

The reanalysis of /g/ as a verb class marker: An exaptation case within the Catalan 2nd conjugation

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ABSTRACT

In Old Catalan, some verbs like *beure* ‘to drink’ display a velar consonant in the forms that come from Latin *perfectum*, such as 3SG.PRT **bibwit* > *bec* [ˈbek] ‘s/he drank’. This velar was initially a perfect marker. However, the consonant spread analogically from perfective to imperfective forms through an exaptation process. In the present paper, we compare two different verb classes, and prove that the existence of syncretism between the first and third persons of the present indicative (1SG.PRS.IND *beu* [ˈbew] ‘I drink’ vs. 3SG.PRS.IND *beu* [ˈbew] ‘s/he drinks’) is a factor that accelerates the analogical process of velarization.

KEYWORDS

Catalan, exaptation, morphology, morpheme, verbs

1. INTRODUCTION

It is widely believed that homophony avoidance may lead to morphophonological innovations within a given paradigm (see Gilliéron 1918; Martinet 1955; Campbell & Ringen 1981; Campbell 1996; Blevins & Wedel 2009; Baerman 2011; Herce 2022; among others). However, other authors (see King 1967; Lass 1980; Sampson 2013) question the theory, arguing that homophony avoidance is not determinant in language change. The main aim of the present paper is to demonstrate that homophony avoidance can not only induce linguistic change but also

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accelerate such change, especially in an unmarked tense like the present indicative. We prove this thesis through the comparison of the analogical velarization process undergone by two different verb classes of the Catalan second conjugation.

In Old Catalan, a velar consonant¹ appeared in the tenses coming from Latin *perfectum*, labelled as the PYTA morpheme,² in some second conjugation verbs such as *beure* ‘to drink’ (e.g., 3SG.PRT **¹bibwit* > *bec* [ˈbek] ‘s/he drank’), *deure* ‘to owe’ (e.g., 3SG.PRT *DEBUI* > *dec* [ˈdek] ‘s/he owed’), *moldre* ‘to grind’ (e.g., 3SG.PRT *MOLUIT* > *molc* [ˈmɔlk] ‘s/he ground’) and *valdre* ‘to cost’ (e.g., 3SG.PRT *VALUIT* > *valc* [ˈvalk] ‘s/he cost’). In these forms, the velar was initially a perfect marker (Pérez Saldanya 1998, 231; Wheeler 2011, 198). However, in this particular set of verbs, the velar progressively extended from PYTA to the first person of the present indicative and the whole of the present subjunctive,³ following the model of the verb *dir* ‘to say’, in which the velar element was etymological in these forms, since it was part of the Latin root (see Table 1).

Table 1. Evolution from Latin to Catalan of present indicative and present subjunctive of the verb DICERE > *dir* ‘to say’. (The shaded forms, which constitute the L-pattern, share the allomorph /dig/.)

	1sg	2sg	3sg	1pl	2pl	3pl
PRS.IND	DICŌ > <i>dic</i>	DĪCIS > <i>dius</i>	DĪCIT > <i>diu</i>	DĪCIMUS > <i>deim</i>	DĪCĪS > <i>deïts</i>	^{*1} <i>dikent</i> > <i>dien</i>
PRS.SBJV	DĪCAM > <i>diga</i>	DĪCĀS > <i>digues</i>	DĪCAT > <i>diga</i>	DĪCĀMUS > <i>digam</i>	DĪCĀS > <i>digats</i>	DĪCANT > <i>diguen</i>

Throughout this analogical process, L-pattern velarized forms of the aforementioned verbs were created, such as 1SG.PRS.IND *bec* [ˈbek] ‘I drink’, 1SG.PRS.IND *dec* [ˈdek] ‘I owe’, 3SG.PRS.SBJV *bega* [ˈbeya] ‘s/he drink’ and 3SG.PRS.SBJV *dega* [ˈdeya] ‘s/he owe’. This diachronic change agrees with Garrett’s (2008) proposal, according to which analogical levelling always entails the propagation of a preexisting model, like the paradigm of the verb *dir* ‘to say’, in which the L-pattern cells

¹About the origin of the velar consonant, most authors adopt the proposal of Meyer-Lübke (1895, §278), supported by Coromines (1971) among others, according to which /g/ derives from the reinforcement of the aspectual marker of Latin strong perfects; according to this theory, the increment -U- [w] of the perfective tenses reinforced and ended up becoming a labiovelar obstruent: *w* > *g^w* > *g*. On the other hand, Wheeler (2011, 195–198) follows Ronjat’s (1937, §570) proposal and argues that the velar consonant spread analogically from a set of verbs in which it was etymological, such as 3SG.PRT *IACUIT* > *jac* ‘s/he lay’ and 3SG.PRT *PLACUIT* > *plac* ‘s/he pleased’ (for a more detailed discussion, see Badal 2021, §III.3).

²The notion of a *morpheme* refers to patterns or structures that are not conditioned by syntax or phonology but are instead due to purely morphological reasons (Aronoff 1994, 25). The PYTA morpheme, an acronym for the expression *perfecto y tiempos afines* ‘perfect and related tenses’ (Menéndez Pidal 1985 [1904], 308), is formed by the tenses coming from Latin *perfectum* (Maiden 2018, 44). In Old Catalan, PYTA was formed by the preterite, coming from Latin perfect indicative (e.g., 3SG.PRT *DĪXIT* > *dix* [ˈdiʃ] ‘s/he said’); the conditional ending in -*ra*, coming from Latin pluperfect indicative (e.g., 3SG.PLPF.IND *DIXERAT* > *dixera* [diˈʃera] ‘s/he would say’), and the imperfect subjunctive, coming from Latin pluperfect subjunctive (e.g., 3SG.PLPF.SBJV *DIXISSET* > *dixés* [diˈʃes] ‘s/he said’). These tenses still preserved formal remnants of the perfective morphology that do not appear in the rest of the verb paradigm; in the case of *dir* ‘to say’, PYTA forms displayed a distinctive allomorph: *dix-*.

