

The Reanalysis of Schwa in Old French Determiners: Gender, Number and the Nominal Spine*

Mireille Tremblay and Monique Dufresne
Université de Montréal and Queen's University

SUMMARY

This paper revisits some of the findings and data presented in Dufresne, Tremblay and Déchaine (2018) and Déchaine, Dufresne and Tremblay (2018). We provide evidence that restructuring of the nominal spine took place in 12th-century Old French. The reduction of feminine *-a_F* in Gallo-Romance created an allomorph: feminine schwa *-e_F*. This feminine schwa was subsequently partly reanalyzed, either as an epenthetic vowel [ə] (in *les*), or as a new morpheme marking singular number *-e_{SG}* (in *une*). This change is responsible for the fusion of Gen and Num in the nominal spine. Evidence for this proposal comes from three changes in the variable use of determiners in 12th-century Old French.

RÉSUMÉ

Dans cet article, nous revenons sur certaines données et conclusions de Dufresne, Tremblay and Déchaine (2018) et de Déchaine, Dufresne et Tremblay (2018). Nous démontrons qu'une restructuration de l'échine nominale de l'ancien français s'est produite au 12^e siècle. La réduction du *-a_F* féminin en gallo-roman a créé un allomorphe : le schwa féminin *-e_F*, qui, par la suite, a été réanalysé, soit en voyelle épenthétique [ə] (dans *les*), soit en morphème du singulier *-e_{SG}* (dans *une*). Ce changement a entraîné la fusion des projections Gen et Num dans l'échine nominale. À l'appui de notre analyse, nous évoquons trois changements dans l'utilisation variable des déterminants au 12^e siècle.

* It is a pleasure to contribute to this festschrift in honour of Lisa Travis, who has been a mentor and whose contributions to the fields of morphology and syntax continue to inspire us. This paper builds heavily on our previous work with Rose-Marie Déchaine (Déchaine et al., 2018 and Dufresne et al., 2018), and greatly benefited from many of her insights. We wish to thank the participants at ICHL 2017, LSRL 2017 and MoMOT 2017 for comments and suggestions.

1 INTRODUCTION

1.1 THE PUZZLE

In most Romance languages, gender and number appear as separate morphemes on D, as in Spanish *la*, *las*, and *los*. In Modern French however, D is marked either for gender, as in *la* [la] or *le* [lə], or number as in *les* [lɛ]. In terms of structure, this indicates that Gen and Num are distinct functional heads (F-heads) in most Romance languages (including proto-Romance), but that in French, they are realized on the same F-head (Déchaine, Dufresne and Tremblay 2018). When did Gen and Num cease to be distinct F-heads in French? What triggered the change?

1.2 THE PROPOSAL

This paper adopts the nanosyntactic analysis of Old French (OF) determiners developed in Déchaine et al. (2018). We revisit the data presented there to argue that a structural change affecting the nominal spine took place during the second part of the 12th century. We specifically argue that the reduction of feminine *-a_F* during the 8th century created an allomorph: feminine schwa *e_F*. This schwa marked feminine gender. During the 12th century, this feminine schwa was reanalyzed, either as an epenthetic vowel [ə] (in *les*), or as a new morpheme marking singular number *-e_{SG}* (in *une*). This change resulted in the fusion of Gen and Num in the nominal spine. Evidence for this proposal comes from three changes in the variable use of determiners in 12th-century OF.

1.3 ORGANIZATION OF THE PAPER

Section 2 presents the OF nominal paradigm and the factors conditioning the variable use of determiners in OF. Section 3 argues that the reduction of word-final /a/ in Gallo-Romance created a new allomorph of feminine *-a_F*, feminine schwa *-e_F*, and that gender asymmetries in early 12th-century OF provide empirical support for the proposal. In section 4, evidence from late 12th-century OF shows that this new feminine schwa *-e_F*, was subsequently reanalyzed as either an epenthetic vowel [ə] or as a new morpheme—marking singular number *-e_{SG}*. Section 5 discusses the impact of the reanalysis of schwa [ə] on the structure of the nominal spine in the history of French. Finally, section 6 reviews our findings with respect to synchronic/diachronic variation in the D-system.

2 THE VARIABLE USE OF DETERMINERS IN OLD FRENCH

2.1 THE OLD FRENCH NOMINAL PARADIGM

Table 1 summarizes the OF D and N paradigms. While masculine Ns are marked for case (nominative versus accusative) and number (singular versus plural), feminine Ns only contrast number. Determiners are often optional¹, and in early² OF, there is no dedicated indefinite plural determiner.

