

Modelling syntactic variation*

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ABSTRACT: The topic of this paper is the formal modelling of syntactic variation given an incremental processing (parsing/production) perspective. As a case study it investigates the syntactic variation observed in weak pronoun placement in Medieval Spanish. Weak pronouns are shown to precede and/or follow the finite verb depending on their syntactic environment. Interpolation cases, in which constituents intervene between the weak pronoun and the following verb, are also discussed and accounted for. It is argued that syntactic variation can be explained in virtue of the availability of different processing strategies i.e., different ways of building up semantic content, for one and the same natural language string. Furthermore, this paper tries to account for the diachronic changes observed in Renaissance Spanish, in which routinisation is claimed to play an important role. Additionally, processing factors are shown to contribute not only to syntactic intra-speaker variation but also to diachronic change.

Keywords: syntactic variation, syntactic change, weak pronoun placement, Medieval Spanish, Renaissance Spanish, processing strategies, routinisation, Dynamic Syntax.

0. INTRODUCTION

The aim of this paper is twofold. Firstly, I shall try to show that syntactic variation can be explained in virtue of the different processing strategies available for one and the same natural language string. More specifically, I shall show for 13th and 14th century Medieval Spanish (MedSp) that the way in which the semantic content is constructed for left-peripheral constituents preceding weak pronouns affects the syntactic positioning of these weak pronouns in finite verb clauses. Additionally, interpolation can also be accounted for on the basis of the availability of the various processing strategies. Secondly, routinisation will be shown to play an important role in the syntactic changes that took place between MedSp and Renaissance Spanish (RenSp). Furthermore, I will demonstrate that processing factors can contribute to both syntactic intra-speaker variation and syntactic change.

1. THE DATA: MEDIEVAL SPANISH

1.1. Weak pronoun placement. In MedSp, the positioning of weak pronouns with respect to the finite verb displays syntactic variation as some syntactic environments solely appear with preverbal pronouns, whereas others only display postverbal placement, yet others oscillate between both positions¹.

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¹ The scope of this paper is limited to pre- and postverbal placement in clauses with finite verbs. Accordingly, we will not discuss weak pronoun placement with non-finites or, the so-called mesoclysis or 'split' future/conditional cases. For more details on the latter, we refer the reader to Bouzouita (forthcoming a). Furthermore, for visual clarity, the weak pronouns under consideration have been highlighted in bold (and are glossed as WP) whereas the constituents preceding the weak pronouns that influence their positioning, and the interpolated items have been respectively underlined and bracketed.

- (1) *Que te dixo Heliseus?* [Medieval Spanish]
 what WP said Heliseus
 ‘What did Heliseus tell you?’ (*Faz.*: 134)
- (2) **Que dixote Heliseus?*
 what said-WP Heliseus
 Intended: ‘What did Heliseus tell you?’
- (3) *Oyo! Ruben*
 heard-WP Ruben
 ‘Ruben heard it.’ (*Faz.*: 51)
- (4) **Lo oyo Ruben*
 WP heard Ruben
 Intended: ‘Ruben heard it.’
- (5) *El conde le pregunto como ...*
 the count WP asked how
 ‘The count asked him how...’ (*Luc.*: V)
- (6) *e el conde respondiolo que ...*
 and the count replied-WP that
 ‘And the count replied him that...’ (*Luc.*: XVI)

As examples (1) and (2) illustrate, only preverbal unstressed pronouns have been attested in *wh*-questions. Conversely, MedSp weak pronouns can only follow sentence-initial verbs, as shown in (3) and (4). This restriction on sentence-initial weak pronouns is also known as the Tobler-Mussafia Law. Additionally, in some syntactic environments, such as those in which a left-peripheral subject precedes the verb/pronoun, both preverbal and postverbal positioning have been attested, as exemplified respectively in (5) and (6).

Most studies concerned with the positioning of these weak pronouns classify the data according to the grammatical nature of the element immediately preceding the weak pronoun and verb (Gessner, 1893; Keniston, 1937; Ramsden, 1963; Elvira, 1987; Nieuwenhuijsen, 1999, 2006 *inter alia*). I opted for a similar methodology for this study. However, unlike some of these accounts, I did not choose for a strict string-linear approach, since this method presupposes that only the grammatical element immediately preceding the weak pronoun and verb can influence the placement of these unstressed pronouns. This is not necessarily always the case. The following sentence exemplifies this clearly, with the pronoun *vos* preceded by both a vocative and an adverb:

- (7) *Agora, senyor conde lucanor, vos he contado ...*
 now lord count Lucanor WP have told
 ‘Now, Count Lucanor, I have told you...’ (*Luc.*: XLVIII)

Given a strict string-linear approach, one would deduce from the previous example that the vocative *senyor conde lucanor* is responsible for the preverbal position of the pronoun *vos*. Nonetheless, other examples such as (8) and (9) reveal that it is the adverb *agora* and not the vocative, which is likely to trigger preverbal placement in MedSp environments.

- (8) *Senyor, ayudam*
 Lord help-WP
 ‘Lord, help me.’ (*Faz.*: 114)
- (9) *Agora se tornara el pueblo ...*
 now WP will-return the people
 ‘Now the people will return...’ (*Faz.*: 152)

Accordingly, I opted for a more Dynamic Syntax-oriented methodology (Kempson *et al.*, 2001; Cann *et al.*, 2005) whereby only the elements of the tree to which the weak pronoun contributes are considered relevant, and not necessarily the entire sentential sequence (see section 4.3 for the concept of linked structure). Taking into account these taxonomy criteria, the MedSp data can then be grouped into (i) the strict preverbal constructions, (ii) the strict postverbal constructions and (iii) the variation ones. In the following, I shall give an overview of these different environments.

1.1.1. Root clauses. Although the predominant weak pronoun position in MedSp root clauses is the postverbal one (see Table 1), some constructions appear exclusively with preverbal pronouns throughout the Middle Ages. In these constructions, the weak pronoun is either preceded by (i) a *wh*-word, (ii) a negation adverb, (iii) a non-coreferential complement NP, (iv) a prepositional or (v) a predicative complement, as illustrated respectively below.

- (10) *Que me daras?*
what WP will-give
'What will you give me?' (Faz.: 52)
- (11) *E no les quiso nada prender*
and not WP wanted nothing take
'And he didn't want to take anything from them.' (Faz.: 44)
- (12) *Altar de tierra me faredes*
altar of soil WP will-make
'An altar of soil you will make me.' (Faz.: 77)
- (13) *Con aquellas se aiunto Salomon*
with those WP slept Salomon
'With those women, Salomon slept.' (Faz.: 150)
- (14) *Testimonias me sed oy*
witnesses WP be today
'Be my witnesses today.' (Faz.: 200)

Similarly, some constructions occur only with postverbal pronouns in the 13th and 14th century. The constructions in question are those in which (i) the verb is either located in an absolute sentence-initial position, as in (15), or (ii) is the first constituent in a paratactic root clause, as in (16), or (iii) in which a contrastive coordination marker such as *pero/mas* 'but' precedes the verbal form, as shown in (17)².

- (15) *Sopolo Rebecca*
knew-WP Rebecca
'Rebecca knew it.' (Faz.: 48)
- (16) *Ella echos a sos pies, encorvos*
she threw-WP to his feet, bended-WP
'She threw herself to his and feet, she bowed.' (Faz.: 132)
- (17) *...mas dixom ...*
but told-WP
'But he told me...' (Faz.: 207)

As mentioned earlier, heterogeneous positioning can be also be discerned within one and the same syntactic environment. This oscillation in positioning has been observed for those constructions in which the weak pronouns are preceded by either a left-peripheral (i) subject, (ii) vocative, (iii) adverbial, (iv) coordination marker *e(t)/y* 'and', (v) object NP that is co-referential with the pronoun in question (CLLD/HTLD), or (vi) non-root/absolute clause.

- (18) *El condele pregunto commo ...*
the countWP asked how
'The count asked him how...' (Luc.: V)
- (19) *e el conde respondiolo que ...*
and the count replied-WP that
'And the count replied him that...' (Luc.: XVI)
- (20) *Mio pueblo, miembret agora...*
My people remember-WP now
'My people, remember now...' (Faz.: 191)
- (21) *Tú, me libra Señora*
You WP free Lady
'You free me Lady.' (LPal.: 3871)

² In Bouzouita (2007: 56), I mentioned that one example in my corpus exhibits preverbal positioning for the paratactic root clause environment. However, a closer inspection of the facsimile of the *Fazienda de Ultra Mar* revealed that the transcription given by Lazar (1965) might be erroneous (see Bouzouita forthcoming b for more details). I kindly thank Dr Andrés Enrique Arias for giving me access to the facsimile of this manuscript.