³These forms constitute the L-pattern, a label that refers to a distribution in which the distinctive element is shared uniquely by the whole of the present subjunctive together with the first person singular of the present indicative (Maiden 2018, 84).



were already velarized in Old Catalan, as Table 1 shows. It should be noted, however, that in Catalan the syncretism between the first person and third person singular is maintained in the subjunctive tenses and in the relative indicative tenses (e.g., 1SG/3SG.IPFV.IND *bevia* ‘I/he/she drank’, 1SG/3SG.IPFV.SBJV *begués* ‘I/he/she drank’), that is, in marked contexts: the subjunctive, marked with respect to the indicative in mood opposition, and the relative tenses, marked in tense oppositions with respect to absolute tenses. The maintenance of the syncretism in these tenses can be justified by the principle of markedness in syncretism introduced by Wheeler (1993, 108). According to this principle, the syncretism of morphosyntactic categories is tolerated in the context of association with other semantically marked, rather than semantically unmarked categories.

In relation to the verb classes that underwent velarization, it should be noted that verbs which originally present the velar consonant in PYTA can be divided into two categories: those that had syncretism between the first and third persons of the present indicative, such as the *beure* ‘to drink’ and *moldre* ‘to grind’ type (e.g., 1SG.PRS.IND *mol* [‘mɔl] ‘I grind’ vs. 3SG.PRS.IND *mol* [‘mɔl] ‘s/he grinds’), and the rest, in which phonetic evolution from Latin into Catalan had given rise to allomorphs in the L-pattern forms, often with a palatal ending, which avoided the aforementioned syncretism (e.g., 1SG.PRS.IND *deig* [‘detʃ] ‘I owe’ vs. 3SG.PRS.IND *deu* [‘dew] ‘s/he owes’).

Regarding the diachronic change described above, we set out two main goals for the present paper. First, we will assign a date to the spreading of the velar consonant ([k] or [ɣ], depending on the phonological context) from PYTA to L-pattern in the two analyzed verb categories. Second, we will test whether the analogical propagation of the velar occurs simultaneously in the two verb classes or, on the contrary, there are chronological differences between them. If the class with syncretism in the present indicative adopts the velar before the one without syncretism, this will support the thesis that homophony avoidance is a significant factor in the development of linguistic changes.

With the aim of describing the velarization process of the first-person present indicative and the whole present subjunctive of the two verb classes, section 2 sets out the methodology followed to extract and analyze the cases. Next, section 3 presents the characteristics of the two verb classes under scrutiny, as well as the counts extracted from our corpus. Then section 4 discusses the notion of exaptation, which is applied to the reanalysis that the velar consonant underwent in Old Catalan. Lastly, section 5 offers conclusions.

2. METHODOLOGY

2.1. Corpus

To extract the verb forms, we have set up a corpus comprising a range of Catalan works from the 13th to the 19th centuries (see Table 2). We have chosen this period to be able to study the velarized forms from the earliest Catalan texts until the promulgation of Fabra’s norm;⁴

⁴Pompeu Fabra (1868–1948) is the author and promoter of modern-day Catalan norms. He promulgated the *Normes ortogràfiques* (1913), the *Gramàtica catalana* (1918) and the *Diccionari general de la llengua catalana* (1932), among others.



Table 2. Works making up the corpus, divided into centuries (rows) and dialects (columns)

Centuries	Western Catalan	Eastern Catalan
13th	<i>Costums de Tortosa</i>	<i>Llibre de contemplació en Déu</i>
14th	<i>Epistolari de la València Medieval (I), Els manuals de consells medievals de Xàtiva (1376–1380)</i>	<i>Corbatxo, Els quatre llibres de la reina Elionor de Sicília, La fiyla del rey d'Ungria, Lo somni</i>
15th	<i>Tirant lo Blanch</i>	<i>Històries e conquestes del realme d'Aragó e principat de Catalunya, Llibre de les solemnitats de Barcelona</i>
16th	<i>Libre de Antiquitats, Les Memòries del cavaller valencià Gaspar Antist, Constitucions del convent de Sant Josep, Textos de la Cancelleria Reial (Arxiu del Regne de València), Biografia de Català de Valeriola</i>	<i>Diari de Frederic Despalau, Llibre de les Solemnitats de Barcelona</i>
17th	<i>Notícies de València i son regne</i>	<i>Dietaris de la Generalitat de Catalunya 1674–1689</i>
18th	<i>Memòries de mossén Esplugues, Col·loquis valencians atribuïts a Carles Leon</i>	<i>Calaix de sastre, Memòries d'un pagès del segle XVIII</i>
19th	<i>Ensisam de totes herbes</i>	<i>Lo catalanisme</i>

the inclusion of the 20th century in the study would have introduced a clearly independent variable of the morphome's influence: the impact of the norm, with possible effects especially on the analyzed forms that have not been admitted into the standard language. All the corpus texts belong to the second half of each century in order to capture the evolution of verb forms at the end of each century in plainer sight. We recognize the risk of choosing only the second half of each century, since the velarization process could start a little earlier than what has been documented in our corpus. However, the intention is to observe the overall evolution of verb forms; therefore, we consider the choice of time periods appropriate, since sudden changes would rarely occur half a century apart. For each century we have 180,000 words: 90,000 words correspond to Western Catalan works, and the other half to Eastern Catalan works. We have made this selection to get a balanced representation of the two major Catalan dialects. To obtain more homogeneous data, we have also decided to reduce the number of dialects in the corpus. Thus, most of the Western Catalan texts come from Valencian works, while most of the Eastern Catalan texts belong to Central Catalan. To optimize the verb form extraction, we have used a LATEL application from Pompeu Fabra University (De Yzaguirre 2018). When the corpus data was insufficient, or when it seemed convenient to corroborate the obtained results, we have turned to the *Corpus Informatitzat del Català Antic* (henceforth, *CICA*).