¹ The examples in (i), from Déchaine et al. (2018), illustrate the optional use of the determiner *les* in *Brendan*.

Table 1: OF definite and indefinite determiners

| | | Masculine | | Feminine | |
|------------|----------|----------------------------|----------------------------|------------------------------|------------------------------|
| | | Subject | Object | Subject | Object |
| Definite | Singular | (<i>li</i>) <i>rois</i> | (<i>le</i>) <i>roi</i> | (<i>la</i>) <i>reine</i> | (<i>la</i>) <i>reine</i> |
| | Plural | (<i>li</i>) <i>roi</i> | (<i>les</i>) <i>rois</i> | (<i>les</i>) <i>reines</i> | (<i>les</i>) <i>reines</i> |
| Indefinite | Singular | (<i>uns</i>) <i>rois</i> | (<i>un</i>) <i>roi</i> | (<i>une</i>) <i>reine</i> | (<i>une</i>) <i>reine</i> |
| | Plural | <i>roi</i> | <i>rois</i> | <i>reines</i> | <i>reines</i> |

In this highly syncretic system, masculine bare Ns are ambiguous: the suffix *-s* marks either subject singular or object plural (*rois*), and bare masculine Ns without the suffix *-s* can be singular objects or plural subjects (*roi*). The use of determiners disambiguates the situation (*li rois* ≠ *li roi* ≠ *le roi* ≠ *les rois*). In contrast, feminine bare Ns are not ambiguous, and the suffix *-s* always marks plural number. This difference between masculine and feminine count Ns partly explains why masculine determiners emerge before feminine determiners (Déchaine et al., 2018).

2.2 FACTORS CONDITIONING THE VARIABLE USE OF DETERMINERS IN OLD FRENCH

Previous studies have shown that, in OF, the presence of determiners is conditioned by a number of factors: argument status, semantic class, grammatical function, definiteness, number, and gender (Boucher, 2005; Buridant, 2000; Carlier, 2007, 2013; Carlier & Goyens, 1998; Déchaine et al., 2018; Dufresne et al., 2018; Foulet, 1928/1974; Mathieu, 2009; Moignet, 1976; Stark, 2007, 2008). These studies show that determiners are favored by argument Ns, count Ns, subject Ns, definite Ns, singular Ns, and masculine Ns.

In a recent paper based on a comparative study of two 12th-century texts³, *Le voyage de Saint-Brendan* (c.1106-21) and *Les lais de Marie de France* (c.1154-1189), Dufresne, Tremblay & Déchaine (2018) showed that count Ns and non-count Ns had distinct trajectories: as shown in Table 2, while count Ns behaved as expected and showed an increase in determiners during the 12th century, non-count Ns surprisingly decreased their use of determiners during the same period.

(i) a. *Les plaies sunt mult parfundes,* / *Dun senglantes sunt les undes.*
 DEF.PL wounds are very deep / from.where bloody are DEF.PL waves
 ‘The wounds are very deep, and **the waves** are bloodied’ [B v.943-944]

b. *Undes de mer le ferent fort,* / *Pur quei n' ad fin la sie mort.*
 waves of sea him hit strong / for what not have end DEF.F his death
 ‘[**The waves** whip him and make him suffer a death without end.’ [B v.1226-1227]

² In this paper, we use the label early OF to refer to pre-1150 OF.

³ Both texts were drawn from the syntactically annotated corpus *Les voies du français* (Martineau, 2008). Only argument nominals in subject and object position were considered. Translations of the target texts were used to determine whether a bare N should be construed as definite or indefinite. This yielded a corpus containing a total of **1650** occurrences (**445** in *B*, and **1205** in *MdeF*.) For each text, the effect of the linguistic factors was analyzed using the variable rule programme *GoldVarb Lion* (Rand & Sankoff 1990; Sankoff et al. 2005).

Table 2: Use of determiners with count and non-count Ns in *Brendan* and *Marie de France* (adapted from Déchaine, Dufresne & Tremblay 2018)

| | Count Ns | | Non-count Ns | |
|------------------------|----------|------|--------------|-----|
| | % | N | % | N |
| <i>Brendan</i> | 71.3 | 355 | 48.9 | 90 |
| <i>Marie de France</i> | 85 | 1105 | 38 | 100 |

In a subsequent paper, Déchaine et al. (2018) showed another distinction between the two semantic classes of Ns. The results are summarized in Table 3. For count Ns, gender is a statistically significant factor in *Brendan*, with masculine Ns favoring determiners, but this factor was no longer significant in *Marie de France*. Thus, in count Ns, the use of determiners with feminine Ns increased more rapidly (Δ 26%) than with masculine Ns (Δ 7%). As a result, in *Marie de France*, masculine Ns no longer favor bare Ns.