- (22) *et agora prísolo*
and now took-WP
'And now he took him.' (Granberg, 1988: 176)
- (23) *Agora me quieres fer matar*
now WP want make kill
'Now you want to have me killed.' (Faz.: 122)
- (24) *Sonno Joseph un suenno e contolo a sos ermanos*
dreamt Joseph a dream and told-WP to his brothers
'Joseph had a dream and he told it to his brothers.' (Faz.: 50)
- (25) *Yot acreceré e te muchiguaré*
I-WP will-enlarge and WP will-multiply
'I will enlarge and multiply you.' (Faz.: 58)
- (26) *El espada e la cabeça aduxola a Jherusalem*
the sword and the head brought-WP to Jerusalem
'His sword and head, he brought them to Jerusalem.' (Faz.: 140)
- (27) *con el so manto a amas las cubrió*
with the his cape ACC both WP covered
'With his cape he covered them both.' (Ramsden 1963: 86)
- (28) *Quant le connocio Abdias, homilloste*
when WP recognized Abdias, lowered-WP-WP
'When Abdias recognised him, he bowed for him.' (Faz.: 121)
- (29) *antes que saliestes del vientre te santigué*
before that left-of-the belly WP blessed
'Before you were born, I blessed you.' (Faz.: 165)

While it is well known that variation occurs after left-peripheral subjects (Castillo Lluch, 1996; Elvira, 1987; Granberg, 1988; Staaff, 1907 *inter alia*), as shown in (18) and (19), this is not the case for the vocative environment: most studies claim that after vocatives the only available position is the postverbal one, as in (20). However, as exemplified in (21), when the vocative is the imperative subject, preverbal placement seems to be also an option. In other words, the imperative vocative environment displays the same variation as observed for the non-imperative subject environment. As regards the non-imperative vocative environment, uncontroversial examples have only been recorded for postverbal placement (see Bouzouita, forthcoming b for more details). Granberg (1988: 195-227) suggests that weak pronoun behaviour after preverbal subjects in MedSp is very similar if not identical to that of Modern Galician: "clitic position in this [subject] structure is determined by the same factor that operates in modern Galegan, namely, the presence or absence of emphatic stress on the subject. In other words, weak pronouns occur postverbally unless a subject is 'highlighted' by emphatic stress" (1988: 212). He then goes on to show convincingly that there exists indeed a relationship between the emphasis on subjects and weak pronoun placement. Similarly, Martins (2003: 210-211) argues that all the variation constructions in both MedSp and Medieval Portuguese – so not just the subject environments – appear to be emphatic when a preverbal weak pronoun is present and neutral otherwise. Although Granberg's hypothesis seems to point in the correct direction, it surely can't be extended to all variation environments as proposed by Martins considering that some adverbials, such as *siempre* 'always' for instance, always occur with preverbal weak pronouns. As illustrated in (22) and (23), other adverbials such as *agora* 'now', allow both preverbal and postverbal unstressed pronouns³. As concerns the CLLD/HTLD cases, postverbal positioning, as in (26), is the norm. Notwithstanding this, preverbal placement is found when the left-peripheral constituent is the quantifier *todo(s)* 'all' or *am(b)os* 'both', as demonstrated in (27). Similarly, postverbal placement seems to be the default position in coordinate constructions and whenever a non-root/absolute clause precedes the matrix clause, as illustrated in (24) and (28) respec-

³ Note that both *agora* and *siempre* belong to the same semantic class of adverbials, namely the adverbs of time. Consequently, we can conclude that weak placement in adverb environments is not related to the semantic subclass since the former allows variation while only preverbal placement has been attested for the latter.

tively. For the coordinate constructions, preverbal placement seems only possible if the previous conjunct contains a constituent after which preverbal positioning is possible: e.g. after subjects, *wh*-elements, etc., as in (25), where the first conjunct contains the subject *yo* ‘I’. Regarding the preceding absolute/subordinate constructions, preverbal positioning is possible after the subordinating element *antes que* ‘before that’, as in (29), but it is not obligatory. I shall argue that the syntactic variation observed for all these environments can be explained in virtue of the different processing strategies available for the left-peripheral constituents preceding the weak pronouns. Further, the pragmatic motivation underpinning emphatic use in subject environments disappeared gradually once a processing shortcut was created by routinisation, inducing as such lexicalisation of structure-building processes along with the anaphoric properties of the unstressed pronoun.

As Table 1 shows, postverbal placement is overall the most frequently encountered positioning in MedSp root clauses, despite the systematic preverbal positioning in certain syntactic environments⁴. Furthermore, MedSp weak pronoun placement, unlike Modern Spanish (ModSp), is not determined by the form or mood of the verb considering that both imperative and non-imperative verb contexts have a similar distribution of weak pronouns, as demonstrated in Table 2⁵.

Table 1: Percentage of preverbal placement in Medieval Spanish

	13 th century	14 th century
1. <i>Wh</i> -word	100% (42/42)	—
2. Negation	100% (167/167)	100% (39/39)
3. Compl. NP	100% (22/22)	100% (6/6)
4. Prep. complement	100% (8/8)	100% (4/4)
5. Pred. complement	100% (6/6)	—
6. Verb	0% (0/335)	0% (0/1)
7. Paratactic clause	0% (0/36)	0% (0/1)
8. <i>Pero/mas</i> ‘but’	0% (0/3)	0% (0/7)
9. Subject	69% (112/163)	62% (58/94)
10. Vocative	0% (0/14)	0% (0/3)
11. Adverbial	70% (117/168)	48% (28/58)
12. Coordination	2% (23/997)	1% (1/158)
13. Object NP	19% (5/27)	67% (4/6)
14. Non-root clause	8% (3/39)	0% (0/61)

⁴ As can be seen in Table 1, my base corpus, which consists of data from *Faz.* and *Luc.* for MedSp, did not contain any preverbal vocative examples. Notwithstanding this, we encountered several preverbal cases when consulting other texts, as shown in Table 2 (see Bouzouita forthcoming b for more details). Further, even though the corpus used for the 14th century is rather small, the results are confirmed by other studies (e.g. Granberg, 1988; Castillo Lluch, 1996; Nieuwenhuijsen, 1999, 2006).

⁵ As this study is both quantitative and qualitative in nature, the observations given in Table 2 and Table 4 are based not only on my corpus but also on observations made in the literature (see references). The base corpus for the 16th century (Table 3) is made up of texts from the *DLNE*.

	13 th century	14 th century
Total	25% (506/2025)	32% (140/438)

Table 2: Weak pronoun placement in Medieval Spanish

	Non-imperatives		Imperatives	
	Preverbal	Postverbal	Preverbal	Postverbal
1. <i>Wh</i> -word	X	—	—	—
2. Negation	X	—	X	—
3. Compl. NP	X	—	X	—
4. Prep. complement	X	—	X	—
5. Pred. complement	X	—	X	—
6. Verb	—	X	—	X
7. Paratactic clause	—	X	—	X
8. <i>Pero/mas</i> ‘but’	—	X	—	X
9. Subject	X	X	X*	—
10. Vocative	(X)	—	X	X
11. Adverbial	X	X	X	X
12. Coordination	X	X	X	X
13. Object NP	X	X	X	X
14. Non-root clause	X	X	X	X

* Wish contexts only

1.1.2. Non-root clauses. Unlike for the root clauses, weak pronoun placement in MedSp non-root clauses hardly exhibits any variation in view of the fact that preverbal placement is found almost without exception in the presence of a preceding complementiser, relative pronoun, or subordinating conjunction, as illustrated in (30)-(32). Most examples that do appear with postverbal pronouns have been explained as cases which mimic direct speech, as shown in (33) (Granberg, 1988; Castillo Lluch, 1996)⁶.

