The rise and fall of proclisis in Old Spanish postprepositional infinitival clauses: a quantitative approach

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Abstract

The diachronic trajectory of weak pronoun placement in infinitival clauses that follow a preposition has the up-and-down profile of what Gertjan Postma has termed a 'failed change'. Proclitic placement increases in frequency throughout the late Middle Ages but then declines, disappearing altogether in the early modern period. The present article reports the results of a detailed quantitative survey which tracks this diachronic event for approximately 350 years at the decadal level. The findings reveal with some precision the quantitative curve described by this failed change and enable a number of hypotheses to be constructed in relation to the event's nature, as well as its place within developments in the infinitival subsystem overall. In addition, the case study presented here suggests that failed changes are not necessarily capable of being modelled as a single Hubbert curve, as Postma proposes. Instead, a model involving two independent but abutting S-curves may be more appropriate.

Resumen

La trayectoria diacrónica de la colocación de los pronombres átonos en las oraciones de infinitivo que siguen a una preposición tiene el perfil pendular de lo que ha denominado Gertjan Postma un 'cambio fracasado'. La frecuencia de la proclisis aumenta durante la Edad Media tardía pero después disminuye para desaparecer por completo a principios de la época moderna. El artículo actual presenta los resultados de un detallado estudio cuantitativo que sigue este suceso diacrónico a nivel de década durante aproximadamente 350 años. Los resultados revelan con precisión la correspondiente curva cuantitativa y facilitan la postulación de hipótesis sobre la naturaleza de este suceso, y sobre su relación con otros acontecimientos dentro del subsistema del infinitivo. Por otra parte, el caso examinado aquí sugiere que no todos los cambios fracasados describen una curva Hubbert, como propone Postma. Por lo contrario, un modelo con dos curvas en S independientes pero colindantes puede ser más apropiado.

Introduction

The placement of weak object pronouns, or 'clitic linearization', in relation to the verb is an important variable in the history of Spanish. Initially, Old Spanish main clauses can be grouped with infinitival clauses, in that both proclisis (immediate preverbal placement) and enclisis (immediate postverbal placement) may be found in the two contexts.¹ This is illustrated in the medieval examples (1) to (4) below.

Proclisis

- (1) Et por ende <u>le dixieron</u> este sobre nombre don Sancho el gordo.
 'And so they gave him this sobriquet don Sancho the Fat.'
 (Estoria de España II; Escorial X-I-4, copied 1284–1347)
- (2) quisol toller ell Jmperio por <u>Io dar</u> a Eucherio su fijo
 'He tried to take the empire from him to give it to Eucherius his son.'
 (Cánones de Albateni; Paris: Arsenal 8322, copied 1290–1300)

Enclisis

- (3) Et <u>dieron les</u> a partir en vna heredat.
 'And they allowed them to share in an inheritance.'
 (*Libro de los fueros de Castilla*; BNE MSS/431, copied 1301–1400)
- (4) o usen en <u>dar les</u> las moscas e las abeias
 'or the practice should be followed of giving them flies and bees'
 (*Libro de las animalias que cazan*; BNE RES/270, copied 1250)

In contrast, finite subordinate clauses have near obligatory proclisis from the earliest documented period. As Bouzouita (2009: 6) observes, 'preverbal

¹ However, structural factors determining clitic placement across the two contexts appear to be non-identical. Wanner (1991), for example, argues that Tobler-Mussafia is operative in main clauses but not in infinitivals.

placement is found almost without exception in the presence of a preceding complementizer, relative pronoun, or subordinating conjunction' (see also Fontana 1993; Castillo Lluch 1996; Granberg 1988; and Nieuwenhuijsen 2006). An illustration is given in (5) below.

(5) Et enuiaron le pedir que <u>les diesse</u> cada anno.L. donzellas de las mas fijas dalgo
'And envoys were sent to request that he give them each year 50 young women of the highest birth'
(Estoria de España II; Escorial X-I-4, copied 1284–1347)

Modern Spanish has categorical proclisis in all finite clauses, other than positive imperatives, and categorical enclisis in non-finite clauses. This situation results in part from a progressive increase in proclisis in finite main clauses (for details of which, see the authors listed above). According to Bouzouita (2008, sections 5 and 6), this increase initially affected imperatives as well, but it was subsequently reversed in the case of positive imperatives. Somewhat analogously, proclisis in an important subset of infinitival clauses, viz. those that are introduced by a preposition,² increased markedly in the late medieval period before declining and then disappearing. It is this up-and-down event, or 'failed change' (Postma 2010), which constitutes the focus of the present paper.

Davies (1997), Castillo Lluch (2001), Nieuwenhuijsen (2006) and Wanner (2006) have adduced some relatively coarse-grained quantitative data in relation to the event in question. However, the data points in those surveys are too widely spaced (usually at intervals of a century or more) to permit detailed analysis. The present paper reports findings based on a very large corpus (over 17 million words, drawn from 194 prose texts), with data points located at decadal intervals. The volume of tokens collected (nearly 25,000 for the affirmative context alone), together with their arrangement by decade, enables a fine-grained quantitative picture to be constructed, on the basis of which a more far-reaching analysis can be made of this event than has previously been possible.

Among other things, the findings presented here constitute a robust test of the theory of failed changes advanced by Postma (2010). According to that author, a

² This may be either an adjunct-introducing preposition, such as *para* 'in order to' or *sin* 'without', or it may be a complementizing preposition such as *de* 'of/from' or *a* 'to'.

failed change can be modelled mathematically as a rising logistic curve *S* multiplied by the falling curve 1 - S, the product being the symmetric Hubbert curve. The present paper gives reliable estimates of the slope parameters for the rise and for the decline of proclisis in the context examined. These estimates suggest that the factors involved in a failed change need not interact in the manner proposed by Postma.

The findings also indicate that the cumulative increase in the rate of proclisis in the context examined, occurring in tandem with the general shift towards proclisis in the finite system, led to a reanalysis in the late fourteenth century whereby postprepositional infinitival clauses lost the verb movement operation responsible for enclisis. As part of this reanalysis, we see a unification, as regards clitic linearization, of affirmative postprepositional infinitival clauses and the corresponding negative ones. Prior to this unification, the two types of clause appear to constitute separate contexts for clitic linearization.

