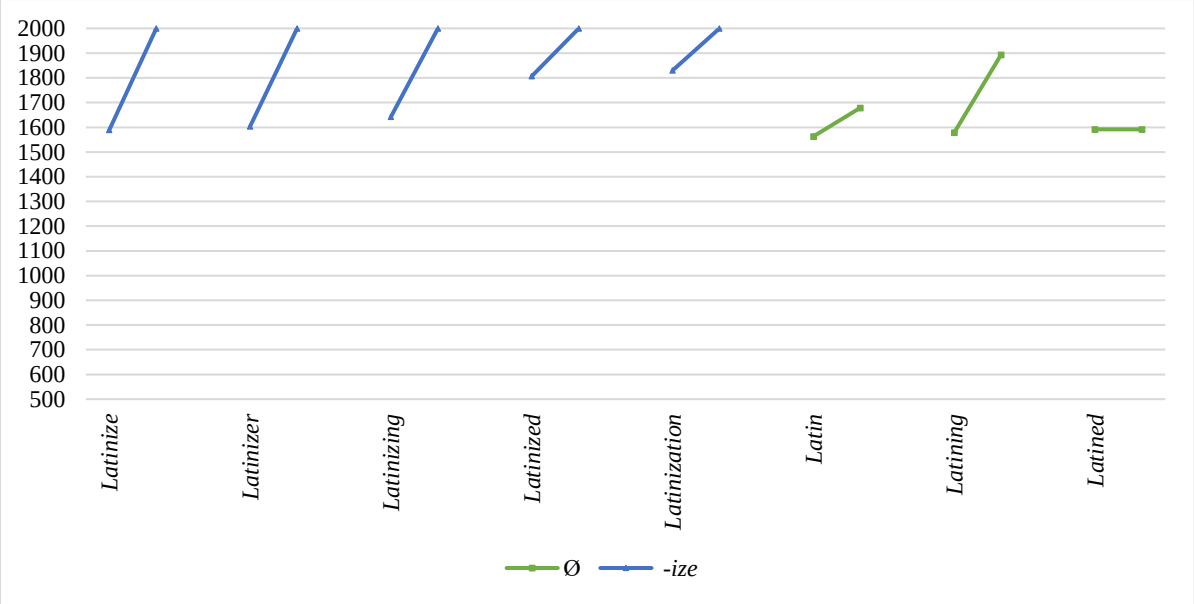

Figure 10: Timelines for the forms in Ø (in green) and in *-ize* (in blue) and their derivatives for the cluster *Latin*/*Latinize*

The cluster *Latin*/*Latinize* shows an opposite view of the paradigm in the resolution of competition to that observed in Figure 9. In this case, both verbs are first attested at the end of the 16th century and both have derivatives that date back to the same period. However, only those derived employing *-ize* remain in Present-Day English.

All in all, the clusters in Figures 9 and 10 reinforce the interaction between competition and paradigms, such as that the latter serve as additional data for supporting the resolution of the competition in favor of the one or the other affix. Furthermore, Figures 9 and 10 also seem to imply that the influence of the (sub)paradigms of two forms in competition may be twofold as further derivation may support the preference for an already existing form over a later attested competitor. Alternatively, when both competitors are first attested within the same period, further derivation may in some way guide the resolution of competition in favor of one of the forms. Again, these assumptions must be considered cautiously as the results may be no more than a consequence of the limitations of the lexicographic resources used.

Moreover, other factors may be at work here as well. It may be the case that, in some instances of competition at least, the *-ize* form did not succeed simply because it was used with a stylistic effect that did not prove permanent. This hypothesis is illustrated by the cluster *cuckold*/*cuckoldize*. In contrast to *cuckold* (1589–, OED2), *cuckoldize* is only attested once in the OED, in the 17th century with a label of "obsolete, rare":

(21) *Can dry Bones Live? or Skeletons produce The Vital Warmth of* ***Cuckoldizing*** *Juice?*
(N. Tate & Dryden, *2nd Pt. Absalom & Achitophel* 11, 1682, OED2)[20]

[20] The forms in the cluster *cukold*/*cuckoldize* were last updated in 1989 (OED2). Cases like this exemplify the limitations in the use of lexicographic data and the need in future research of exploring historical corpora for the centuries under scrutiny.

However, the lack of lexicographic record makes it difficult to decide whether forms such as *cuckoldize* were potential competitors for the zero-derived verb or just unsuccessful stylistic innovations. Similarly, the gaps between dates of attestation observed in forms such as *grandize*[21] also hinder the study of availability and competition. Explanations for the gaps found in attestations tend to be varied, because forms may have:

i) been in use, but failed to be recorded by the dictionary makers due to limitations in the lexicographic practice; or
ii) come to be restricted to certain domains (e.g. medicine, mathematics) or been used with a specific stylistic purpose; or
iii) been lost at some point in the history and later re-activated again (Bauer 2014) as potential competitors (as it may be the case of e.g. *grandify*/*grandize* above).