- (30) *no quiero que me sirbas en balde*
 not want that WP serve in vain
 ‘I don’t want you to serve me in vain.’ (Faz.: 48)
- (31) *Et esto que te [yo] [agora] mostrare aqui*
 and this that WP I now will-show here
 ‘And this that I will now show you here.’ (Sánchez Lancis, 1993: 327)
- (32) *Quant le connocio Abdias ...*
 when WP recognised Abdias ...
 ‘When Abdias recognised him ...’ (Faz.: 121)

⁶ Other postverbal cases have been explained as syntactic calques from Latin (e.g. Castillo Lluch, 1996: 151). For more details on variation in non-root clauses, I refer the reader to Bouzouita (in preparation), Castillo Lluch (1996: 142-196) and Granberg (1988).

- (33) *Di a fijos de Israel que prendanse unos blagos*
 tell ACC sons of Israel that take-WP some sticks
 ‘Tell the sons of Israel that they find themselves some sticks.’ (Faz.: 86)

Since MedSp non-root clauses hardly show any variation, I will focus on the root clauses, when discussing the diachronic changes in weak pronoun placement.

1.2. Interpolation. In addition to the syntactic variation in weak pronoun positioning, the MedSp weak pronoun system does not require verbal adjacency in the presence of preverbal unstressed pronouns. As can be seen in example (34), the personal subject pronoun intervenes between the weak pronoun and the finite verb, a phenomenon known as interpolation. It must be pointed out that interpolation can only occur with preverbal pronouns since verbal adjacency is required for postverbal pronouns.

- (34) *Ont me [yo] loo mucho de la tu amor*
 thus WP I praise a-lot of the your love
 ‘Thus I praise your love a lot.’ (Faz.: 43)
- (35) *Mas pues que lo [el] [asi] tiene por bien*
 but since that WP he like-this has for good
 ‘But since he considered it good like this...’ (Castillo Lluch, 1996: 308)
- (36) *Qui lo [fer] [non] quisiesse...*
 who WP do not want
 ‘Those who do not want to do it...’ (Sánchez Lancis, 1993: 327)

As these examples show, interpolated constituents can be found both in root and non-root clauses, as illustrated in (34) and (35)-(36) respectively (contra Chenery, 1905). Nonetheless, most examples proceed from non-root contexts given that in MedSp preverbal weak pronoun positioning is found overwhelmingly in these environments whereas postverbal placement prevails in the root ones (see Table 1 and section 2.1.2).

As regards the range of interpolated constituents, Castillo Lluch (1996, 1998) reports having encountered examples containing negation adverbs, subject pronouns (e.g. *yo* in (34) and *el* in (35)), other adverbs (e.g. *asi* in (35)), subject nouns, strong pronouns, object nouns, and PPs as interpolating elements. Notwithstanding this range of interpolated constituents, the most encountered one by far the negation adverb *non*, followed by the subject pronouns. Castillo Lluch (1998: 410) reports 57.8% of all interpolation cases to contain the former whereas only 21.59% for the latter. Multiple interpolation cases in which two of the previously mentioned elements occur in between the weak pronoun and the verb, have also been attested, as in (31) and (35), in which both a subject pronoun and an adverb intervene between the unstressed pronoun and verb. Sánchez Lancis (1993) relates similar observations concerning the range of interpolated items. Additionally, his corpus contains clauses that display infinitives intervening between the pronoun and the finite verb, as illustrated in (36), which is a multiple interpolation case with an infinitive (*fer*) and a negation adverb (*non*). As we will see in section 5.3, interpolation can also be accounted for straightforwardly since Dynamic Syntax makes available an array of different processing strategies for the analysis of some natural language string.

2. THE DIACHRONIC CHANGES: RENAISSANCE SPANISH

2.1. Weak pronoun placement. Syntactic variation in weak pronoun placement is also encountered in RenSp. Moreover, it is attested in more environments than in MedSp since those constructions that were strictly postverbal in MedSp, have in RenSp the option of occurring with preverbal pronouns as well (see Table 3).

- (37) *Se dize publicamente que...* [Renaissance Spanish]
 WP say publicly that
 ‘Publicly it is being said that...’ (DLNE: 1529.9)
- (38) *Asi mismo ha recibido de Alonso Davila muchos cohechos special en çierta compañia de hazienda que tienen compañia de hazienda que tienen, le haze pagar las costas*
 company of estate that have WP makes pay the costs
 ‘Likewise he received a lot of harvests from Alonso Davila, especially from a certain estate that they have, it makes him pay the costs.’ (DLNE: 1529.9)
- (39) *pero se hazen ocho o diez géneros de atole*
 but WP make eight or ten types of atole
 ‘But eight or ten types of atole are made.’ (ProbSecr., CORDE s.v. *pero se*)

As example (37) shows, the so-called Tobler-Mussafia Law i.e. the restriction on sentence-initial weak pronouns seems to have been lost in RenSp, despite there still being a clear preference for postverbal pronouns in sentence-initial positions, as shown in Table 3. Similarly, preverbal pronouns are in RenSp possible for the paratactic and *pero/mas* environments, as exemplified by (38) and (39) respectively.

Additionally, novel preverbal cases are found for those environments that already allowed variation in MedSp, as illustrated below:

- (40) *Ya pasó el ynbierno, y se apartó la lubia*
 already passed the winter and WP moved the rain
 ‘The winter has already passed and the rain moved away.’ (DLNE: 1531.11)
- (41) *Y a mj me vienen a rogar que...*
 and to me WP come to ask that
 ‘And they come to ask me that...’ (DLNE: 1525.1)
- (42) *porque el presidente le favoreçiese, le hizo de balde muchas obras*
 so that the president WP would-favour WP made for nothing a-lot-of works
 ‘He worked a lot for free so that the president would favour him.’ (DLNE: 1529.8)

In example (40), a coordination context, a preverbal pronoun is encountered. Even though in MedSp the coordination environment allowed preverbal unstressed pronouns, we saw that this placement was conditioned: preverbal placement is only possible if a preceding conjunct contains a constituent that can trigger preverbal positioning (see section 2.1.1). However, (40) clearly shows that in RenSp preverbal placement is no longer restricted to these conditions. Similarly, examples (41) and (42) show that the same is true for the CLLD/HTLD cases and the preceding non-root/absolute constructions since there is no quantifier necessary for the former and there is no *antes que* subordinator in the latter. Despite the spread of preverbal placement, Table 4 shows that the weak pronoun distribution is still very similar in imperative and non-imperative contexts, as is also the case in MedSp but not in ModSp⁷.

Table 3: Percentage of preverbal placement in Renaissance Spanish

	16 th century
1. <i>Wh</i> -word	100% (1/1)
2. Negation	100% (33/33)
3. Compl. NP	100% (11/11)
4. Prep. complement	100% (5/5)
5. Pred. complement	—

⁷ See footnote 5.

	16 th century
6. Verb	20% (3/15)
7. Paratactic clause	100% (1/1)
8. <i>Pero/mas</i> 'but'	25% (1/4)
9. Subject	100% (67/67)
10. Vocative	100% (1/1)
11. Adverbial	96% (73/76)
12. Coordination	62% (31/50)
13. Object NP	100% (17/17)
14. Non-root clause	38% (8/21)
Total	83% (252/302)

Table 4: Weak pronoun placement in Renaissance Spanish

	Non-imperatives		Imperatives	
	Preverbal	Postverbal	Preverbal	Postverbal
1. <i>Wh</i> -word	X	—	—	—
2. Negation	X	—	X	—
3. Compl. NP	X	—	X	—
4. Prep. complement	X	—	X	—
5. Pred. complement	X	—	X	—
6. Verb	X	X	X	X
7. Paratactic clause	X	X	X	X
8. <i>Pero/mas</i> 'but'	X	X	X	X
9. Subject	X	X	X*	—
10. Vocative	X	—	X	X
11. Adverbial	X	X	X	X
12. Coordination	X	X	X	X
13. Object NP	X	X	X	X
14. Non-root clause	X	X	X	X

* Wish contexts only

In sum, we can conclude that diachronic changes in weak pronoun placement affected both the environments that were in MedSp strictly postverbal and those that exhibited already variation as in RenSp the former allow preverbal pronouns and the latter use this positioning unrestrictedly.

The MedSp environments that were strictly preverbal, on the other hand, did not undergo any syntactic changes.