2.2. Statistical analysis

Once the counts have been made, we carried out several chi-square tests with SPSS Statistics (IBM Corp. 2019) in order to elucidate whether the distribution of the non-velarized and



velarized forms (variable ‘velarized’) in relation to the centuries (variable ‘century’) is random. The chi-square test is based on the comparison of the bivariate frequencies obtained from the data (empirical frequencies) with the frequencies that would result if there were no association between the variables ‘velarized’ and ‘century’ (theoretical frequencies). The test produces two indicators: the χ^2 value for a two-variable distribution – non-velarized and velarized forms – in the periods in which the seven centuries are grouped (with three or four degrees of freedom, depending on the table model); and the asymptotic significance (the *P*-value). The *P*-value is evaluated from the threshold of 0.05, as is usual in the social sciences: when the *P*-value is less than 0.05, the probability that the elements have been randomly distributed according to the global frequency between the different groups is lower (less than 5%), in which case we should discard the null hypothesis according to which the variable ‘century’ does not influence the distribution of verb forms and assume that, on the contrary, the distribution of the forms in the different centuries varies significantly. On the other hand, if the *P*-value is greater than 0.05, in other words, if the probability of obtaining the real random distribution is greater than 5%, we will accept the null hypothesis and assume that the verb forms have been distributed with the same criterion in the different centuries. In cases in which the sample is small, we have also carried out a Fisher-Freeman-Halton exact test, which is used to determine whether a statistically significant association exists between two variables. Once it has been checked whether the forms are randomly organized, it is necessary to test the strength of association between the variables. This piece of data is determined by Cramér’s *V*, where the parameter range is 0–1: a weak association is 0.1–0.2; a moderate one, 0.2 to 0.4; a relatively strong one, 0.4 to 0.6; a strong one, 0.6 to 0.8, and a very strong one, 0.8 to 1 (Rea & Parker 1992, 219).

3. RESULTS

3.1. Verbs with a non-velar root-final consonant

In Old Catalan, there was a set of verbs within the second conjugation with a root-final *-u-* [w], such as *beure* ‘to drink’ and *creure* ‘to believe’, or *-l-*, such as *moldre* ‘to grind’ and *toldre* ‘to take away’, which initially had the velar consonant only in the PYTA morpheme, as we show in (1).

- (1) a. Preterite: 3SG.PRT **bibwit* > *bec* >>⁵ *begué* [be'ye]⁶ ‘s/he drank’; 3SG.PRT MOLUIT > *molc* >> *molgué* [mol'ye] ‘s/he ground’
- b. Conditional: 3SG.COND **bibwerat* > *begra* >> *beguera* [be'yera] ‘s/he would drink’; 3SG.COND MOLUERAT > *molgra* >> *molguera* [mol'yera] ‘s/he would grind’

⁵The outcoming forms of regular sound change are placed after the symbol >, while >> corresponds to system-morphological reorganizations due to analogy.

⁶The forms like 3SG.PRT *begué* ‘s/he drank’ and 3SG.COND *beguera* ‘s/he would drink’ are the outcome of an analogical stress shift that the strong perfects and conditional forms of some second conjugation verbs underwent around the 14th century. Specifically, the stress shifted from root to desinence (for more about the change, see Pérez Saldanya 1995, 293; Badal 2021). This analogical change avoided the syncretism between the strong perfects and the velarized forms of the first person of the present indicative. For example, in the case of *beure* ‘to drink’, both the first person of the present indicative and the first and third persons of the preterite would have presented the same form: *bec*. The verbs analyzed in the next section, such as *deure* ‘to owe’ and *valdre* ‘to cost’, underwent the same change.



- c. Imperfect subjunctive: 3SG.IPFV.SBJV *bi'bwiset > *begués* [be'yes] 's/he drank';
3SG.IPFV.SBJV MOLUISSET > *molgués* [mol'yes] 's/he ground'

Regarding the first-person present indicative and the whole present subjunctive, phonetic evolution gave rise to forms with a non-velar root final, such as 1SG.PRS.IND BIBŌ > *beu* ['bew] 'I drink', 1SG.PRS.IND MOLŌ > *mol* ['mɔl] 'I grind', 3SG.PRS.SBJV BIBAT > *beva* ['beva] 's/he drink' and 3SG.PRS.SBJV MOLAT > *mola* ['mɔla] 's/he grind' (see Tables 3 and 4). Consequently, the first and third persons of the present indicative presented syncretism between them: 1SG.PRS.IND *beu* ['bew] vs. 3SG.PRS.IND BIBIT > *beu* ['bew]; 1SG.PRS.IND *mol* ['mɔl] vs. 3SG.PRS.IND MOLIT > *mol* ['mɔl].

Table 3. Evolution from Latin to Catalan of the present indicative and present subjunctive of the verb BIBERE > *beure* 'to drink'

	1sg	2sg	3sg	1pl	2pl	3pl
PRS.IND	BIBŌ > <i>beu</i>	BIBIS > <i>beus</i>	BIBIT > <i>beu</i>	BIBIMUS > <i>bevem</i>	BIBITIS > <i>bevets</i>	*bibent > <i>beven</i>
PRS.SBJV	BIBAM > <i>beva</i>	BIBĀS > <i>beves</i>	BIBAT > <i>beva</i>	BIBĀMUS > <i>bevam</i>	BIBĀTIS > <i>bevats</i>	BIBANT > <i>beven</i>

Table 4. Evolution from Latin to Catalan of the present indicative and present subjunctive of the verb MOLERE > *moldre* 'to grind'

	1sg	2sg	3sg	1pl	2pl	3pl
PRS.IND	MOLŌ > <i>mol</i>	MOLIS > <i>mols</i>	MOLIT > <i>mol</i>	MOLIMUS > <i>molem</i>	MOLITIS > <i>molets</i>	*molent > <i>molen</i>
PRS.SBJV	MOLAM > <i>mola</i>	MOLĀS > <i>moles</i>	MOLAT > <i>mola</i>	MOLĀMUS > <i>molam</i>	MOLĀTIS > <i>molats</i>	MOLANT > <i>molen</i>