Although the issue of (un)availability is a complex one and further, methodologically varied research is needed to account for its complexity fully, it is clear that taking into account the information provided by the derivatives in the subparadigms created by the bases in competition may help us gain insights into the diachronic availability of forms such as *grandize*. However, assumptions based on the information provided by subparadigms need to be considered with caution. The lack of derivatives may evidence resolved competition, but in forms such as *revolution*^{V} (1805–, OED3) or *ghetto*^{V} (1936–, OED2), which are attested in the 19th century or in the course of the 20th century, respectively, the unavailability of derivatives may also be a consequence of their as yet short existence in the language and, therefore, of their availability to yield further derivation in the future.

6. Conclusion

This paper elaborates on, and partly confirms, the results obtained from an analysis in our previous research in two ways: from a descriptive, analytical and theoretical perspective, paradigms add additional evidence that supports the resolution of competition in favor of one of the suffixes under study and suggest that such resolution can occur following various profiles. Methodologically, the promising results show that the study of availability of (competing) forms is often hindered by lexicographic and corpus limitations and call for more research situated at the interface of synchrony and diachrony.

Regarding the interaction of derivational (sub)paradigms and competition, the results in this paper support those in the previous research in that the suffix *-ize* seems to be the preferred option for the formation of causative verbs. However, the results obtained also show that in seven of the 26 clusters where competition has been resolved, zero-derivation is preferred over the suffix *-ize*. In all of them, the former is attested earlier and does serve as the base for further derivation.

The inclusion of paradigms in the study of competition also suggests that there are cases where once one of the competing forms has developed derivatives, a synonym may be less likely to be coined (e.g. in the cluster *discipline*/*disciplinize*, the *-ize* verb is first attested after its zero-derived competitor once the latter has already attested derivatives). This is in some way reinforced by the opposite pattern found in clusters where *-ize* wins out over zero-

[21] See §4.3, examples (7)–(9).

derivation. In most cases, *-ize* is last attested later than the zero-derived form, but none or few derivatives with zero-derived bases are attested in the OED or recorded in the COCA. The comparison of both patterns suggests that the *-ize* form is preferred if there is no earlier form with already attested derivatives.

Therefore, the results support the assumption that the description of the patterns of resolved competition is enhanced by including derivational (sub)paradigms, but whether they are the cause or the consequence of such resolution needs further research. The analysis of the results obtained suggests that paradigms may have an effect on the competition between their base and other form(s). In detail, the subparadigms in the cluster *English*/*Englishize* illustrate how the derivatives of the zero-derived form may support its prevalence over a later attested competitor in *-ize*. In contrast, the subparadigms for the verbs *Latin*/*Latinize*, where both forms are first attested in the same period, apparently guide the resolution of the competition in favor of *-ize*.

Whether variation is variety-related is a question that has remained unanswered in this paper, although choices exemplified by *quiet* and *quieten* may be a consequence of this factor. Corpus data reflect that while *quiet* is apparently preferred in AmE, *quieten* is more common in BrE. This case clearly illustrates the necessity of considering inter-variety differences in future research as well as all the possible affixes that may enter in competition in a cluster (e.g. *quiet*/*quietize*/*quieten*).

From a more general perspective, the study of availability may also benefit from an analysis of the members of the derivational (sub)paradigm in question. Specifically, the availability of derivatives may provide information about the availability of their bases. This is especially relevant in those cases where there are gaps in lexicographic records. However, although the availability of the members of the subparadigms may suggest that their bases have remained available even if records are lacking for some centuries, this assumption needs to be taken with caution. The lack of derivatives and gaps in the dates of attestation do not necessarily mean that the forms are unavailable because they may be instances of renewed availability (Bauer 2014). In fact, the lack of attestations may mean just the opposite: verbs first attested during the 19th or 20th centuries may have been created with a restricted sense that may not be obvious from the records provided by the OED or may yet become competitors of available verbs. As both obsolete forms and neologisms are sometimes excluded from corpus record, identifying whether the type of verbs mentioned above belong to the first or second group needs supporting evidence.

In fact, the questions posed about the availability of forms highlight first, the problems of etymological and historical dictionaries whether they get updated (like the OED, which is rare) or not (which is typical), and second, the limitations of synchronic corpora. Specifically, the use of historical corpora could complement the information provided by the OED. By doing so, the patterns of competition observed so far could be further detailed and/or reformulated.