As regards the decline of proclisis in the context examined, this occurs as part of a more general decline in the string 'Cl + V_{INF} ' (i.e. clitic immediately followed by an infinitive), which affects not just the postprepositional context but also the postverbal one. The proposal advanced below is that the principal driver of this decline is the evacuation of the 'medial' clitic position in 'V . . . V_{INF} ' configurations, which in Old Spanish constitute the most productive context for tokens in which a clitic construes with an infinitive.

Finally, the survey compares proclisis in the non-finite postprepositional context with interpolation in the same context. Interpolation, illustrated in (6) below, arises if the preverbal clitic is separated from its anchoring verb by an item such as the negation marker no(n) or a short adverb or subject expression (see Chenery 1905; Ramsden 1963; Rivero 1991; Castillo Lluch 1996; Matute Martínez 2004 and Poole 2013 among others).

(6) estas çibdades [...] perdieron se despues por <u>las non poder</u> mantener 'those cities were subsequently lost due to their being unable to be maintained' (*Crónica de 1344 I*; Biblio. Francisco de Zabálburu y Basabe 11–109, copied 1401–50) Our data reveal a statistical correlation between proclisis and interpolation in the relevant context, which appears to be attributable to sociolinguistic factors rather than structural ones.

The paper is organized as follows. Section 1 spells out the relevant details of the survey. Section 2 summarizes the principal findings. Section 3 contains the analysis of the findings; and concluding remarks follow.

1. Details of the survey

The corpus for the present study is structured by decade, beginning in the 1260s and ending in 1610. The texts have been assigned to decades on the basis of PhiloBiblon,³ which specifies the date of copy of the manuscripts used in the corpus. In a number of cases, a given text is assigned to two or more adjacent decades. In such cases the data from the text are aggregated on a weighted basis, e.g. 50% if assigned to two decades or 33.33% if assigned to three. The source of the texts, together with the electronic searching platform employed, is the Corpus del Español, with 100 million words derived from the 1200s to the 1900s (Davies 2002). (For the medieval and early modern periods, that corpus draws primarily on the electronic texts and concordances of the Madison corpus of early Spanish manuscripts and printings, the Archivo digital de manuscritos y textos españoles and the Biblioteca virtual Miguel de Cervantes.) Verse texts have been deliberately excluded, as have texts which PhiloBiblon classifies as being written in non-Castilian dialects (e.g. Aragonese or Navarrese). A complete list of the texts included in the corpus is given as Appendix B.

As regards the variables examined, these are listed in Table 1 below, where 'P' is any of *por*, *para*, *pora* 'for/in order to', *en* 'in/by', *a* 'to', *de* 'of/from', *sin* 'without' or *con* 'with'; and ' α ' is the element inserted between the clitic and the infinitive in a (nonfinite) interpolation structure. Notice that the searches do not constrain the item that precedes 'P', which means that tokens involving composite forms such as *por a* (equivalent to *pora/para*) or *por tal de*, *por menos de* etc. will be automatically collected by the search strings corresponding to the simple prepositions *a* and *de*.

³ Available at: <http://bancroft.berkeley.edu/philobiblon/>.

Variable	Positive token	Negative token
1. Proclisis in affirmative postprepositional infinitivals	'P + clitic ^a + infinitive'	'P + infinitive + clitic' ^b
 Proclisis in negative postprepositional infinitivals 	'P + <i>no</i> (<i>n</i>) + clitic + infinitive'	'P + <i>no</i> (<i>n</i>) + infinitive + clitic'
3. (Nonfinite) interpolation	'P + clitic + α + infinitive'	'P + α + clitic + infinitive'

Table 1. Variables examined and the surface strings counting aspositive/negative tokens

Notes

- a 'Clitic' is either a single weak pronoun or an array thereof. Furthermore, it may be orthographically attached to the end of P (*porle, poral, enle, alo, delos,* etc.) or to the end of the infinitive (*fazerlo, decirles,* etc.), the latter practice becoming normative in the sixteenth century.
- a Obviously enough, this string does not include cases in which the clitic construes with a verb to its right rather than with the infinitive to its left. The same applies to the negative string immediately below this one in the table.

Concerning ' α ', it is practically impossible to anticipate all the forms that could appear in this context. In the present survey, ' α ' has been defined as any of the following: (i) a negation marker, (ii) a short adverb (e.g. *bien* 'well', *luego* 'then', *assi* [and orthographical variants] 'thus'), (iii) a quantifier, (iv) a demonstrative pronoun and (v) a subject pronoun. This captures the vast majority of instances of nonfinite interpolation, bearing in mind that Spanish grammar is quite restrictive as regards the material that can intervene between a preposition and a following infinitive.

2. Findings

The main findings are shown in Figures 1 to 3 below, which plot the numerical data given in Tables 3 to 5 in Appendix A. As is customary, the rates of occurrence of the structures under scrutiny are expressed as percentages, calculated in each case by dividing the quantity of the positive tokens of the relevant variable by the sum of the positive and negative tokens. This normalizes the occurrence rate of

each structure examined to the rate of occurrence of the contexts in which the structure can actually occur.

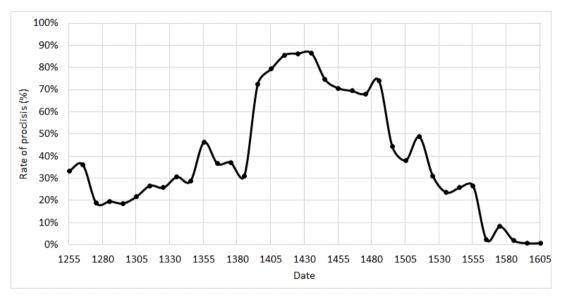
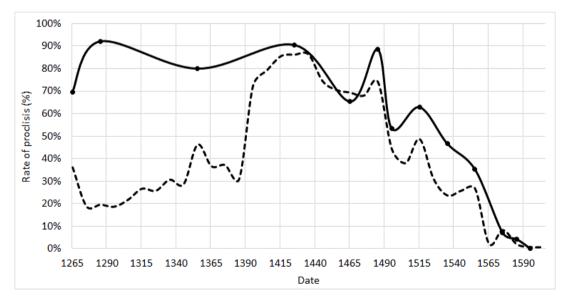