In Table 5 we present the L-pattern results together, since there are no remarkable chronological differences between the first person of the present indicative and the present subjunctive. The cross table sets out two variables: the rows contain centuries (some of which are grouped together), while the columns contain the variable 'velarized', with the cases divided into two columns depending on whether they present the velar consonant. In addition, we have split the 13th and 14th centuries since the distribution of the form differs sharply between the two centuries. The percentage distribution between the non-velarized forms (e.g., 1SG.PRS.IND *beu* ['bew] 'I drink', 3SG.PRS.SBJV *mola* ['mɔla] 's/he grind') and the velarized ones (e.g., 1SG.PRS.IND *bec* ['bek] 'I drink', 3SG.PRS.SBJV *molga* ['mɔlja] 's/he grind') varies noticeably over the centuries and there appear to be significant differences in the verb form distribution of this morphomic pattern, according to the test results ($\chi^2_{(4)} = 135.462$, $P < 0.001$, Cramér's $V = 0.831$).

In the 13th century, etymological forms are the most frequent ones (2a). However, velarized forms are already beginning to be documented, although they are in the minority (2b).

- (2) a. dirà al deutor: «jo us *absolv* d'aquel deute» (*Costums de Tortosa*: 195 [13th])
b. per conprar ne per vendre, o a molín que *molga* blat (*Costums de Tortosa*: 215 [13th])



Table 5. Cross table of the L-pattern of verbs with a non-velar root-final consonant

			Velarized	
			Non-velarized	Velarized
Period	13th	Count	38	10
		% within century	79.2%	20.8%
	14th	Count	2	46
		% within century	4.2%	95.8%
	15th	Count	—	13
		% within century	0%	100%
	16th	Count	—	5
		% within century	0%	100%
	17th–19th	Count	—	82
		% within century	0%	100%
Total		Total count	40	156
		Total %	20.4%	79.6%

In the 14th century, a sudden change occurs, since the velarized forms reach 95.8% (3a), while only two occurrences of etymological forms are documented, like the one in (3b). From the 15th century onwards, all the documented forms of this morphomic pattern already have the velar consonant (3c). Therefore, the trend of the previous century is maintained.

- (3)
- a.

yo *crech* e no per mos mèrits, t'ha fet davant mi aparèxer, yo·t prech (*Corbatxo*: 18 [14th])
- b.

E yo *creu* bé assau aver satisfet al que pusqueras aver més en dubte (*Corbatxo*: 69 [14th])
- c.

Duraren les corts *crech* que més de cinch mesos. (*Català de Valeriola*: 141 [16th])

3.2. Verbs with a palatal root-final consonant

Within the Catalan second conjugation, there was another class made up of verbs such as *deure* ‘to owe’ and *valdre* ‘to cost’, which also had a velarized PYTA morpheme, like the set of verbs analyzed in the previous section (4).

- (4)
- a.

Preterite: 3SG.PRT DÉBUI > *dec* >> *degué* [de^lye] ‘s/he owed’; 3SG.PRT VALUI > *valc* >> *valgué* [val^lye] ‘s/he cost’



- b. Conditional: 3SG.COND DĒBUERAT > *degra* >> *deguera* [de'ɣera] 's/he would owe';
3SG.COND VALUERAT > *valgra* >> *valguera* [val'ɣera] 's/he would cost'
- c. Imperfect subjunctive: 3SG.IPFV.SBJV DĒBUISET > *degués* [de'ɣes] 's/he owed';
3SG.IPFV.SBJV VALUISSET > *valgués* [val'ɣes] 's/he cost'

In this class, however, the evolution of the present indicative and present subjunctive differs from the verbs like *beure* 'to drink' or *moldre* 'to grind', in which phonetic evolution had given rise to forms with a non-allomorphic root. Instead, in the verbs dealt with in this section, the L-pattern forms were affected by the yod effect (Maiden 2018, 84). The action of the yod on the preceding consonant gave rise to several root allomorphs (see Tables 6 and 7): some with a root-final post-alveolar, such as the cases of *deure* 'to owe' (1SG.PRS.IND DĒBEŌ > *deig* [ˈdɛtʃ] 'I owe') and *caure* 'to fall' (3SG.PRS.SBJV *ˈkadeat > *caja* [ˈkaɖʒa] 's/he fall'), and others with a root-final palatal lateral, such as *valdre* 'to cost' (1SG.PRS.IND VALEŌ > *vall* [ˈvaɫ] 'I cost') and *soldre* (3SG.PRS.SBJV SOLEAT > *sulla* [ˈsuɫa] 's/he usually do'). On the contrary, the other present indicative forms had a regular root in verbs with a root-final *-l-*, such as *valdre* (3SG.PRS.IND *val* [ˈval] 's/he costs', 1PL.PRS.IND *valem* [vaˈlem]) 'we cost', and in some of the verbs with a root-final *-u-*, such as *deure* (3SG.PRS.IND *deu*, 1PL.PRS.IND *devem* [deˈvem] 'we owe'). In this last set, there are verbs like *caure* in which the fourth, fifth and sixth persons of the present indicative had a root without the root-final *-u-* (or *-v-*): 1PL.PRS.IND *caem* [kaˈem] 'we fall', 2PL.PRS.IND *caets* [kaˈets] 'you fall', 3PL.PRS.IND *caen* [ˈkaen] 'they fall'. All in all, the L-pattern allomorphs avoided the syncretism between the first and third persons of the present indicative: 1SG.PRS.IND *deig* [ˈdɛtʃ] vs. 3SG.PRS.IND *deu* [ˈdew]; 1SG.PRS.IND *vall* [ˈvaɫ] vs. 3SG.PRS.IND *val* [ˈval]. This is the major difference between the present group of verbs and the ones analyzed in the previous section.