2.2. Interpolation. It is often claimed that a concomitant change was the loss of interpolation (e.g. Nieuwenhuijsen, 1999: 116, 2006: 1382; Ramsden, 1963: 148). Nonetheless, cases such as (43) which display novel preverbal placement along with interpolation, seem to suggest that this claim has to be attenuated:

- (43) *Le* [yo] *daré...*
 WP I will-give
 ‘I will give her...’ (*Corbacho*: 264)

As this example shows, interpolation seems thus to have disappeared *after* novel preverbal cases, such as sentence-initial weak pronouns, started appearing. The first uncontroversial indications that the restriction on sentence-initial unstressed pronouns is disappearing date from the beginning of the 15th century (1438) whereas the last known interpolation examples are from the end of the 16th century (1594) (Keniston, 1937: 101; Rini, 1990: 362-363)⁸. Additionally, root clause examples that contain both novel preverbal placement and interpolation have been attested till mid 16th century (Keniston, 1937: 101). However, I concede that examples such as (43) are indeed very rare but I do not find this surprising in view of the following. Firstly, the occurrence of interpolation decreases sharply after the 14th century (Eberenz, 2000: 166). Secondly, interpolation is hardly found in root clauses even in the 13th and 14th century, a period in which interpolation is relatively frequent in non-root clauses (Chenery, 1905; Castillo Lluch, 1996, 1998; Sánchez Lancis, 1993)⁹. In consequence, the low occurrence of examples as (43) is expected¹⁰.

As a result, the syntactic re-bracketing used to describe the changes in weak pronoun placement from MedSp to ModSp, as in (44), needs an intermediate step, as in (45), since the former conflates different changes (see e.g. Nieuwenhuijsen, 1999: 116, 149)¹¹. More specifically, (44) suggests that sentence-initial unstressed pronouns are allowed once interpolation is lost. However, examples such as (43) indicate that there was an intermediate step $(X) + WP + (X) + V$, as shown in (45), in which the occurrence of preverbal pronouns no longer depends on the presence of a preceding constituent nor is there necessary verbal adjacency.

- (44) $[X + WP] + (X) + V > (X) + [WP + V]$
 (45) $[X + WP] + (X) + V > (X) + WP + (X) + V > (X) + [WP + V]$

⁸ According to Granberg (1988: 254), the first uncontroversial sentence-initial weak pronouns appear in the *Arcipreste de Talavera o Corbacho* (1438). However, preverbal pronouns in paratactic main clauses can be observed a lot earlier: the *Auto de los Reyes Magos* dating from around 1170 – the earliest theater play in Castilian Spanish – contains the following example twice (on verse 31 and 58) (see also Gutiérrez, this volume):

- (1) *ire, lo aorare*
 will-go WP will-adore
 ‘I will go and adore him.’ (*Auto*)

It remains to be seen whether these examples can be regarded as early attestations of the loss of the Tobler-Mussafia effects in view of the fact that it has been argued that the language use in this play points to a French source. According to Hirschbühler & Labelle (2000), French weak pronouns started appearing in absolute sentence-initial position in early 13th century, possibly earlier. Considering this, these early Spanish examples might indeed be manifestations of the influence of the French grammar into Spanish.

⁹ Castillo Lluch (1996: 310), for instance, registers in her MedSp corpus 53 interpolation cases out of a total of 245 complement clauses that could have presented this phenomenon. In other words, 21.6% exhibits interpolation (calculation is mine).

¹⁰ It should also be pointed out that the postverbal positioning at the beginning of a sentence has persisted till the beginning of the 20th century (see Buffum, 1927 for more details).

¹¹ Both (44) and (45) are syntactic representations and thus do not represent phonological cliticisation.

As regards the range of interpolated constituents, Eberenz (2000: 169) observes that for the 15th century, the most recurrent interpolated item is the negation adverb *non*, followed by the subject pronouns¹². He further encountered other adverbs (e.g. *asy* ‘like this’), prepositional complements, subject nouns and adjectives as interpolated constituents. This coincides largely with Castillo Lluch’s and Sánchez Lancis’ observations for MedSp.

Considering all the previous, the weak pronoun puzzle consists accordingly in unravelling the following questions:

- Why do some MedSp environments only allow preverbal pronouns while other only post-verbal ones?
- What motivates the oscillation between preverbal and postverbal pronouns within one and the same syntactic environment in MedSp?
- Why did the MedSp strictly postverbal environments acquire the possibility of occurring with preverbal pronouns in RenSp? Why did the restrictions present in MedSp variation constructions disappear in RenSp?
- What licenses interpolation?
- What factors played a role in the diachronic changes in Spanish weak pronoun placement?

3. THE FRAMEWORK: DYNAMIC SYNTAX

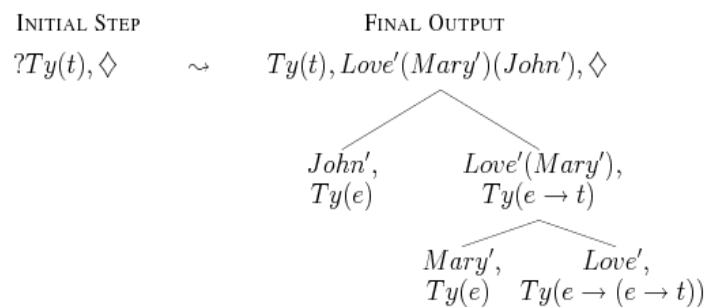
The accounts to be given for both the MedSp and RenSp weak pronoun systems adopt the Dynamic Syntax framework (DS; Kempson *et al.*, 2001, Cann *et al.*, 2005). It is a grammar formalism that reflects the dynamics of parsing. Further, we will see that the challenges presented by the weak pronoun puzzles are intertwined with those presented by word order variation. Both will be shown to make use of various processing strategies such as, for instance, different forms of underspecification that interact to determine how they are resolved in building up the meaning of the sentence. Although concepts of underspecification may be relatively novel in syntax, they are extremely familiar in models of parsing, which have to confront the notorious challenge of ambiguity in modelling natural language processing. Ambiguities can emerge in a number of ways: among them are (i) uncertainty in structural assignment (Marcus, 1980), (ii) uncertainty in construal of individual expressions (Kamp, 1981), (iii) uncertainty in information recoverable from morphological specifications (i.e. syncretism, Baerman *et al.*, 2005). The novelty of DS is to take as central to syntactic explanation the concept of underspecification combined with incremental growth of information during the parsing, and to see all these as related. Information recoverable from linguistic input is defined in a common format, namely as procedures for building up interpretation, represented in tree-structure form. Feeding relations between such growth processes are expected, with resolutions of one form of uncertainty (long-distance dependency) interacting with another (pronoun construal). As we shall see, such interactions can also explain weak pronoun related phenomena.

3.1. Building fixed nodes. The DS framework defines syntax as the incremental growth of semantic trees following the time-linear parsing/production process. These semantic trees represent a possible interpretation of the natural language string. Once the processing process is completed, the top-node of the tree is decorated with some propositional formula and each daughter-node with some sub-term of that formula, representing a predicate-argument structure. The starting point of

¹² In Eberenz’ corpus (2000: 169), 70% of all interpolated constituents contain the negation adverb *non*, whereas the subject pronouns make up 13% of the total (note that the calculations are mine, Eberenz only gives the absolute number of cases).

every parse is a tree with a root-node and requirement to construct some propositional formula ($?Ty(t)$), as on the left-hand side in Figure 1. The endpoint is a fully decorated binary branching tree-structure encoding predicate-argument structure, as exemplified by the tree on the right-hand side in Figure 1¹³.

The process of tree-growth is the sole basis of syntactic explanation: a sentence is defined to be well-formed just in case there is at least one possible route through that process leading to a complete propositional tree with no requirements outstanding. Tree-growth involves the unfolding of partial trees, whose node-relations and node-decorations all get progressively specified. Transition steps from one partial tree to another are licensed by the combination of lexical actions (triggered by parsing words), computational and pragmatic actions, together determining a monotonic process of tree-growth. These lexical, computational and pragmatic actions are all expressed in terms of growth along any of the dimensions associated with the decorations on the trees.