Figure 1. Proclisis in affirmative postprepositional infinitival clauses (N = 24,744)

Figure 2. Proclisis in negative postprepositional infinitival clauses (N = 837; dashed line shows proclisis in affirmative clauses for comparison)



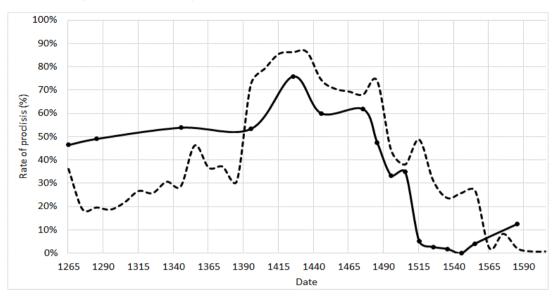


Figure 3. Interpolation in postprepositional infinitival clauses (N = 1007; dashed line shows proclisis for comparison)

3. Analysis of findings

3.1. Inherent or accidental failure?

Figure 1 indicates that the swing towards proclisis in postprepositional infinitivals peaked in the fourth decade of the fifteenth century, with a maximum rate of 86.4% (see Table 3, Appendix A). Despite this very robust degree of temporary success, the change ultimately fails, with the rate of proclisis declining to below 0.6% in the final decade of the sixteenth century. While it lasts, however, the increase in proclisis in this non-finite environment is paralleled by the shift towards proclisis that occurs in finite clauses. In the latter context, Bouzouita (2008) finds that proclisis goes from 25% (507/2026) in the thirteenth century to 32% (140/438) in the fourteenth, and then 83% (252/302) in the sixteenth. Ultimately, of course, the shift towards proclisis in finite clauses (other than imperatives) is successful, in the sense that it is not subsequently reversed. The failed change in postprepositional infinitivals is thus 'flanked', to use Postma's term (2010: 285), by a successful change in the finite system.

Now Postma models the relationship between a failed change and the flanking successful change by the equation $F = S \times (1 - S)'$, where F is the failed change

and *S* is the flanking successful change, understood as describing a logistic Scurve. In the logistic model, the formula ' $S \times (1 - S)$ ' in fact delivers a special bellcurve known as the Hubbert curve (Postma 2010: 286). Crucially, the Hubbert curve is symmetric, which for Postma is a direct consequence of his postulate that failed changes represent 'the superposition of two successful changes with equal actuation parameters [...] and equal slope parameters'. It is this latter assumption which, as he himself puts it, 'causes the peak curve of the failed change to be symmetric' (2010: 286).

An important question that arises in relation to the present study is whether the curve described by the failed swing towards proclisis in postprepositional infinitival clauses (i.e., the curve in Figure 1) exhibits the symmetry that is predicted by Postma's model. As was noted above, the peak of this curve occurs in the fourth decade of the fifteenth century, i.e. at data point 1435. Therefore, under the symmetry hypothesis, the upward gradient of the curve to the left of 1435 should be equal to the downward gradient of the curve to the right of that data point. We can in fact estimate the gradients of these two portions of the overall curve with some degree of confidence, by carrying out two separate logistic regression analyses, one for the upward portion and one for the downward portion. This returns two separate slope parameters, which can be compared to see whether they are approximately equal (but with differing polarity). It turns out that the slope parameter for the upward curve (1275 to 1435) is 0.0223 logits per year, while the slope parameter for the downward curve (1435 to 1605) is -0.0301 logits per year (the logistic fit for the downward curve is shown in Figure 4, as part of the discussion in section 3.3 below). This implies that the curve corresponding to the decline in proclisis is steeper than the curve corresponding to the increase by a factor of 34.98%, which clearly represents a significant difference. The diachronic evolution of proclisis in the failing context should thus be seen as having an asymmetric profile, a finding which is at variance with Postma's hypothesis that failed changes describe a symmetric, Hubbert curve.

Our finding is in fact rather more consonant with the 'accidental failure model' briefly mentioned by Postma (2010: 287) in response to a personal communication from Tony Kroch. In the accidental failure model, the factor underlying the rise of the failed innovation and the factor underlying its ultimate decline do not directly interact, or at least their interaction cannot be modelled

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algebraically by the formula $S \times (S - 1)$. There is thus no expectation that the failed change will describe a single, symmetric curve. Indeed, the accidental failure model implicitly references two separate but abutting S-curves, exactly as appear to characterize the rise and fall of proclisis in the context examined here.

3.2. The upward curve in more detail

The rising portion of the curve in Figure 1 has two rather distinct phases, viz. (i) a gradual increase in the rate of proclisis from the late thirteenth to the late fourteenth centuries and (ii) a sharp acceleration in the rate of increase in the 1390s followed by two further decades of relatively steep increase. As was discussed in the previous section, it seems likely that the overall increase in proclisis in the context under consideration is part of a general drift towards proclisis that also affects finite clauses.⁴ On the other hand, the step change in the rate of the growth of proclisis that we see in phase (ii) suggests that, once sufficient tokens of proclisis had built up in the primary linguistic data available to learners, structural reanalysis occurred.

Further evidence of a reanalysis comes from the comparison shown in Figure 2 between the rates of proclisis in negative and affirmative postprepositional infinitival clauses. From the perspective of modern Spanish, where negative and affirmative instances of this clause type represent a single context for clitic linearization (enclisis being the only available pattern), a plausible expectation would be that variation in Old Spanish should be manifested in approximately equal measure across the negative and affirmative subcontexts. According to Figure 2, however, this is not the case prior to the large increase in the rate of proclisis that occurs at the end of the fourteenth century, because the two curves showing the rates of proclisis in the negative and affirmative subcontexts initially diverge quite noticeably (both in absolute terms in and in terms of their gradient at any given time). This clear separation suggests, in fact, that before the large increase, bare prepositions and negative variants of a single underlying context. In

⁴ Wanner (1991: 369; 2006: 148–49) attributes the increase in proclisis in postprepositional infinitivals to analogy. Given the system-wide increase in proclisis alluded to in the text, the invocation of analogy in specific contexts is arguably redundant.

contrast, once the large increase in the rate of proclisis has taken place, the two curves in Figure 2 largely converge.