Table 6. Evolution from Latin to Catalan of the present indicative and present subjunctive of the verb DĒBERE > *deure* 'to owe' (The forms that constitute the L-pattern are shaded)

	1sg	2sg	3sg	1pl	2pl	3pl
PRS.IND	DĒBEŌ > <i>deig</i>	DĒBĒS > <i>deus</i>	DĒBET > <i>deu</i>	DĒBĒMUS > <i>devem</i>	DĒBĒTIS > <i>devets</i>	DĒBENT > <i>deven</i>
PRS.SBJV	DĒBEAM > <i>deja</i>	DĒBEĀS > <i>degēs</i>	DĒBEAT > <i>deja</i>	DĒBEĀMUS > <i>dejam</i>	DĒBEĀTIS > <i>dejats</i>	DĒBEANT > <i>degen</i>

Table 7. Evolution from Latin to Catalan of the present indicative and present subjunctive of the verb VALĒRE > *valdre* 'to cost' (The forms that constitute the L-pattern are shaded)

	1sg	2sg	3sg	1pl	2pl	3pl
PRS.IND	VALEŌ > <i>vall</i>	VALĒS > <i>vals</i>	VALET > <i>val</i>	VALĒMUS > <i>valem</i>	VALĒTIS > <i>valets</i>	VALENT > <i>valen</i>
PRS.SBJV	VALEAM > <i>valla</i>	VALEĀS > <i>valles</i>	VALEAT > <i>valla</i>	VALEĀMUS > <i>vallam</i>	VALEĀTIS > <i>vallats</i>	VALEANT > <i>vallen</i>

Regarding the corpus results, the percentage distribution between the non-velarized forms (e.g., 1SG.PRS.IND *deig* [ˈdɛtʃ] 'I owe') and the velarized ones (e.g., 1SG.PRS.IND *dec* [ˈdek] 'I owe') of



the first person of the present indicative varies noticeably over the centuries, with the consolidation of the velarized forms at the end of the period (see Table 8). According to the test results, it seems that there are significant differences in the distribution of the first-person present indicative verb forms between centuries ($\chi^2_{(3)} = 23.766, P < 0.001$, Cramér’s $V = 0.836$). Since we have a small sample for this person, we have also carried out a Fisher-Freeman-Halton exact test, which corroborates the chi-square test result ($P < 0.001$).

Table 8. Cross table of the first-person present indicative of verbs with a palatal root-final consonant

			Velarized	
			Non-velarized	Velarized
Period	13th–14th	Count	12	1
		% within century	92.3%	7.7%
	15th	Count	2	8
		% within century	20%	80%
	16th	Count	1	—
		% within century	100%	0%
	17th–19th	Count	—	10
		% within century	0%	100%
Total		Count	15	19
		% within century	44.1%	55.9%

During the first period, the etymological forms (5a) represent 92.3%. Only one velarized case (5b) is documented.

- (5)
- a.

Jo comens –dix ell– allà hon *deig*, car Job no fou jueu, ans fou ben gentil (*Lo somni*: 86 [14th])
- b.

E per so que asò se·n saguescha, devotament prech Aquell del qual so que yo *dech* dir e tot altre bé és proceyt e proceex (*Corbatxo*: 10 [14th])

In the 15th century, the situation is reversed, given that 80% of the documented forms have the velar consonant (6a). Only two etymological cases are attested, like the one in (6b).

- (6)
- a.

E plàcia a la divina Bondat que no vixqua yo en lo món si tal com ell no *dech* ésser. (*Tirant*: 235 [15th])
- b.

Sapiats, reyna, que yo ara *deig* haver batalla ab alguns de mos enemichs (*Històries e conquestes*: 179 [15th])

In the 16th century, only one form is documented in the corpus (7a), which is etymological. Finally, all the extracted forms in the last period present the velar consonant (7b).



- (7) a. Plàcia a nostre Senyor que fasa lo que *deig* ý visca bé a servisi de la divina ý humana magestad (*Català de Valeriola*: 149 [16th])
b. Soc ú y *valc* per tretse, yo done carn, ví y pá, tinc creu, no de Montesa (*Ensisam*: 223 [19th])

According to the corpus data, the velarization process of the first person of the present indicative in verbs like *deure* ‘to owe’ appears to have been completed in the 15th century, even though from the 16th century we have only extracted one form and it is non-velarized. In the *CICA*, in the second half of the 15th century, we document 13 cases of 1SG.PRS.IND *deig* and 61 cases of 1SG.PRS.IND *dec*. The data from the control corpus, like the data for the second half of the 16th century, are scarce, given that only two occurrences are documented, one palatal and one velarized.

Regarding the present subjunctive, the percentage distribution between the non-velarized forms (e.g., 3SG.PRS.SBJV *deja* [ˈdɛdʒa] ‘s/he owe’) and the velarized ones (e.g., 3SG.PRS.SBJV *dega* [ˈdɛɣa] ‘s/he owe’) varies significantly over the centuries, with the velarized forms predominant at the end of the period (see Table 9). The results obtained from the corpus reveal that there are significant differences in the distribution of the present subjunctive verb forms between centuries ($\chi^2_{(3)} = 119.068, P < 0.001$, Cramér’s $V = 0.746$). As in the case of the first-person present indicative, we have carried out a Fisher-Freeman-Halton exact test, which points to a significant association between the variables ‘century’ and ‘velarized’ ($P < 0.001$).

Table 9. Cross table of the present subjunctive of verbs with a palatal root-final consonant

			Velarized	
			Non-velarized	Velarized
Period	13th–14th	Count	129	16
		% within century	89%	11%
	15th	Count	4	5
		% within century	44.4%	55.6%
	16th	Count	9	10
		% within century	47.4%	52.6%
	17th–19th	Count	—	41
		% within century	0%	100%
Total		Count	142	72
		% within century	66.4%	33.6%

In the 13th and 14th centuries, the etymological forms are the majority, given that they constitute 89% (8a). Even so, 11% of the cases already have the velar consonant (8b).