Figure 1: Parsing *John loves Mary*

Any aspect of tree-construction or decoration may thus be partial: central to the resolution of such partiality is the concept of requirement (represented by a question mark, $?X$ for any X , where X represents a type, formula or tree-node address)¹⁴. The underpinning formal system is a logic of finite trees (LOFT: Blackburn & Meyer-Viol, 1994) with two basic modalities, $\langle \downarrow \rangle$ and $\langle \uparrow \rangle$, such that $\langle \downarrow \rangle \alpha$ holds at a node if α holds at its daughter, and its inverse, $\langle \uparrow \rangle \alpha$, holds at a node if α holds at its mother. Function- and argument-relations are distinguished by defining two types of daughter relation, $\langle \downarrow_0 \rangle$ for argument-daughters, $\langle \downarrow_1 \rangle$ for functor-daughters (with their inverses $\langle \uparrow_0 \rangle$ $\langle \uparrow_1 \rangle$). Domination relations are then definable through Kleene star operators, e.g. $\langle \uparrow_* \rangle Tn(a)$ for some node identified as dominated by tree-node $Tn(a)$ ¹⁵. A node decorated with $\langle \uparrow_* \rangle Tn(a)$, $? \exists x. Tn(x)$ is a node that though introduced into the emergent tree has not yet been assigned a fixed tree-node relation.

Modal statements have an important role to play. They can be used to formulate modal requirements that can express restrictions on structural growth to yield familiar syntactic restrictions. For example, cases can be expressed as lexical constraints on the structure to be assigned as output. A nominatively marked expression, for instance, may be defined as projecting onto a node of the

¹³ Fo is a predicate that takes a logical formula as value e.g. $Fo(John')$, abbreviated here as $John'$; Ty a predicate that takes logical types as values, Tn a predicate that takes tree-node addresses as values, e.g. $Tn(0)$ being the root-node. The \diamond is a pointer, indicating the node currently under development. The annotation $[\downarrow] \perp$ indicates that a node is terminal and cannot be further developed. The level of detail in the trees is specific to the point to be made. Further, the order of the nodes in DS trees does not reflect word order but is determined conventionally: arguments appear on the left while functors on the right.

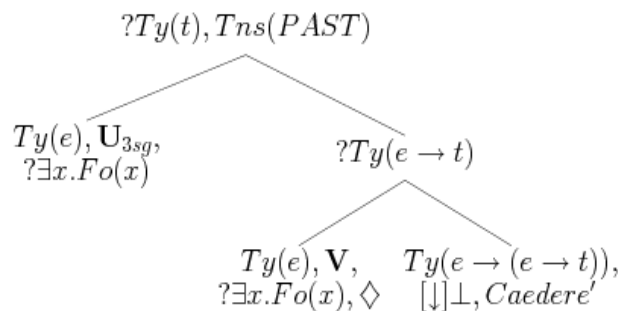
¹⁴ Examples include decorations on nodes such as $?Ty(t)$, $?Ty(e)$, $?Ty(e \rightarrow t)$ etc., which express requirements on nodes for formulae of appropriate type. $? \exists x. Fo(x)$ is a requirement for update of content (for a full formula specification) and $? \exists x. Tn(x)$ a requirement to provide a fixed tree-node address.

¹⁵ The Kleene star (*) intrinsic to defining $\langle \uparrow_* \rangle$ and other operators is also satisfied by the empty set.

emergent tree an output-filter requirement of the form $?<\uparrow_0>Ty(t)$, i.e. the requirement that its immediately dominating node host a formula of type t ; an accusatively marked expression is associated with imposing the requirement $?<\uparrow_0>Ty(e \rightarrow t)$. Since both structural and semantic properties are defined in tree-growth terms, the underspecification of content, associated with anaphoric expressions, can equally be expressed in these terms. More specifically, an interim place-holding metavariable U, V , etc. can be assigned to these content-underspecified expressions, accompanied by a requirement for update of content ($? \exists x.Fo(x)$). Whatever locality restrictions there are on the domain within which individual anaphoric expressions have to be construed, these can also be defined in tree-growth terms. For reciprocal pronouns for example, the full value for the projected metavariable has to be found at some node $Tn(a)$ along a path $<\uparrow_0><\uparrow_1^*><\downarrow_0>Tn(a)$ from the node being decorated by the reciprocal. In other words, a full content value has to come from some co-argument along some unspecified but uninterrupted functor spine.

With both lexical and structural processes defined as constraints on tree-growth, nothing precludes an individual word from projecting more than one node, and lexical specifications may project actions that create and decorate sub-trees. This provides us with a natural basis for cross-linguistic variation. Verbs, for instance, can (but need not) project a full template of propositional structure. In full pro-drop languages, the verbs are associated with lexical specifications that decorate both argument-nodes with metavariables. For example, Latin *cecīdit* ‘he/she/it killed him/her/it’, provides lexical actions that give rise to a tree in which both the subject- and object-argument nodes are decorated with a metavariable, to wit U and V (Figure 2). These metavariables capture the effect of null pronouns:

Figure 2: Result of parsing *cecīdit*



In non-pro-drop languages, on the contrary, verbs merely introduce argument-nodes with a requirement for an appropriate type (e.g. $?Ty(e), ?Ty(t)$) without any metavariables, thereby imposing the requirement for morphologically explicit argument-expressions.

3.2. Building unfixed nodes or structural underspecification. More controversially, the very same perspective of defining constraints on tree-growth as the syntactic basis is adopted for long-distance dependencies: the known parsing uncertainty associated with such expressions (Marcus, 1980; Kaplan & Zaenen, 1989) is taken to be a direct reflection of their structural properties. More specifically, DS uses the concept of structural underspecification to explain the different scrambling phenomena. Nodes can be introduced within the tree-structure as ‘unfixed’, i.e. the structural relation of such nodes to the rest of the tree not being known at the point at which the expression associated with the unfixed node is parsed. This process of **Adjunction* (‘star-adjunction’) is responsible for the construction of such nodes, licensing the introduction of a node with some underspecified dominate relation $<\uparrow^*>Tn(a)$ with respect to some tree-node $Tn(a)$. The exact role of the unfixed node is required to be determined at some later stage in the parsing process (by the requirement for a fixed tree-node address: $? \exists x.Tn(x)$). This operator is involved in analysing long-

distance cases, where the initial parse of the left-dislocated constituent remains without being assigned a semantic function in the unfolding structure until the embedded verb is encountered. There also exists a locally restricted variant of this operator, used to analyse local/short-scrambling. In these cases, *Local*Adjunction* introduces an argument-node relative to some dominating tree-node but with a constraint that this domination relation be fixed within the current predicate-argument domain. Accordingly, locally unfixed nodes are constructed as standing in a modal relation $\langle \uparrow_0 \rangle \langle \uparrow_1^* \rangle Tn(a)$ to some tree-node $Tn(a)$, specifying that the unfixed node is an argument ($\langle \uparrow_0 \rangle$) related through an unspecified number of functor nodes to the dominating node ($\langle \uparrow_1^* \rangle$). A defining property of trees and nodes they contain, is that a node in a tree is uniquely defined by its relation to all other nodes in the containing tree (Blackburn & Meyer-Viol, 1994). This has a consequence for the tree-construction process: there can only be one unfixed node of a type at a time in any partial tree, since the modally described relation will not allow any distinction between the output of two applications of **Adjunction*. Accordingly, any duplication of some tree-relation induces the immediate collapse of such pair of nodes, possibly leading to an incoherent tree-node decoration (unless individual decorations of the duplicated nodes are compatible). This restriction has an important role to play in the introduction and update of unfixed nodes. For instance, freedom in local word order can be expressed via successive steps of *Local*Adjunction* prior to the parse of some verb only as long as the unfixed node can be fixed immediately after the parse of the relevant expression (e.g. through case-marking, pragmatic inference)¹⁶. The result is then that the relation between the argument-node and the dominating node is fixed at the point of parsing the NP, before the verb is processed. The actions of the verb then serve to fill out the remainder of the propositional structure to yield the appropriate output-tree, with the nodes already constructed falling together harmlessly with the structure projected by the parse of the verb. Such a derivation for a double NP sequence is by no means the only type of tree-growth sequence available. To the contrary, the framework licenses a number of derivations for any single string interpretation pairing. The first NP expression might, for example, be taken to decorate an unfixed node introduced through the non-local step of **Adjunction*. In consequence, no other unfixed node can be introduced by this computational process before it gets fixed. Nonetheless, *Local*Adjunction* remains available for the processing of some subsequent NP that might follow since it is defined as introducing a discrete tree-relation albeit also unfixed. The consequence is an alternative sequence of processing strategies for constructing the same string-interpretation pairing.