Mathematically, there is actually a very strong relationship between the ten post-fourteenth-century values plotted on the negative curve (corresponding to the ten values contained in the two rightmost columns in Table 4, Appendix A) and the values for the equivalent data points on the affirmative curve. The Pearson correlation coefficient for the two sets of values is 0.968 (p-value < 0.0001), which points to a high degree of co-dependence (a coefficient of 1 expresses a perfect correlation and 0 implies there is no correlation at all). From the quantitative point of view, then, affirmative and negative postprepositional infinitivals behave like a single context for clitic linearization after the 1390s, whereas before that decade they behave like two separate contexts. The convergent behaviour after the 1390s would be consistent with the assumption that the step change in the growth of proclisis that occurs in the 1390s reflects a structural realignment, consequent upon a reanalysis.

To envisage what such a reanalysis would involve, consideration needs to be given to the underlying syntactic operations that deliver enclisis and proclisis. Adopting the approach of Wanner (1991), Fontana (1993), Rivero (1993), Benincà (2006) and many others, the assumption here is that the clitic occupies a fixed position, with enclisis arising when the verb moves to a structural position to the clitic's left and proclisis being manifested in the absence of such movement. Obligatory (or near obligatory) proclisis in Old Spanish finite subordinate clauses thus diagnoses the existence of a constraint preventing verb movement across the clitic. The reanalysis postulated would consist in learners (generally but not universally) inferring from the primary linguistic data that the same constraint was operative in postprepositional infinitival clauses, both affirmative and negative. In effecting such a reanalysis, learners may well have been influenced not just by the build-up of proclitic tokens in the primary linguistic data, but also by the sense of an analogy between the preposition introducing the relevant infinitival clauses and the complementizer or other subordinating element that introduces finite subordinate clauses (cf. Wanner 1991: 369).

The fact that enclisis is never fully obliterated in the postprepositional context even after the proposed reanalysis is simply a reflection of the fact that events elsewhere in the system caused the increase in proclisis to go into reverse in the 1430s. Had this turnaround not occurred (a likely cause is discussed in 3.3 below),

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there is no reason to suppose that the shift towards proclisis in postprepositional infinitivals would not eventually have reached completion, resulting in the complete eradication of enclisis in this environment (precisely that outcome is of course observable in modern French).

Turning now to the interpolation data, a comparison between the two curves in Figure 3 indicates that the diachronic trajectory of interpolation in post prepositional infinitivals replicates to a certain extent the trajectory of proclisis in the same environment. Thus both phenomena show a gradual increase in frequency from approximately the late thirteenth to the late fourteenth centuries, followed by a more rapid increase, which peaks in or around the 1430s, and then a steady decline into the late sixteenth century. Moreover the Pearson correlation coefficient for the two data series from 1285 onwards is a respectable 0.697 (pvalue: 0.0032).

On the other hand, there is no obvious syntactic reason why interpolation should track proclisis in this way. Clearly, both can only occur if the verb does not move to the clitic's left, but beyond that they are independent variables from the strictly syntactic point of view. Thus it would be entirely unsurprising, from the strictly linguistic point of view, if the rate of interpolation remained unchanged when the rate of proclisis rose or fell.⁵ This suggests that the explanation for the observed correlation between the respective rates for these two phenomena may in fact be non-structural; that is, it may be sociolinguistic, a situation which would be consonant with Matute Martínez's (2013: 169) analysis of interpolation, according to which the phenomenon varies as a function both of style (or discourse type) and of dialect. A plausible implementation of the sociolinguistic approach would involve the following assumptions. First, as per Kroch 1994, the competition between proclisis and enclisis in postprepositional infinitivals represents a competition, in sociolinguistic space, between two minimally distinct grammars. Secondly, as proposed by Wanner (1991: 348), interpolation is an optional stylistic rule. Thirdly, proclisis (in the relevant context) and interpolation

⁵ This appears to hold true even under analyses that associate the general rise in proclisis across the late medieval period with a shift away from a pragmatic left periphery-centred system and towards a verb-centred one. Bouzouita, who adopts that approach, observes that what she terms the 'lexical calcification' of the relevant pragmatic constraints specifically does not affect interpolation (see Bouzouita 2009: 21), the loss of which in her view postdates the relaxation of pragmatic requirements affecting clitic placement.

in Old Spanish index the same language-external values. Under these assumptions, speakers who tended to deploy the proclitic grammar would also be speakers who tended to use the optional rule of interpolation. Similarly, contexts in which the proclitic grammar was used would be contexts in which the interpolation rule tended to be used. The frequencies of proclisis and interpolation would then be expected to correlate, without there being any need for an underlying syntactic relationship to exist. Note, however, that the third of the foregoing assumptions is impossible to verify at this distance, so the foregoing explanation for the correlation in Figure 3 must remain somewhat tentative.

3.3. Accounting for the decline

According to Figure 1, the decline in proclisis begins in the fourth decade of the fifteenth century and then proceeds at a steady rate, reaching near completion at the end of the sixteenth century. Overall the process appears to be normal in terms of its diachronic evolution. Indeed, it can be modelled quite well in terms of the logistic S-curve, which defines the trajectory of diachronic change in a very large number of cases. Figure 4 below compares the curve based on the actual values for the decreasing rate of proclisis (from the 1430s onwards) with the corresponding ideal or 'fitted' S-curve, derived by performing logistic regression on the actual data values.⁶

 $^{^{6}}$ The slope parameter of the fitted curve is -0.0301 and the intercept is +45.0609.

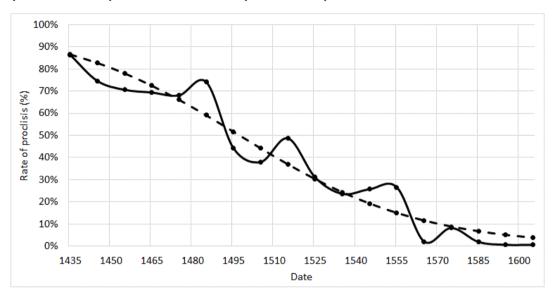


Figure 4. The decline of proclisis in postprepositional infinitival clauses: real data (unbroken line) versus model data (dashed line)

The fitted curve matches the actual data quite well, with the (relatively small) discrepancies between corresponding data points being easily attributable to experimental error. Thus the loss of proclisis in postprepositional infinitivals appears to be a textbook example of progressive syntactic change.