- (8) a. Tu –dix ell–, per mi, d’ací avant no pots molt fer que·m *valla* (*Lo somni*: 52 [14th])
b. lo dit feyt e que *deguen* tenir altra vegada consell (*Xàtiva*: 120 [14th])



In the 15th and 16th centuries, the situation is very similar, given that the velarized forms barely exceed 50% in each century. Also, the forms with the velar (9a) slightly exceed the etymological ones (9b).

- (9) a. axí com de les festes se *dega* recitar (*Sant Josep*: 70 [16th])
 b. seriem de parer que vós, ab tots nosaltres, *dejam* tornar en Catalunya (*Històries e conquestes*: 220 [15th])

It is not until the last period that all the documented forms present the velar consonant, such as the examples in (10).

- (10) a. per a què *deguen* y regoneguen si seria ab tots los requisits necessaris (*Dietaris Gen. Cat.*: 478 [17th])
 b. y tenen propietats que *valguin* més de vint mil pessetas (*Lo catalanisme*: 271 [19th])

According to the corpus data, it seems that the velarized forms are just as frequent as the etymological ones in the 15th and 16th centuries; in fact, the velarization process is not consolidated until the last period. The *CICA* data partially confirm the chronology of our corpus. We have carried out a search for first- and third-person forms of *deure* ‘to owe’, given that it is the most frequent verb in the group. In the 15th century, 25 forms of 1SG/3SG.PRS.SBJV *deja* are documented, while 40 cases of 1SG/3SG.PRS.SBJV *dega* are attested. Therefore, we can observe a certain prevalence of velarized forms, which is not yet statistically significant. In the 16th century, however, the situation changes significantly, given that we document 36 cases of *dega* and only 8 of *deja*. It seems, then, that the velarization process of the present subjunctive is almost consolidated in the 16th century, since the velarized forms constitute more than 80% of the cases.

4. THE REANALYSIS OF THE VELAR CONSONANT AS A VERB CLASS MARKER: AN EXAPTATION PROCESS

The change in the function of the velar within the Catalan second conjugation seems to follow the typical pattern of what is known as exaptation. Lass was the first to introduce the notion of exaptation into linguistics from evolutionary biology (Gould & Vrba 1982). He suggested using the term metaphorically to deal with a number of changes that occur at the margins of linguistic systems. According to Lass (1990, 82), when a form loses its function or it is only marginal within a linguistic system, there are three possibilities: (i) it can be lost; (ii) it can be preserved as a marginal or non-functional form (suppletion, irregularity); or (iii) it can be maintained, but instead of being relegated, it becomes reused with another function, which can be equally systematic.

The third option, the recycling of non-functional morphological material that achieves a new functional status, is what constitutes exaptation in linguistic change. In a more recent work, Wall & Octavio de Toledo (2016, 343–344) propose restricting the notion of exaptation to linguistic changes in which some form or structure develops an unexpected new function, in



the sense that it deviates from a typically observed pattern of advanced grammaticalization. These authors emphasize that changes of this sort need a name within a theory of linguistic change, since they are much more frequent than is assumed. Accordingly, gathering them under the category of exaptation would help to identify the set of changes that do not fit the description of prototypical grammaticalization processes.

Considering the aforementioned points, exaptation could be viewed as a modality of reanalysis not predictable by grammar. According to Harris & Campbell (1995, 61), reanalysis is a “mechanism which changes the underlying structure of a syntactic pattern and which does not involve any immediate or intrinsic modification of its surface manifestation”. In the case of the velar exaptation, there is reanalysis, since a word constituent assumes a different function, associated with a different position within the word hierarchy: from being an inflection marker with a perfect semantic value and occupying a more external position, it becomes a verb class marker without the perfect value and goes on to occupy a more internal position (11). In the example of the verb *beure* ‘to drink’, we illustrate the word hierarchy of the Old Catalan strong form of the third person of the preterite, 3SG.PRT *bec* [ˈbek] ‘s/he drank’, and we compare it with the weak form 3SG.PRT *begué* [beˈɣe] ‘s/he drank’. In this representation, the velar in *bec* occupies an external position in the word structure, linked to inflection (tense, aspect, and mood), while in *begué* the velar occupies a more internal position, functioning as a thematic extension of the root.

- (11) a. Structure of 3SG.PRT *bec*: [((((([be]_{root}) + $\emptyset$ _{theme}) + *c*_{TAM}) + $\emptyset$ _{PN})]
 b. Structure of 3SG.PRT *begué*: [((((([be]_{root}) + *gu* + *é*_{theme}) + $\emptyset$ _{TAM}) + $\emptyset$ _{PN})]

This reanalysis could only occur due to the loss of the perfect value associated with the velar consonant. Pérez Saldanya proposes one of the key points that made possible the velar spread to imperfective forms (1995, 285): the semantic value of the velar and the morphological marking of aspectual distinctions began to blur when the periphrasis with HABEO / SUM + participle assumed the value of the old synthetic forms in *-ra* and *-s*. In this way, the indicative pluperfect (e.g., 3SG.PLPF.IND DÉBUERAT > *degra* >> *deguera* ‘s/he would owe’) began to lose its perfect value and became a conditional towards the 14th century. At the same time, the pluperfect subjunctive (e.g., 3SG.PLPF.SBJV DÉBUISSET > *degués* ‘s/he owed’) also began to lose its perfect value and started to behave as an imperfect subjunctive. The loss of the perfect value of the velar consonant made possible its analogical spread to imperfective forms, that is, the present indicative (e.g., 1SG.PRS.IND *deig* >> *dec* ‘I owe’) and the present subjunctive (e.g., 3SG.PRS.SBJV *deja* >> *dega* ‘s/he owe’). This extension was favored by the existence, as already mentioned in §1, of a set of verbs such as *dir* ‘to say’ that initially had the velar consonant in L-pattern forms.