3.3. Building linked trees. In addition to fixed nodes and the different types of structural underspecification, there is one further processing strategy. Mechanisms for building paired structures are also available: a distinct emergent structure can be constructed as a transition from a node in some prior constructed partial tree. This newly introduced structure contains a requirement that the two structures must share some term, hence the label ‘linked’ trees. More specifically, the newly introduced tree is required to contain somewhere within it a copy of the formula that decorates the node from which the link-relation is constructed (see $\langle \downarrow_* \rangle Fo(a)$ in Figure 3)¹⁷.

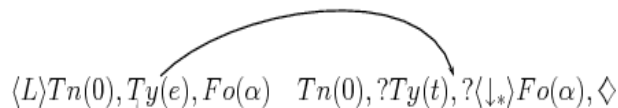
The construction of relative clauses, clausal adverbials, and external topic constructions makes use of this processing strategy (Cann *et al.*, 2005). In Spanish, the construction of such

¹⁶ Case specifications can function as output-filters ensuring that the term projected by some nominal expression is fixed in an appropriate position. In a constructive use of case-marking (Nordlinger, 1998), they are taken to induce a step of abduction that imposes an immediate update of the underspecified tree-relation guaranteeing the satisfaction of the output-filter.

¹⁷ The process of inducing such pairs of semantic trees is permitted by defining an additional modal operator in the tree logic $\langle L \rangle$, and its inverse $\langle L^{-1} \rangle$. Further, a rule is defined to yield a transition from an arbitrary node in one tree across a link-relation to the top-node of a new $Ty(t)$ -requiring tree.

linked structures for the subjects is possible without any duplication of two expressions or appropriately construed anaphoric expression in virtue of its subject-pro-drop nature: what is imposed is a requirement at the level of output-tree representation, not on morphological form. I shall come back to the processing of subjects later on.

Figure 3: Building link transitions



What is striking about this overall parsing perspective is that any string interpretation pairing may be able to be built up in more than one way. Far from this constituting an unwarranted spurious ambiguity, this is an expected side effect of defining a parsing-directed grammar formalism. Alternative processing strategies for achieving string-interpretation pairings are thus anticipated. Indeed, the availability of different processing strategies gives a flexibility that is essential to the way ongoing communication can be successful despite the lack of any guarantee in the utterance-interpretation process. As we shall see in the following, the syntactic variation observed in the MedSp and RenSp weak pronoun systems can be explained in virtue of the different processing strategies available for one and the same natural language string. More specifically, I shall demonstrate that the way in which the semantic content is constructed for left-peripheral constituents preceding weak pronouns affects the syntactic positioning of these weak pronouns in finite verb clauses. Interpolation can also be accounted for on the basis of the availability of the various processing strategies. In sum, I shall argue that processing factors can contribute to both syntactic intra-speaker variation and syntactic change.

4. MEDIEVAL SPANISH ANALYSES

4.1. Weak pronoun placement. In this section, I shall show that MedSp weak pronoun placement is governed by the different strategies used for processing the constituents preceding the weak pronouns. More precisely, preverbal placement is found whenever a negation marker, a subordinating element, or a constituent that can be represented as structurally (syntactically) underspecified i.e. an expression decorating an unfixed node precedes the weak pronoun. Postverbal pronouns, on the other hand, appear in the absence of these triggers. In the following, the different environments containing weak pronouns will be scrutinised from a DS point of view in order to verify these claims.

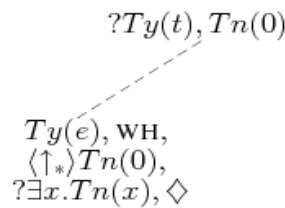
In section 2.1.1, I identified various finite main clause environments that solely appear with preverbal unstressed pronouns, to wit those in which the weak pronoun is preceded by (i) a *wh*-word, (ii) a negation adverb, (iii) a non-coreferential complement NP, (iv) a prepositional or (v) a predicative complement. All these left-peripheral constituents preceding the weak pronouns are modelled in DS as involving an unfixed node¹⁸. Thus, after the starting point of the parse, **Adjunction* may construct an unfixed node which can then be decorated by one of these left-peripheral elements once its lexical actions have been processed, as illustrated in Figure 4 for *wh*-questions.

A similar analysis can be given for the left-peripheral non-coreferential complement NPs, prepositional and predicative complements. Accordingly, these environments also involve the application of **Adjunction* to introduce an unfixed node, which the left-peripheral complement will

¹⁸ I will not provide an analysis for the negation constructions, as this issue has not been addressed yet in DS. The feature [NEG +] will be used to mark the presence of a negation operator.

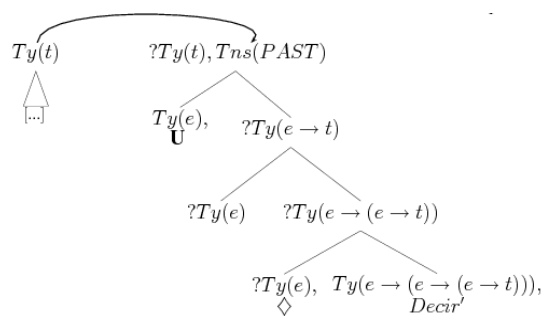
then annotate and which subsequently will get fixed in the tree. Hence, weak pronouns in strict preverbal root clause environments seem indeed to be preceded by a left-peripheral constituent decorating an unfixed node or a negation marker.

Figure 4: Parsing a *wh*-word



The analyses for the strict postverbal constructions, on the other hand, do not involve structural underspecification nor do the complement clauses¹⁹. Recall that the MedSp environments that always appeared with postverbal pronouns are those in which the verb appears in an absolute sentence-initial or paratactic position, or those constructions with *pero/mas* ‘but’. These latter, for instance, are analysed as different *Ty(t)*-trees between which a link relation has been established (without requirement for a copy of a formula). Once *pero/mas* introduces the linked structure, the verb is parsed and its lexical actions give the full subject-predicate template, decorate the subject-argument node with a metavariable (e.g. *U*) and then place the pointer at the newly constructed object-argument node decorated with the requirement *?Ty(e)*, as exemplified in Figure 5 for example (17). The postverbal pronoun can then decorate this fixed object-node.

Figure 5: Parsing the verb after *pero/mas*



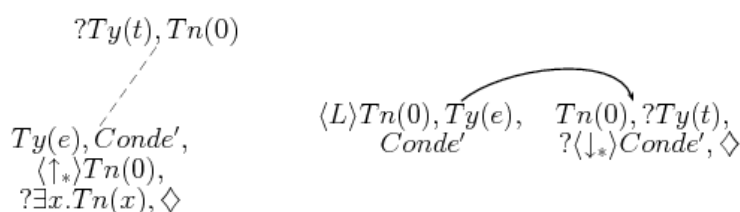
Observe that in these analyses the postverbal pronouns pattern with postverbal complement NPs as both not only show distributional parallelisms but also are taken to decorate a fixed argument-node within the tree. The analyses for the other two strict postverbal constructions are very similar as in these the lexical specifications of the verb will also build the full subject-predicate structure and leave the pointer at the (in)direct object node. The only difference is that, unlike the *pero/mas* constructions, these do not involve linked structures. We can thus conclude that the strict postverbal constructions do not contradict my claim that preverbal unstressed pronouns occur in the presence of the previously discussed preverbal triggers (i.e. an unfixed node, negation marker or subordinating element) since the analyses for these strict postverbal construals do not involve these processing strategies.

The left-peripheral expressions of the variation constructions, unlike the ones in strict preverbal or strict postverbal environments, can be analysed in various ways in view of the fact that DS makes available different processing possibilities. In other words, the semantic representations of

¹⁹ See Cann *et al.* (2005) and Kempson *et al.* (2001) for a DS account of relative clauses, and Gregoromichelaki (2005) for a DS analysis of conditionals.

these expressions can be constructed in different ways since different concepts of tree-growth are made available, such as, unfixed nodes (structural underspecification), fixed nodes, linked structures, etc. More specifically, the analyses of these left-peripheral expressions involve the construction either of an unfixed node (triggering preverbal placement), or of fixed nodes with/without linked structures (triggering postverbal positioning). Preverbal subjects, for instance, can be represented in subject-pro-drop languages such as MedSp/RenSp, as decorating a (locally) unfixed node or a $Ty(e)$ -linked structure with a requirement for a shared formula, since the lexical specifications of the verb decorate the subject node with a metavariable as an anaphoric placeholder, exactly as though a morphologically expressed pronoun were present. If the subject is then processed as decorating an unfixed node, this unfixed node will merge later on in the parse with the subject node which the verb introduced and annotated with a metavariable, as shown on the left-hand side in Figure 6 for the left-peripheral subject *el conde* in (18)²⁰. However, if the subject is parsed/produced as a $Ty(e)$ -linked structure, the subject metavariable introduced by the verb will duly be replaced by a term that is identical to whatever decorates the linked structure, fulfilling its requirement for a shared term, as illustrated on the right-hand side in Figure 6 for example (19).