Wanner (2006: 149) speculates that the loss of infinitival proclisis in the postprepositional context results from an abrupt 'change of guard among who writes, edits and prints texts', occurring at some unspecified time in the sixteenth century. However, that suggestion is predicated on the assumption that the loss of proclisis is sudden and dramatic, taking place within a time frame of about 50 years (2006: 148). The findings summarized in Figure 4 imply that that assumption is incorrect, which in turn obviates the need to invoke a *deus ex machina* of the type proposed by Wanner.

Looking inwards towards a possible language-internal cause for the change, it can be noted that the loss of proclisis in postprepositional infinitivals forms part of a larger change in which all infinitival proclisis was lost. The factor that underlies the declining curve in Figure 4 is thus likely to be one that affects infinitives generally and not just infinitives in the postprepositional context. In other words, it is in developments affecting the unanalysed surface string 'Cl + V_{INF}' (i.e. 'clitic immediately followed by infinitive') that we should expect to find a solution to the problem at hand.⁷ Now, beyond the obvious fact of its disappearance, no significant developments appear to have affected this string in the postprepositional context. We must therefore turn to the other major context in which 'Cl + V_{INF}' occurred in Old Spanish, viz. when V_{INF} was governed by a higher verb such as *poder* or *querer*. An example is given in (7) below:

(7) E ella quiso <u>la defender</u> pues aquel gela dexaua
 'and she wanted to defend it [Medina Sidonia] because he had given it to her'
 (Atalaya de las Crónicas; British Library Egerton: MS 287, copied 1454–1500)

Although enclisis on a finite verb after a subject NP was far from being obligatory in Old Spanish (Wanner 1991: 342–45; Bouzouita 2008: 222–23), it seems likely from a structural point of view that the weak pronoun *la* in (7) is anchored (enclitically) to finite *quiso* rather than (proclitically) to the infinitive *defender*.⁸ The structural analysis is not strictly relevant, however, given that what we are interested in is just the surface string 'Cl + V_{INF}', instantiated here by *la defender*.

Now data that can be extracted from the survey by Davies (1997) indicate that the frequency of the 'Cl + V_{INF} ' string in the 'V . . . V_{INF} ' context declined steadily from the thirteenth to the sixteenth centuries. This is strikingly apparent when the governing verb is either *poder* 'be able to', *deber* 'have to' or *querer* 'want', which together account for 95.75% (6,042/6,310) of the 'V . . . V_{INF} ' tokens for those

⁷ It is of course a leading assumption in diachronic syntax that change commonly has its origin in the way learners, in assimilating specific surface strings in the primary linguistic data, ignore or even depart from the structural analysis which previous generations assigned to those strings (see Roberts 2007: 122–40).

⁸ This can be inferred from the fact that the linearization pattern in (7) is extremely infrequent in Old Spanish if the finite verb is preceded by a strict proclisis trigger, such as negation. For the case in which V_{INF} is preceded by a finite form of *deber*, *poder* or *querer* (the commonest verbs in this construction), we were able to recover 6,878 tokens of '*no*(*n*) + Cl + V_{FIN} + V_{INF} ' but only 1 token of '*no*(*n*) + V_{FIN} + Cl + V_{INF} ' (that is, where *no*(*n*) negates V_{FIN} , rather than some previous item such as *si*). This single token is as follows: *ca despues que gelos ouiese dados no podria gelos demandar* 'for after he had given them to her he could not ask for them back' (*Siete Partidas*; BNE INC/766, printed 1491).

centuries. Clitic placement data for these three verbs are given in Table 2 below, the third column being the one which evidences a decline in 'Cl + V_{INF} '.

Table 2. Clitic linearization in 'V \ldots V _{INF} ' structures involving <i>poder, deber</i> or
querer (Based on Davies 1997, Tables 1 and 2 [see also his note 2].)

Surface String				
	$CI + V + V_{INF}$	$V + V_{INF} + CI$	$V + CI + V_{INF}$	
13th century	70.4% (1245/1769)	1.2% (21/1769)	28.4% (503/1769)	
14th century	82.5% (1152/1396)	3.6% (50/1396)	13.9% (194/1396)	
15th century	85.7% (1263/1473)	5.2% (77/1473)	9% (133/1473)	
16th century	84.6% (1188/1404)	10.7% (150/1404)	4.7% (66/1404)	

In terms of the present discussion, the diachronic trend indicated by Table 2 would have had an important effect on the primary linguistic data available to learners, because tokens in which a clitic construed with an infinitive were rather more frequent in the 'V . . . V_{INF} ' context than they were in the postprepositional one. This can be inferred from the fact that Table 2, which gives data for just three verbs, has a total of 6,042 tokens from a corpus of 3,031,400 words (for the four centuries in question). Scaled up to the dimension of the survey reported in the present article (17,281,735 words), this equates to 34,445 tokens, a figure which exceeds by almost 40% the number of tokens reported here for all postprepositional infinitival clauses (24,744). Thus, despite the increase in frequency of the string 'Cl + V_{INF} ' in the postprepositional context, the progressive loss of that string in the 'V . . . V_{INF}' context must ultimately have led to a state of affairs whereby tokens in which a clitic construed with an infinitive were predominantly tokens in which the clitic did not immediately precede the infinitive. Reanalysis is never inevitable, as learners are assumed to reason abductively, i.e. in a manner that is open to error (see Roberts 2007: 122–23). However, the primary linguistic data of late medieval Spanish, as just described, would clearly have had the ingredients for a reinterpretation of infinitives as being generally incompatible with an immediately preceding clitic, and hence as being incompatible with proclisis. Such a development would account naturally for both the wider abandonment of pronominal proclisis with infinitives and for the more

specific loss of such proclisis in the postprepositional context (i.e., the trend shown in Figure 4).