In short, the velar spread from perfective to imperfective forms seems to be an exaptation process, since an element that initially had a perfect semantic value ended up being reanalyzed as a verb class marker. In addition, the resulting velar alternants made it possible to establish a formal difference between the first and third persons in the present indicative. For this very reason, in some dialects such as Valencian and Balearic, the velar has become an inflectional mark of the first-person present indicative (cf. Alcover & Moll 1929–1932; Wheeler 1986, 3–4; Pérez Saldanya 1995, 294–295; Mari Tur 2017; Badal 2021).



5. CONCLUSIONS

It seems that, according to our corpus data, homophony avoidance can accelerate linguistic change. In the terms of [Blevins & Wedel \(2009, 155–158\)](#), however, the velarization of the first person of the present indicative is not a pure homophony avoidance process, but rather an impure one, since analogy plays a clear role in the adoption of the velar consonant. In the first verb class, which displays syncretism between the first and third persons of the present indicative, the velarization of the L-pattern was already consolidated in the 14th century. By contrast, the L-pattern velarization was completed only two centuries later in the second class, in which palatal roots enabled the avoidance of such syncretism.

Specifically, in the class of *beure* ‘to drink’, the adoption of the velar helped to solve the homophony problem between the first and third persons of the present indicative: 1SG.PRS.IND *beu* >> *bec* [ˈbek] ‘I drink’ vs. 3SG.PRS.IND *beu* [ˈbew] ‘s/he drinks’. From here, in accordance with the class-stability principle ([Wurzel 1987](#)), the introduction of the velar in the first person of the present indicative entailed the velarization of the whole present subjunctive, owing to the implicative relationship established between these forms ([Bybee 1985, 68–74](#)). Following this association, when the first person of the present indicative presents a specific root, the allomorph reappears in the whole of the present subjunctive ([Pérez Saldanya, Sifre Gómez & Todolí i Cervera 2004, 97](#)). The velarization of the L-pattern of this group of verbs is also an example of the attraction force of morphomic patterns ([Maiden 2018, 311](#)), since a paradigm that, etymologically, was regular, became irregular because of the adoption of /g/ in the L-pattern cells. This contradicts Manczak’s second hypothesis about analogical change ([1958, 301](#)), according to which root alternation is more often abolished than introduced.

In verbs like *deure* ‘to owe’ or *valdre* ‘to cost’, which did not present syncretism between the first and third persons of the present indicative, the velar spread in the L-pattern occurs a little later. In this class, the adoption of the velar in the first person of the present indicative was consolidated in the 15th century, while the velarization of the present subjunctive was completed a century later. The earliest velarization of the first person with respect to the present subjunctive could indicate that the velar was already associated to the category ‘first-person present indicative’ by the 15th century. Since the root-final palatal avoided the syncretism in these verbs (e.g., 1SG.PRS.IND *deig* [ˈdɛtʃ] ‘I owe’ vs. 3SG.PRS.IND *deu* [ˈdew] ‘s/he owes’), the velarization of the L-pattern in this verb class could have been favored by the uniformity principle ([Mayerthaler 1987](#)): the spread of the velar from PYTA to the L-pattern meant the elimination of the palatal roots, which homogenized the class inflectional paradigm.

The system iconicity ([Mayerthaler 1981, 23](#)) was also improved in the two verb classes after the velarization process. In verbs with a root-final *-u-* [w], the iconicity improvement was minimal, since the first person ended up differing from the third only by an alteration of the final segment: 1SG.PRS.IND *bec* [ˈbek] ‘I drink’ vs. 3SG.PRS.IND *beu* [ˈbew] ‘s/he drinks’. On the other hand, verbs with a root-final *-l-* reached the maximum of iconicity, since the first person was obtained by adding the velar consonant to the third person: *mol* + /g/ = *molc*.

In sum, the changes described in the present study indicate that homophony avoidance can play an overt role in grammar. The velar element, once deprived of its original perfect value, was reanalyzed as a verb class marker, and extended from perfective to imperfective forms. There was therefore a coalescence process between both morphemes ([Maiden 2018, 292](#)), because verbs that initially had the velar in the PYTA morpheme extended it to the L-pattern;



consequently, a new verb class was created within the Catalan second conjugation, characterized by the presence of the velar in both morphomic patterns. Furthermore, we consider the velar spreading to the L-pattern as an exaptation case. As noted above, the velar consonant initially appeared only in PYTA tenses in the two classes under scrutiny. Once the velar lost the original perfect value, however, it could be extended analogically from the tenses coming from Latin *perfectum* towards imperfective tenses such as the present indicative and present subjunctive. The velar consonant, which was originally a perfect marker, ended up being reanalyzed as a verb class marker and made it possible to establish a formal difference between the first and third persons of the present indicative.

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REFERENCES

- Alcover, Antoni Maria and Francesc de Borja Moll. 1929–1932. La flexió verbal en els dialectes catalans. Anuari de l'Oficina Romànica de Lingüística i Literatura II (1929, 73–184); III (1930, 73–168); IV (1931, 9–104); V (1932, 9–72).
- Aronoff, Mark. 1994. Morphology by itself: Stems and inflectional classes. Cambridge, MA: MIT Press.
- Badal, Manuel. 2021. Morfologia verbal catalana: Anàlisi diacrònica dels verbs velaritzats. Doctoral dissertation. Universitat de València, Valencia.
- Baerman, Matthew. 2011. Defectiveness and homophony avoidance. *Journal of Linguistics* 47(1). 1–29.
- Blevins, Juliette and Andrew Wedel. 2009. Inhibited sound change. *Diachronica* 26(2). 143–183.
- Bybee, Joan. 1985. Morphology: A study of the relation between meaning and form. Amsterdam: John Benjamins Publishing Company.
- Campbell, Lyle. 1996. On sound change and challenges to regularity. In M. Durie and M. Ross (eds.) *The comparative method reviewed: Regularity and irregularity in language change*. Oxford: Oxford University Press. 72–89.
- Campbell, Lyle and Jon Ringen. 1981. Teleology and the explanation of sound change. In W. U. Dressler, O. E. Pfeiffer and J. R. Rennison (eds.) *Phonologica*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft. 57–68.
- CICA = Torruella, Joan, Manuel Pérez Saldanya and Josep Martines (eds.). 2006. *Corpus Informatitzat del Català Antic*. <http://www.cica.cat/>.
- Coromines, Joan. 1971. *Lleures i converses d'un filòleg*. Barcelona: Club Editor.