Figure 6: Parsing possibilities for the left-peripheral subject *el conde* in (18)-(19)



Similarly, various analyses are available for the left-peripheral constituents in other variation constructions: as mentioned, they can either be analysed as involving the construction of an unfixed node, or they can be taken to decorate fixed nodes/linked trees. In sum, the oscillation between preverbal and postverbal weak pronoun placement within the same syntactic environment is thus expected. Accordingly, the heterogeneous positioning in these environments does not pose a problem. More generally, MedSp weak pronoun placement seems indeed to be regulated by different processing strategies used for the constituents preceding the weak pronouns. Preverbal placement is encountered when a negation marker, a subordinating element or a constituent decorating a left-peripheral unfixed node, precedes the unstressed pronoun. Postverbal weak pronoun positioning, on the contrary, occurs in the absence of these triggers.

4.2. Lexical characterisation of weak pronouns. Now that I have examined the various weak pronoun environments and their respective analyses, I shall discuss the lexical characterisation of the MedSp weak pronoun. We saw that Granberg (1988), for instance, observed that pragmatic considerations were at the basis of the MedSp subject environments, as the appearance of preverbal pronouns is associated with a focus reading of the preceding subject. I go further by claiming that the whole MedSp weak pronoun system can be seen as a consequence of the encoding of a pragmatically driven strategy since in Latin weak pronouns occur close to the left-edge of a clause in order to minimise production costs. Latin weak pronouns also follow a structurally heterogeneous set of categories, very similar to the triggers for occurrence of MedSp unstressed pronouns (e.g. following negative expressions, verbs etc.; Adams, 1994; Devine & Stephens, 2006; Bouzouita, 2007; Kempson & Cann, 2007). It is this relevance-driven distribution that became calcified in the lexical specification of the weak pronoun through a routinisation process, i.e. the lexical stor-

²⁰ For simplicity reasons, the determiner has been ignored in the tree displays given in Figure 6.

age of sequences of expressions that are ‘fixed’ to a relatively great extent (Pickering & Garrod, 2004: 181). In effect, a routinisation creates a processing advantage as the amount of individual retrievals from the lexicon is reduced. The most well known examples of routines are the non-productive ones such as idioms (e.g. *kick the bucket*), whereby the component words get stored as a complex in the lexicon. In the lexical entry for the MedSp weak pronoun, on the other hand, it is the pragmatic basis of weak pronoun placement that got stored in the lexicon²¹. Accordingly, the once fully pragmatic basis for the distribution of unstressed pronouns has been replaced with a lexically encoded basis. In consequence, the distribution of MedSp weak pronouns is thus no longer determined simply by pragmatic reasoning itself as this has got shortcut by the presence of a routinised sequence of lexical actions.

One of the consequences of this routinisation process is that, because calling up pragmatic reasoning is no longer necessary, the pragmatic basis can eventually vanish, which is exactly what happened in the period between MedSp and RenSp. I shall come back to this point when discussing the lexical entry of the RenSp weak pronouns (section 6). Another consequence of this routinisation is that the lexical encoding of the weak pronoun is highly disjunctive, the only property held in common by the different triggers for weak pronoun placement being that they all reflect confirmation that an emergent propositional boundary has definitively been established. As Figure 7 illustrates, the lexical entry of MedSp reflects this lexical calcification of the earlier pragmatic basis since preverbal pronouns can only be constructed in the presence of a negation marker, subordinating element or an unfixed node whereas the postverbal ones in the absence of such triggers²².

Figure 7: Lexical entry of the Medieval Spanish accusative weak pronoun *lo*

P	IF	$?Ty(t),$	
R		$Tn(a)$	
E	THEN	IF	$[NEG+] \vee$ } Negative marker
V			$(\langle \downarrow_* \rangle Fo(\alpha), ?\exists x.Tn(x)) \vee$ } Unfixed node
E			$? \exists x.Tns(x)$ } Tense marker
R		THEN	$make(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$
B			$go(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$
A			$put(Fo(\mathbf{U}), Ty(e),$
L			$? \exists x.Fo(x), [\downarrow] \perp,$
			$? \langle \uparrow_0 \rangle Ty(e \rightarrow t))$
	ELSE	ABORT	
P	ELSE	IF	$?Ty(e),$
O			$\langle \uparrow \rangle \top$
S		THEN	IF
T			$(\langle \uparrow_0 \rangle \langle \uparrow_1 \rangle (?Ty(t) \wedge [NEG+])) \vee$
V			$(\langle \uparrow_0 \rangle \langle \uparrow_1 \rangle (?Ty(t) \wedge \langle \downarrow_* \rangle (Fo(\alpha), ?\exists x.Tn(x)))) \vee$
E			$(\langle \uparrow_0 \rangle \langle \uparrow_1 \rangle (?Ty(t) \wedge \langle \uparrow \rangle \top))$
R		THEN	ABORT
B		ELSE	$put(Fo(\mathbf{U}), Ty(e),$
A			$? \langle \uparrow_0 \rangle Ty(e \rightarrow t),$
L			$? \exists x.Fo(x), [\downarrow] \perp$
	ELSE	ABORT	

Furthermore, both preverbal and postverbal pronouns are taken to annotate fixed object nodes. The nodes decorated by the postverbal pronouns have been introduced by the lexical specification of the verb, as discussed earlier (see Figure 5). Those being annotated by preverbal unstressed pronouns, on the other hand, have been constructed by the lexical entry of the weak pronoun itself due to the lexical calcification of the accusative case in Old Romance²³.

²¹ It is hard to pinpoint when exactly this routinisation process occurred considering such a change cannot be visually discerned as a change in weak pronoun placement.

²² Observe that the subordinating element trigger consists in the requirement for a tense specification ($? \exists x.Tns(x)$) since I assume that the lexical specifications of complementisers introduce this requirement.

²³ For more details on case in Latin and the lexical calcification of it in MedSp weak pronouns, we refer the reader to Bouzouita (in preparation).

4.3. Interpolation. I shall now show that the availability of different processing strategies is not only responsible for the syntactic intra-speaker variation between preverbal and postverbal placement but can also account for interpolation, as in (46) and (47).

- (46) *queles* [esta mj carta] *mostrare*
 that-WP this my letter show
 ‘[He ordered the man] to show them my letter.’ (Castillo Lluch, 1998: 412)
- (47) *si lo* [el rey] [por bien] *toviere*
 if WP the king for good has
 ‘If the king considers it good...’ (Rivero, 1991: 244)

Not only is this phenomenon straightforwardly analysable by DS mechanisms but also is there more than one strategy yielding this effect, like for other phenomena. Generally speaking, single interpolation cases, such as (46), involve *Local*Adjunction*, as shown in Figure 8:

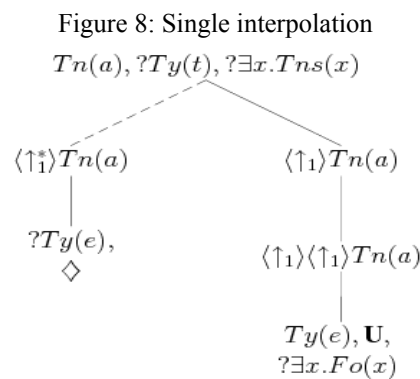
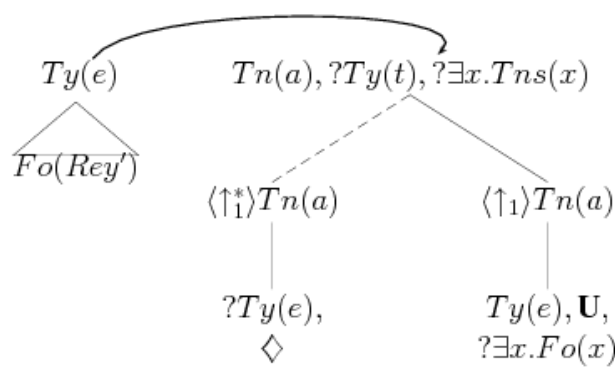


Figure 8 displays the moment in the parse of example (46) at which the dative pronoun *les* has been processed and *Local*Adjunction* has built a $Ty(e)$ -requiring locally unfixed node, which the interpolated direct object *esta mj carta* ‘my letter’ will subsequently annotate. After the decoration of this locally unfixed node, the verb will give the propositional template and the unfixed node will be able to get a fixed position within the tree. Although this analysis involves the decoration of a locally unfixed node, other alternatives are available depending on the function and lexical make-up of the constituent separating the unstressed pronoun from the verb. Interpolated subjects, for instance, can also be taken to annotate $Ty(e)$ -linked structures since MedSp is a subject pro-drop language (see right-hand side in Figure 6). Subject pronouns, such as *yo* in (43), can construct a fixed subject-node due to inherent case specifications. The only processing strategy that cannot be responsible for interpolation is **Adjunction* as its application is restricted to those constituents appearing on the left-edge of the clause.