The respective chronologies for the decline of the string 'V + Cl + V_{INF} ' and the decline of proclisis in postprepositional infinitivals appear to be consistent with this model. As can be seen from Table 2, 'V + Cl + V_{INF} ' is reasonably strong in both the thirteenth and fourteenth centuries but has collapsed by the sixteenth century, suggesting that the string declined to a critical level at some time in the fifteenth century. This is clearly consistent with our finding that proclisis in postprepositional infinitival clauses does not start to decline until the fourth decade of the fifteenth century.

Further, indirect support for the proposed relationship between the decline of the string 'V + Cl + V_{INF} ' and the decline of proclisis in postprepositional infinitivals comes from Davies' data relating to an additional group of verbs, comprising saber, pensar, esperar, desear, procurar, comenzar a, empezar a, dejar de, cesar de, venir a, llegar a, salir a and volver a. Initially, the placement of clitics between these verbs and a following infinitive does not decline. Indeed the rate of such placement actually rises, from 44.8% (43/96) in the thirteenth century to 59.1% (88/149) in the fourteenth, and then remains strong in the fifteenth century, at 31.6% (43/136). Apart from frequency, the only difference between the additional group of thirteen verbs and the group comprising *poder*, *deber* and *querer* is that eight members of the additional group (accounting for 62.67% of the tokens generated by that group) select an infinitival complement introduced by a preposition rather than a bare infinitive. Accordingly, while tokens of medial clitic placement from the *poder/deber/querer* group instantiate exclusively the string 'V + CI + V_{INF}', the equivalent tokens from the additional group predominantly instantiate the string 'V + Cl + preposition + V_{INF} '. Thus an obvious interpretation of the differential evolution of the two groups of verbs would be that medieval learners responded differently according as the string was 'V + Cl + V_{INF}' or 'V + Cl + preposition + V_{INF} . Plausibly, this difference in treatment stems from the presence of the preposition in the 'V + Cl + preposition + V_{INF} ' string, the effect of which is to signal unambiguously that the clitic is anchored to V and not to V_{INF}. By implication, then, when no preposition was present, i.e. when the string was V + $Cl + V_{INF}$, learners were inclined to associate the clitic with V_{INF} ; were this not the case, there would be no obvious reason why learners exhibited a differential response to each of the two strings. If this argument is correct, it follows that

learners would have been likely to interpret the decline in 'V + Cl + V_{INF} ' as evidence against the availability of pronominal proclisis in infinitival clauses, exactly as is proposed above.

Conclusion

The rise and fall of proclisis in infinitival clauses that follow a preposition represents an interesting case of failed syntactic change. As expected under Postma's (2010) model, the failure of proclisis in the context examined occurs in tandem with a related successful change, viz. the shift to proclisis that takes place in finite clauses (excluding imperatives). On the other hand, the logistic regression analysis reported here indicates that the increase of proclisis and its decline describe separate but abutting S-curves, rather than the single Hubbert curve predicted by Postma's theory. In particular, the analysis indicates that the rate of decrease exceeds the rate of increase by a factor of almost 35%. The present study can thus be viewed as providing robust evidence in favour of the 'accidental failure model' of failed changes.

As with any such event, it is important to identify the factor that causes the initially rising tendency to begin to wane. In the present case, the turning point appears to coincide with the string 'V + Cl + V_{INF} ' falling to a critically low level of frequency, resulting in an abundance of tokens in the primary linguistic data in which a clitic construed with an infinitive but did not immediately precede it. The contention here has been that learners interpreted the linearization enshrined in such tokens as evidence that the position to the immediate left of an infinitive was unavailable for clitic placement, leading to a reanalysis of infinitives as allowing only pronominal enclisis.

Thus the decline of proclisis in postprepositional infinitival clauses does not appear to imply a reversion to a previously extant state of affairs. Rather, it reflects the emergence of an entirely new constraint, according to which infinitives are simply incompatible with proclisis. As such, the decline in question can be viewed as part of the long-term change whereby the nature of the anchoring verb form, and particularly the finite—nonfinite contrast, has become an ever more significant determinant of clitic linearization.

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Appendix A. Data tables for Figures 1 to 3

Decade	13th C.	14th C.	15th C.	16th C.	17th C.
1st		21.6 (59/273)	79.3 (272/343)	38.0 (374/983)	0.6 (3/471)
2nd		26.6 (41/154)	85.6 (160/187)	48.7 (974/1999)	
3rd		25.7 (44/171)	86.3 (201/233)	31.2 (303/971)	
4th		30.6 (45/147)	86.4 (197/228)	23.6 (227/963)	
5th		28.6 (46/161)	74.6 (350/469)	25.7 (214/834)	
6th	33.3 (87/261)	46.2 (43/93)	70.6 (218/309)	26.6 (626/2357)	
7th	36.1 (43/119)	36.6 (26/71)	69.4 (150/216)	2.1 (41/1991)	
8th	18.7 (181/967)	37.1 (26/70)	68.1 (192/282)	8.2 (101/1234)	
9th	19.5 (145/744)	30.9 (30/97)	74.1 (1002/1353)	1.9 (30/1591)	
10th	18.6 (45/242)	72.5 (287/396)	44.2 (1231/2783)	0.6 (6/981)	

Table 3. Rates of proclisis (%) in affirmative postprepositional infinitival clauses (Absolute values are shown in parentheses.)

Decade	13th C.	14th C.	15th C.	16th C.
1st				62.9% (61/97)
2nd			90.5% (19/21)	02.9% (01/97)
3rd				46.7% (56/120)
4th				
5th		-80.0% (20/25)		
6th		-00.070 (20/23)	65.4% (17/26)	35.2% (70/199)
7th	69.6% (16/23)			
8th				7.0% (5/71)
9th	02 00/ (26/28)		88.5% (23/26)	4.3% (3/70)
10th	-92.9% (26/28)		53.4% (31/58)	0.0% (0/73)

Table 4. Rates of proclisis (%) in negative postprepositional infinitival clauses (Absolute values are shown in parentheses.)

Table 5. Rates of interpolation (%) in postprepositional infinitival clauses (Absolute values are shown in parentheses.)