This study has further demonstrated complex interactions between derivational paradigms and competition in word-formation. Our results imply that derivational (sub)paradigms add extra data to the study of diachronic competition. In turn, a fuller description of competition allows constructing more detailed paradigms, and thus, makes a more complete picture of derivational morphology possible.

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References

Aronoff, Mark. 2016. Competition and variation. (Paper presented at the *16th International Morphology Meeting*, Vienna, 18–21 February 2016.)

Bagasheva, Alexandra. 2017. Comparative semantic concepts in affixation. In Santana-Lario, Juan & Valera, Salvador (eds.), *Competing patterns in English affixation*, 33–66. Bern: Peter Lang.

Bauer, Laurie. 1997a. Evaluative morphology: A search for universals. *Studies in Language* 21(3). 533–575.

Bauer, Laurie. 1997b. Derivational paradigms. In Booij, Geert & van Marle, Jaap (eds.), *Yearbook of Morphology 1996*, 243–256. Dordrecht: Kluwer.

Bauer, Laurie. 2009. Competition in English word-formation. In van Kemenade, Ans & Los, Bettelou (eds.), *The handbook of the history of English*, 177–198. Malden, MA: Blackwell.

Bauer, Laurie. 2014. 'What is the plural of mouse?' and other unhelpful questions for morphologists. (Plenary lecture delivered at the *47th Annual Meeting of the Societas Linguistica Europaea*, Poznań, 11–14 September 2014.)

Bauer, Laurie & Nation, Paul. 1993. Word families. *International Journal of Lexicography* 6(4). 253–279.

Bauer, Laurie & Díaz-Negrillo, Ana & Valera, Salvador. 2010. Affixation vs. conversion: The resolution of conflicting patterns. In Rainer, Franz & Dressler, Wolfgang U. & Kastovsky, Dieter & Luschützky, Hans Christian (eds.), *Variation and change in morphology: Selected papers from the 13th International Morphology Meeting*, Vienna, February 2008, 15–32. Amsterdam: John Benjamins.

Bauer, Laurie & Lieber, Rochelle & Plag, Ingo. 2015. *The Oxford guide to English morphology*. 2nd edn. Oxford: Oxford University Press.

Bauer, Laurie & Valera, Salvador. 2015. Sense inheritance in English word-formation. In Bauer, Laurie & Körtvelyéssy, Lívia & Štekauer, Pavol (eds.), *Semantics of complex words* (Studies in Morphology 3), 67–84. Dordrecht: Springer.

Beecher, Henry. 2004. *Derivational paradigm in word formation* (http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.94.9071) (Accessed 2018-07-20.)

Blevins, James P. 2006. Word-based morphology. *Journal of Linguistics* 42(3). 531–573.

Bochner, Harry. 1993. *Simplicity in Generative Morphology*. New York, NY: De Gruyter Mouton.

Bonami, Olivier & Strnadová, Jana. 2018. Paradigm structure and predictability in derivational morphology. *Morphology*. (https://doi.org/10.1007/s11525-018-9322-6) (Accessed 2018-07-20.)

Booij, Geert. 1996. Inherent versus contextual inflection and the Split Morphology hypothesis. In Booij, Geert & van Marle, Jaap (eds.), *Yearbook of Morphology 1995*, 1–16. Dordrecht: Kluwer.

Booij, Geert. 2008. Paradigmatic morphology. In Fradin, Bernard (ed.), *La raison morphologique: Hommage à la mémoire de Danielle Corbin*, 29–38. Amsterdam: John Benjamins.

Booij, Geert & Lieber, Rochelle. 2004. On the paradigmatic nature of affixal semantics in English and Dutch. *Linguistics* 42(2). 327–357.

Chiba, Shoju. 2016. The lexical realization patterns and their relationship to productivity: The Finnish symbiotic derivation. (Paper presented at the *16th International Morphology Meeting*, Vienna, 18–21 February 2016.)

Davies, Mark. 2004–. *BYU-BNC* (Based on the *British National Corpus* by Oxford University Press). (http://corpus.byu.edu/bnc/) (Accessed 2018-07-20.)

Davies, Mark. 2008–. *The Corpus of Contemporary American English (COCA): 560 million words, 1990-present*. (http://corpus.byu.edu/coca/) (Accessed 2018-07-20.)

Davies, Mark. 2011. The Corpus of Contemporary American English as the first reliable monitor corpus of English. *Literary and Linguistic Computing* 25(4). 447–465.

Díaz-Negrillo, Ana. 2017. On the identification of competition in English derivational morphemes. The case of *-dom*, *-hood* and *-ship*. In Santana-Lario, Juan & Valera, Salvador (eds.), *Competing patterns in English affixation*, 119–162. Bern: Peter Lang.