Similarly, there are various ways of analysing multiple interpolation cases. The interpolated subject *el rey* in (47), for instance, can be analysed as annotating a $Ty(e)$ -linked structure, followed by a locally unfixed node which can then be decorated by the prepositional complement *por bien*, as shown in Figure 9. Another analysis option is available: one in which both the subject and the prepositional complement annotate locally unfixed nodes that get structurally enriched by pragmatic inference. As mentioned, multiple interpolation examples like this one are extremely rare in MedSp, which might indicate that there might indeed be a processing difficulty, which disfavoured their use.

Figure 9: Multiple interpolation



5. RENAISSANCE SPANISH ANALYSES

Recall that all MedSp environments in which postverbal pronouns were allowed acquired the possibility of occurring with preverbal pronouns as well in RenSp (see section 3.1). As we shall see, this was due to a relatively small change in the lexical entry of the weak pronoun: the so-called preverbal pronoun triggers that were present in MedSp (the presence of a negation marker, a subordinating element (tense marker) or an unfixed node) no longer applied occurred in RenSp, as shown in Figure 10.

Figure 10: Lexical entry for Renaissance Spanish accusative weak pronoun *lo*

P	IF	$?Ty(t),$	
R		$Tn(a)$	
E	THEN	$make(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$	
V		$go(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$	
E		$put(Fo(\mathbf{U}), Ty(e),$	
R		$?∃x.Fo(x), [\downarrow] \perp,$	
B.		$? \langle \uparrow_0 \rangle Ty(e \rightarrow t))$	
	ELSE	IF	$?Ty(e),$
P			$\langle \uparrow \rangle \top$
O		THEN	IF
S			$(\langle \uparrow_0 \rangle \langle \uparrow_1^* \rangle (?Ty(t) \wedge [NEG+])) \vee$
T			$(\langle \uparrow_0 \rangle \langle \uparrow_1^* \rangle (?Ty(t) \wedge \langle \downarrow_* \rangle (Fo(\alpha), ?∃x.Tn(x)))) \vee$
V			$(\langle \uparrow_0 \rangle \langle \uparrow_1^* \rangle (?Ty(t) \wedge \langle \uparrow \rangle \top))$
E		THEN	ABORT
R		ELSE	$put(Fo(\mathbf{U}), Ty(e),$
B.			$? \langle \uparrow_0 \rangle Ty(e \rightarrow t),$
			$?∃x.Fo(x), [\downarrow] \perp)$
	ELSE	ABORT	

The immediate result of the loss of these triggers is thus the diffusion the occurrence of this preverbal positioning in substantially more environments: RenSp preverbal pronouns can appear preverbally as long as there is a $?Ty(t)$ -requirement. Note however that the same does not apply to the occurrence of postverbal pronouns, as these restrictions remain unchanged. The diachronic shift from using predominantly postverbal pronouns to preverbal ones is thus modelled in this account as the simplification of the lexical characterisation of the unstressed pronoun. Notwithstanding this, the consequence of this lexical simplification is not a more simplified distribution as in RenSp more environments exhibit syntactic variation.

However, the question remains why this simplification in the lexical entry occurred. Recall that once routinisation took place in MedSp, the original pragmatic motivation underpinning weak pronoun placement gradually disappeared, as it had been shortcut. With no pragmatic basis or intonation cues present, a processing mismatch between speaker and hearer is then plausible for the variation environments since the left-peripheral expressions can be produced/parsed using various

processing strategies. The change could thus have happened because dialogue exchanges are never algorithmically determinable. The left-peripheral subject in a sentence containing a preverbal pronoun, for instance, can be produced as annotating an unfixed node, as in the left-hand side of Figure 6. The hearer, on the other hand, can parse this subject as annotating a $Ty(e)$ -linked structure, as in the right-hand side of Figure 6. Once the preverbal pronoun has been heard, the hearer has two processing choices: (i) they can access the lexical entry for MedSp weak pronouns and notice that the left-peripheral subject should have been parsed as an unfixed node due to the occurrence of this preverbal pronoun and consequently choose to parse this subject as an unfixed node instead or (ii) they can ignore this MedSp lexical entry and infer that preverbal unstressed pronouns are allowed after linked structures since that is how they just parsed the left-peripheral subject. In the latter option, the hearer effectively reanalysed the lexical entry for the weak pronoun as given in Figure 10. In other words, a production-parsing mismatch in the variation environments could accordingly have led to the inference that there are no conditions on the occurrence of preverbal pronouns. Once the hearer has made such a move, and indeed has done so on a recurrent basis, this reanalysis could be used as the basis for a production decision, thereby confirming a shift of analysis in the system itself. Notice further that this production-parsing mismatch, restricted to taking place in variation environments only, led to the reanalysis of the weak pronoun's lexical entry, hence affecting all the other environments as well. Furthermore, such a reanalysis can only take place once the original pragmatic reasoning behind weak pronoun placement vanished and with it its specific intonation patterns. Such atrophying has been attributed to the routinisation process whereby the pragmatic considerations becoming lexically calcified. Importantly, this reanalysis does not affect interpolation, which is still observed in RenSp, as illustrated in (43), but only the Tobler-Mussafia Law. In other words, while the restriction on sentence-initial weak pronouns is loosened, verbal adjacency is still not required in RenSp, despite being strongly favoured. Consequently, unlike other accounts, this analysis does not conflate the loss of these two distinct phenomena (see section 3.2).

We can conclude that the different processing strategies can thus be regarded not only as the source of synchronic intra-speaker variation in MedSp weak pronoun placement but also as partially responsible for the diachronic shift towards the predominant use of preverbal pronouns in RenSp.

6. CONCLUSION

In conclusion, I have argued that MedSp weak pronoun placement is governed by different processing (producing/parsing) strategies i.e. different ways of building up semantic content. More specifically, preverbal placement is observed when the weak pronoun is preceded by a negation marker, a subordinating element or a structurally underspecified constituent, whereas postverbal pronouns are precluded from arising after these triggers but occurs in all other environments (fixed nodes/linked structures). Accordingly, MedSp placement is no longer governed by pragmatic considerations but by different processing (producing/parsing) strategies since the original pragmatic underpinning became routinised i.e. lexically calcified in the weak pronoun characterisation in order to create a processing shortcut. Furthermore, syntactic variation between preverbal and postverbal weak pronoun positioning within one and the same syntactic environment is expected since different processing strategies are made available for any one sequence of words to be parsed. Interpolation can equally be accounted for in these terms. Accordingly, we can conclude that processing factors contribute to the syntactic intra-speaker variation observed in the MedSp weak pronoun system.

As concerns the diachronic changes, a diffusion of preverbal pronouns was observed in RenSp as those environments that were previously strictly postverbal started using preverbal pronouns as well. This was attributed to a reanalysis of the lexical characterisation of the unstressed pronouns:

namely, the restrictions on the occurrence of preverbal pronouns got lost. Additionally, once the pragmatic reasoning behind weak pronoun placement vanished (due to routinisation), the various processing strategies could have played a role in this diachronic change since their availability within one syntactic environment makes a processing mismatch between speaker and hearer possible. This processing mismatch could eventually have resulted in a reanalysis of the lexical entry of the weak pronoun, which consists in the loss of restrictions on preverbal placement. We can thus conclude that routinisation played an important role in the syntactic changes that occurred between MedSp and RenSp. Additionally, processing factors can contribute to both syntactic intra-speaker variation and syntactic change.

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