Decade	13th C.	14th C.	15th C.	16th C.
1st			75.8% (25/33)	34.8% (8/23)
2nd				5.1% (7/138)
3rd				2.7% (1/37)
4th				1.8% (1/57)
5th		53.8% (14/26)	60.0% (33/55)	0.0% (0/34)
6th	46.4% (39/84)			4.1% (6/146)
7th			61.8 (21/34)	12.5% (4/32)
8th				
9th	49.0% (25/51)		47.5% (38/80)	
10th		53.3% (16/30)	33.3% (49/147)	

Appendix B. Texts included in the corpus⁹

13th century

Cánones de Albateni (Paris: Arsenal 8322), Documentos castellanos de Alfonso X (various ms; edn prepared by María Nieves Sánchez et al. CD-ROM [ISBN 1-56954-114-0]), Espéculo (BNE¹⁰ MSS/10123), Estoria de España I (Escorial Y-I-2), Estoria de España II (Escorial X-I-4), Formas e imágenes (Escorial h-I-16), Fuero Juzgo (Hispanic Society of America B2567), Fuero real (Escorial Z-III-16), General estoria I (BNE MSS/816), General estoria IV (Vatican Urb lat 539), General estoria V (Escorial I-I-2), Judizios de las estrellas (BNE MSS/3065), Lapidario (Escorial h-I-15), Libro de ajedrez dados y tablas (Escorial T-I-6), Libro de las animalias que cazan (BNE RES/270), Libro de las cruces (BNE MSS/9294), Libro del cuadrante señero (Paris Arsenal 8322), Libros del saber de astronomía (Madrid Biblioteca Universitaria Complutense 156), Picatrix (Vatican Reg lat 1283), Poridat de las poridades (Escorial L-III-2), Tablas de Zarquiel (Paris: Arsenal 8322), Tratado de las enfermedades de las aves de caza (Escorial V-II-19).

14th century

Crónica de veinte reyes (Escorial Y-I-12), Estoria de España II (Escorial X-I-4), General estoria II (BNE MSS/10237), General estoria V (Escorial I-I-2), General estoria VI (Toledo Catedral 43–20), Fuero de Briviesca (BNE MSS/9199), Libro de la caza (BNE MSS/6376), Libro de la montería (Escorial Y.II.19), Libro de las armas (BNE MSS/6376), Libro de las tres creencias (BNE MSS/9302), Libro de los estados (BNE MSS/6376), Libro de los fueros de Castilla (BNE MSS/9302), Libro del caballero y del escudero (BNE MSS/6376), Libro infinido (BNE MSS/6376), Ordenamiento de Alcalá (BNE Vitrina 15–7), Sumas de la historia troyana (BNE MSS/9256), Tratado de agricultura (BNE MSS/10211), Tratado de cetrería (Real Academia Española 9), Tratado de la Asunción de la Virgen (BNE MSS/6376), Visita y consejo de médicos (BNE MSS/18052).

⁹ Some texts are assigned to more than one century.

¹⁰ BNE = Biblioteca nacional de España.

15th Century

Arte cisoria (Escorial f-IV-1), Arte de bien morir-Breve confesionario (Escorial 32-V-194), Atalaya de las Crónicas (British Library Egerton: MS 287), Axioco-Fedrón (Bibliothèque nationale de France: Espagnol 458), Bendita Santa Marta (Escorial h.I.13), Biblia romanceada judío cristiana (Real Academia Española códice 87), Caída de príncipes (Hispanic Society of America B1196), Cárcel de amor (BNE INC/2134), Castigos y documentos para bien vivir (BNE MSS/6559), Claros varones de Castilla (BNE INC/96), Comedia de Calisto y Melibea (Hispanic Society of America), Comentario a la Coronación del Marqués de Santillana (Hispanic Society of America), Compendio de medicina (Biblioteca general histórica de la Universidad de Salamanca 2262), Compilación de las batallas campales (BNE INC/249(2)), Conde Lucanor (BNE MSS/6376), Conjuración de Catilina (Escorial g.III.11), Corbacho (Escorial h-III-10), Crónica abreviada (BNE MSS/1356), Crónica de 1344 I (Biblioteca Francisco de Zabálburu y Basabe 11–109), Crónica de Alfonso X (BNE MSS/829), Crónica de España (BNE INC/1732), Crónica de Sancho IV (BNE MSS/829), Cuaderno de las leves nuevas de la hermandad (BNE R/2462/4), Cuento del emperador Carlos Maynes (Escorial h.I.13), Cura de la piedra (BNE INC/1344), De los oficios (BNE MSS/7815), De una santa emperatriz que hubo en Roma (Escorial h.I.13), Doce trabajos de Hércules (BNE MSS/27), Ejemplario contra los engaños y peligros del mundo (BNE INC/1994), El emperador Otas de Roma (Escorial h.I.13), Enrique fi de Oliva (Österreichische Nationalbibliothek Ink. 5.G.39), Escritura de cómo y por qué razón no se debe dividir partir ni enajenar (BNE INC/249(2)), Esopete ystoriado (John Rylands Library [Manchester] JRULM 19562), Espejo de medicina (BNE MSS/3384), Estoria del rey Gujllelme (Escorial h.I.13), Generaciones y semblanzas (Fundación Lázaro Galdiano Inv. 14998), Gramática castellana (BNE INC/2142), Grimalte y Gradissa (BNE INC/382), Historia de la linda Melosina (Bibliothèque royale de Belgique Inc. B 840), Historia del caballero Plácidas (Escorial h.I.13), Historia del gran Tamorlán (BNE MSS/9218), Historia troyana (BNE INC/733), Introductiones latinae (BNE INC/2652), Invencionario (BNE INC/2652), Las pronósticas (BNE INC/2438), Letra sobre los matrimonios y casamientos entre los reyes de Castilla (BNE INC/249(2)) Letras (BNE INC/566), Libro de albeitería (BNE INC/2342), Libro de cetrería (BNE MSS/21549), Libro de la caza (BNE MSS/6376), Libro de la caza de las aves (British Library Add. 16392), Libro de la montería (Escorial Y.II.19), Libro de las armas (BNE MSS/6376), Libro de las donas (Escorial h-III-20), Libro de los estados (BNE