- De Yzaguirre, Lluís. 2018. Badal = Banc Analític d'Antigalles Lèxiques. Barcelona: Universitat Pompeu Fabra. <http://latel.upf.edu/cgi-bin/badal.cgi>.
- Fabra, Pompeu. 1913. Normes ortogràfiques. Barcelona: Institut d'Estudis Catalans.
- Fabra, Pompeu. 1918. Gramàtica catalana. Barcelona: Institut d'Estudis Catalans.
- Fabra, Pompeu. 1932. Diccionari general de la llengua catalana. Barcelona: Llibreria Catalònia.
- Garrett, Andrew. 2008. Paradigmatic uniformity and markedness. In J. Good (ed.) *Explaining linguistic universals: Historical convergence and universal grammar*. Oxford: Oxford University Press. 125–143.
- Gilliéron, Jules. 1918. *Généalogie des mots qui designent l'abeille d'après l'ALF*. Paris: Champion.
- Gould, Stephen Jay and Elisabeth S. Vrba. 1982. Exaptation—A missing term in the science of form. *Paleobiology* 8(1). 4–15.
- Harris, Alice C. and Lyle Campbell. 1995. *Historical syntax in cross-linguistic perspective*. Cambridge: Cambridge University Press.
- Herce, Borja. 2022. Stress and stem allomorphy in the romance perfectum: Emergence, typology, and motivations of a symbiotic relation. *Linguistics* 60(4). 1103–1147.
- IBM Corp. 2019. IBM SPSS statistics for Windows (26.0). Armonk, NY: IBM Corp.
- King, Robert D. 1967. Functional load and sound change. *Language* 43(4). 831–852.
- Lass, Roger. 1980. *On explaining language change*. Cambridge: Cambridge University Press.
- Lass, Roger. 1990. How to do things with junk: Exaptation in language evolution. *Journal of Linguistics* 26(1). 79–102.
- Maiden, Martin. 2018. *The romance verb: Morphomic structure and diachrony*. Oxford: Oxford University Press.
- Manczak, Witold. 1958. Tendances générales des changements analogiques. *Lingua* 7. 298–325.
- Marí Tur, Roser. 2017. *El segment velar en la flexió verbal de l'eivissenc: Anàlisi de la variació distribucional, geogràfica i generacional*. Doctoral dissertation. University of Barcelona, Barcelona.
- Martinet, André. 1955. *Economie des changements phonétiques*. Bern: Francke.
- Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit*. Wiesbaden: Athenaion.
- Mayerthaler, Willi. 1987. System-independent morphological naturalness. In W. U. Dressler, W. Mayerthaler, O. Panagl and W. U. Wurzel (eds.) *Leitmotifs in natural morphology*. Amsterdam: John Benjamins Publishing Company. 25–58.
- Menéndez Pidal, Ramón. 1985 [1st edn. 1904]. *Manual de gramática histórica española*. Madrid: Espasa-Calpe.
- Meyer-Lübke, Wilhelm. 1895. *Grammaire des langues romanes*, Vol. 2. Paris: Welter.
- Pérez Saldanya, Manuel. 1995. Analogia i canvi morfològic: A propòsit de les formes verbals velaritzades. *Caplletra* 19. 279–305.
- Pérez Saldanya, Manuel. 1998. *Del llatí al català: Morfosintaxi verbal històrica*. Valencia: University of Valencia.
- Pérez Saldanya, Manuel, Manuel Sifre Gómez and Júlia Todolí i Cervera. 2004. *Morfologia catalana*. Barcelona: Editorial UOC.
- Rea, Louis M. and Richard A. Parker. 1992. *Designing and conducting survey research: A comprehensive guide*. San Francisco, CA: Jossey-Bass.
- Ronjat, Jules. 1937. *Grammaire istorique des parlers provençaux modernes*, Vol. 3. Montpellier: Société des Langues Romanes.
- Sampson, Geoffrey. 2013. A counterexample to homophony avoidance. *Diachronica* 30(4). 579–591.
- Wall, Albert and Álvaro S. Octavio de Toledo y Huerta. 2016. Exploring and recycling. In M. Norde and F. Van de Velde (eds.) *Exaptation and language change*. Amsterdam: John Benjamins Publishing Company. 341–375.



- Wheeler, Max W. 1986. Analogy and psychology: Morphological change in Balearic Catalan. Sheffield Working Papers in Language and Linguistics 3. 1–16.
- Wheeler, Max W. 1993. On the hierarchy of naturalness principles in inflectional morphology. *Journal of Linguistics* 29(1). 95–111.
- Wheeler, Max W. 2011. The evolution of a morpheme in Catalan verb inflection. In M. Maiden, J. C. Smith, M. Goldbach and M. O. Hinzelin (eds.) *Morphological autonomy: Perspectives from romance inflectional morphology*. Oxford: Oxford University Press. 182–209.
- Wurzel, Wolfgang U. 1987. System-dependent morphological naturalness in inflection. In W. U. Dressler, W. Mayerthaler, O. Panagl & W. U. Wurzel (eds.) *Leitmotifs in Natural Morphology*. Amsterdam: John Benjamins Publishing Company. 59–96.