Don, Jan. 2014. *Morphological theory and the morphology of English*. Edinburgh: Edinburgh University Press.

Dressler, Wolfgang U. 1989. Prototypical differences between inflection and derivation. *Zeitschrift für Phonetik, Sprachwissenschraft und Kommunikationsforschung* 42(1). 3–10.

Fernández-Alcaina, Cristina. 2017. Availability and unavailability in English word-formation. In Santana-Lario, Juan & Valera, Salvador (eds.), *Competing patterns in English affixation*, 163–206. Bern: Peter Lang.

Fradin, Bernard. 2016. What can we learn from doublets? (Paper presented at the *16th International Morphology Meeting*, Vienna, 18–21 February 2016.)

Horecký, Ján & Buzássyová, Klára & Bosák, Ján et al. 1989. *Dynamika slovnej zásoby súčasnej slovenčiny*. Bratislava: Veda.

Kaunisto, Mark. 2007. *Variation and change in the lexicon: A corpus-based analysis of adjectives in English ending in* -ic *and* -ical. Amsterdam: Rodopi.

Kaunisto, Mark. 2009. The rivalry between English adjectives ending in *-ive* and *-ory*. In McConchie, Roderick W. & Honkapohja, Alpo & Tyrkkö, Jukka (eds.), *Selected Proceedings of the 2008 Symposium on New Approaches in English Historical Lexis (HEL-LEX 2)*, 74–87. Somerville, MA: Cascadilla Press.

Kjellmer, Göran. 2001. Why *weaken* but not **strongen*? On deadjectival verbs. *English Studies*. 82(2). 154–171.

Lara-Clares, Cristina. 2017. Competition in Present Day English nominalization by zero-affixation vs. *-ation*. In Santana-Lario, Juan & Valera, Salvador (eds.), *Competing patterns in English affixation*, 207–244. Bern: Peter Lang.

Lara-Clares, Cristina. 2018. Nominal competition in Present-Day English affixation: zero-affixation vs. *-ness* with the meaning STATIVE. (Paper presented at the conference *Word-Formation Theories III & Typology and Universals in Word-Formation IV*, Košice, Slovakia, 27–30 June 2018.)

Plag, Ingo. 1999. *Morphological productivity: Structural constraints in English derivation*. Berlin: De Gruyter Mouton.

Plank, Frans. 1994. Inflection and derivation. In Asher, Ron E. (ed.), *Encyclopedia of Language and Linguistics* 3. 1671–1678. Oxford: Pergamon.

Pounder, Amanda. 2000. *Process and paradigms in word-formation morphology* (Trends in Linguistics 131). Berlin: De Gruyter Mouton.

Projekt Monika. 2018. *Cross-linguistic research into derivational networks.* Pavol Jozef Šafárik University (Košice, Slovakia), University St. Kliment Ohridsky (Sofia, Bulgaria), University of Granada (Spain). (https://www.ugr.es/~svalera/Monika/index.html) (Accessed 2018-08-07.)

Proffitt, Michael. 2018. *The Oxford English Dictionary*. (http://www.oed.com) (Accessed 2018-07-20.)

Roché, Michel. 2011. Quelle morphologie? In Roché, Michel & Boyé, Gilles & Hathout, Nabil & Lignon, Stéphanie & Plénat, Marc (eds.), *Des unités morphologiques au lexique, langues et syntaxe*, 15–39. Plymouth: Hermes Science Publishing.

Štekauer, Pavol. 2014. Derivational paradigms. In Lieber, Rochelle & Štekauer, Pavol (eds.), *The Oxford handbook of derivational morphology*, 354–369. Oxford: Oxford University Press.

Štekauer, Pavol. 2017. Competition in natural languages. In Santana-Lario, Juan & Valera, Salvador (eds.), *Competing patterns in English affixation*, 15–32. Bern: Peter Lang.

Stump, Gregory. 2001. *Inflectional morphology*. Cambridge: Cambridge University Press.

Thornton, Anne Marie. 2011. Overabundance (multiple forms realizing the same cell): A non-canonical phenomenon in Italian verb morphology. In Maiden, Martin & Smith, John Charles & Goldbach, Maria & Hinzelin, Marc-Olivier (eds.), *Morphological autonomy: Perspectives from Romance inflectional morphology*, 358–381. Oxford: Oxford University Press.

Tichý, Ondřej. 2018. Lexical obsolescence 1700–2000. In Kopaczyk, Joanna & Tyrkkö, Jukka (eds.), *Applications of pattern-driven methods in Corpus Linguistics*, 81–103. Amsterdam: John Benjamins.

van Marle, Jaap. 1985. *On the paradigmatic dimension of morphological creativity*. Dordrecht: Foris.

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