MSS/6376), Libro infinido (BNE MSS/6376), Libro del caballero y del escudero (BNE MSS/6376), Libro del caballero Zifar (Bibliotèque nationale de France Richelieu: Espagnol 36), Libro del Consejo y de los Consejeros (Escorial Z-III-4), Libro del Cuzari (BNE MSS/17812), Libro llamado Infancia Salvatoris (BNE INC/1424), Lilio de medicina (BNE INC/2438), Los siete sabios de Roma (BNE MSS/6052), Menor daño de medicina (Escorial b-IV-34), Morales de Ovidio (BNE MSS/10144), Mostrador y enseñador de los turbados (BNE MSS/10289), Nobiliario vero (BNE INC/2299), Oliveros de Castilla (Hispanic Society of America), Oracional de Fernán Pérez de Guzmán (BNE INC/249(3)), Ordenanzas reales (BNE INC/1338), Quod nemo laeditur nisi a seipso + Glosa a San Juan Crisóstomo (BNE INC/249(3)), Retórica (Escorial T.II.12), Santa María Madalena (Escorial h.I.13), Secretos de la medicina (Madrid: Real Biblioteca II/3063), Sermones contra los judíos y moros (Soria: Biblioteca Pública del Estado 25-H), Siete partidas (BNE INC/766), Suma de la flor de cirugía (BNE MSS/3338), Suma de las Crónicas de España (Escorial h-II-22), Sumario de la medicina (BNE INC/1350), Teseida (BNE MSS/7553), Tratado de astrología (BNE RES/2), Tratado de la adivinanza (BNE MSS/6401), Tratado de la Asunción de la Virgen (BNE MSS/6376), Tratado de la fisionomía en breve suma contenida (BNE INC/51), Tratado de la música (Escorial c.III.23), Tratado de la peste (BNE INC/51), Tratado de la reformación de la ánima (Bibliotèque nationale de France Richelieu: Espagnol 458), Tratado de las fiebres (Escorial M-I-28), Tratado en defensa de virtuosas mujeres (BNE MSS/1341), Triunfo de amor (BNE MSS/22019), Triunfo de las donas y cadira de onor (Real Academia Española R.M. 64), Universal vocabulario de latín en romance (BNE INC/448 V.1 INC/449 V.2), Valerio de las historias escolásticas y de España (BNE INC/249(1)), Vida de Sanct Isidoro (Escorial b.III.1), Vida de Santa Catalina (Escorial h.I.13), Vida de Santa María Egipciaca (Escorial h.I.13), Visión delectable (BNE INC/2442).

1500–1610

Arnalte y Lucenda (Biblioteca Trivulziana Cod. Triv. 940), Carta de fray Toribio de Motolinía al Emperador Carlos V (Mexico City: Andrade, 1858), Cartas de Pedro de Valdivia (Madrid: Atlas, 1960), Cartas de relación (México: Porrúa, 1976), Crónica de la Nueva España (Madrid: Atlas, 1971), Crónica del Cid (BNE R/897), De los nombres de Cristo (Madrid: Católica, 1951), Derrotero al Estrecho de Magallanes (Madrid: la Gazeta, 1768), Diálogo de la lengua (Leipzig: Romanische Studien, 1895), Diálogo de la verdadera honra militar (Madrid Ministerio de Defensa, 1992), Diálogo de las cosas acaecidas en Roma (Rostock University), Diálogo de Mercurio y Carón (Rostock University), Diálogo de mujeres (Venice, 1544) Discurso político al rey Felipe III al comienzo de su reinado (Barcelona: Anthropos, 1990), El concejo y consejeros del príncipe (Valencia: Alfonso el Magnánimo, 1952), El Crotalón (Madrid: Bibliófilos Españoles, 1871), El Libro de los proverbios glosados (Kassel: Reichenberger, 1994), El patrañuelo (Valencia: Joan Mey, 1567), Epistolario espiritual (Madrid: La Lectura, 1962), Examen de ingenios para las ciencias (Madrid: La Rafa, 1930), Floresta española (Madrid: SBE, 1953), Gran conquista de Ultramar (BNE R/518 V.1 R/519 V.2), Guerra de Granada (Madrid: Rivadeneyra, 1852), Guzmán de Alfarache (Madrid: Renacimiento, 1912), Historia de la conquista de México (Mexico City, Pedro Robredo, 1943), Historia de la invención de las Yndias (Bogotá: Caro y Cuervo, 1965), Historia de los Incas (Madrid: Polifemo, 1988), Historia de los indios de la Nueva España (Mexico City: Andrade, 1858), Historia natural y moral de las Indias (Madrid: Atlas, 1954), Jardín de flores curiosas (Madrid: Castalia, 1982), La Galatea (Alcalá: Juan Gracián, 1585), La lozana andaluza (Venice, 1528), Las seiscientas apotegmas (Toledo: Pedro Rodríguez, 1596), Lazarillo de Tormes (Burgos: Juan de Junta, 1554), Leyes del estilo (Bodleian Library Inc. d. S6. 1500. 1), Libro de la oración y meditación (Salamanca: Portonariis, 1569), Libro de las Fundaciones (Madrid: Rivadeneyra, 1861), Libro del ejercicio corporal y de sus provechos (Seville: de la Torre, 1553), Libro primero de las epístolas familiares (Madrid: Aldus, 1950–1952), Lumbre del alma (Seville: Cromberger, 1542), Luz del alma cristiana (Seville: Montesdoca, 1555), Naufragios (Valladolid, 1555), Obra de Agricultura (Alcalá: Brocar, 1513), Peregrinación de la vida del hombre (Medina del Campo: Millis, 1552), Philosofía secreta (Madrid, 1585), Primaleón, Recibimiento que hizo la muy noble y muy leal ciudad de Sevilla a D. Felipe II (Seville: Escrivano, 1570), Segunda Celestina (Venice: Sabio, 1536), Seis tratados muy devotos y útiles para cualquier fiel cristiano (Barcelona: Flors, 1963), Sermones (Madrid: Espasa-Calpe, 1956), Sevillana medicina (British Library C.63.h.23.(2.)), Suma de tratos y contratos (Madrid: Ministerio de Economía, 1977), Tratado de las armas (BNE R/2302), Tratado de la tribulación (Madrid: Tello, 1877), Tratado y discurso sobre la moneda de vellón (Madrid: Ministerio de Economía, 1987).