The effect was found to be the opposite in non-count Ns: gender is not a significant factor in *Brendan*, but this factor is significant in *Marie de France*, with masculine Ns disfavoring determiners. Table 3 shows that the use of determiners with masculine Ns decreased sharply (Δ -37%), while the use of determiners with feminine non-count Ns remained stable (Δ -1%).

Table 3: Use of determiners with masculine and feminine count and non-count Ns in *Brendan* and *Marie de France* (adapted from Déchaine, Dufresne & Tremblay 2018)

| | Count Nouns | | | | Non-count Nouns | | | |
|----------------|-------------|-----|----------|-----|-----------------|----|----------|----|
| | Masculine | | Feminine | | Masculine | | Feminine | |
| | % | N | % | N | % | N | % | N |
| <i>Brendan</i> | 77.6 | 228 | 59.8 | 127 | 54.8 | 62 | 35.7 | 28 |
| <i>MdeF</i> | 84.5 | 644 | 85.7 | 461 | 17.9 | 39 | 34.4 | 61 |

These findings raise a number of questions: 1- For count Ns, what caused the neutralization of gender in *Marie de France*? 2- For non-count Ns, what caused the decrease of the use of determiners with masculine Ns, and why did this change only affect masculine Ns? 3- Finally, how are these two changes related? The next two sections seek to answer these questions. Section 3 briefly describes the early OF D-system and presents evidence for the existence of an allomorph of the feminine marking morpheme *-a_F*: feminine schwa *-e_F*. Section 4 argues that the neutralization of gender in *Marie de France* is a consequence of the loss of the feminine *-e_F* and its reanalysis as either an epenthetic vowel [ə], or a new morpheme marking singular *-e_{SG}*. Section 4 further argues that the decrease of determiners with masculine non-count Ns is also the result of the introduction of this new singular morpheme.

3 DETERMINERS IN EARLY OF

3.1 DETERMINERS AND THE REDUCTION OF WORD-FINAL [-a] IN GALLO-ROMANCE

During the 7th and 8th centuries, while unaccentuated final vowels other than [a] were lost, unaccentuated final /a/ became /ə/ (central e), as in *rosa*>*rose*. The reduction of /a/ also took

place in front of *-s* as in *rosas* > *roses* (Fouché 1958, Zink 1986). The consequences of these two changes on the emerging D-system were the following: the feminine indefinite singular determiner *una* /una/ became *une* /unə/, and the feminine definite plural determiner *las* /las/ was reduced to *les* /ləs/. The change did not affect the feminine definite singular *la* /la/. As for the definite singular determiner *lo* /lo/, it became *le* [lə] relatively early in OF (Buridant 2000:106, Joly 2009:7).⁴

We argue that this reduction of [a] during the 8th century created an allomorph of feminine *-a_F*: feminine schwa *-e_F*, found in unaccentuated environments. Crucially, this schwa was still marking feminine gender in Gallo-Romance. As a result, Gallo-Romance has two schwas: an epenthetic schwa [ə] found in masculine *les* (*l*-[ə]-*s_{PL}*) and *le* (*l*-[ə]), and a feminine schwa *e_F*, which we find in feminine *les* (*l*-*e_F*-*s_{PL}*) and *une* (*un*-*e_F*). The resulting system is given in Table 4.

Table 4: Gallo-Romance definite and indefinite determiners

| | | Masculine | | Feminine | |
|------------|----------|------------------------------------|--------------------------------------|---|---|
| | | Subject | Object | Subject | Object |
| Definite | Singular | <i>l</i> - <i>i</i> _{SBJ} | <i>l</i> -[ə] | <i>l</i> - <i>a_F</i> | <i>l</i> - <i>a_F</i> |
| | Plural | <i>l</i> - <i>i</i> _{SBJ} | <i>l</i> -[ə]- <i>s_{PL}</i> | <i>l</i> - <i>e_F</i> - <i>s_{PL}</i> | <i>l</i> - <i>e_F</i> - <i>s_{PL}</i> |
| Indefinite | Singular | <i>un</i> - <i>s_{SBJ}</i> | <i>un</i> | <i>un</i> - <i>e_F</i> | <i>un</i> - <i>e_F</i> |
| | Plural | ∅ | ∅ | ∅ | ∅ |

Although feminine *a_F* is still found in unaccentuated positions in very OF, by the beginning of the 12th century, the change was complete. Supporting evidence for the paradigm in Table 4 comes from gender asymmetries in the variable use of determiners in early 12th-century OF.

3.2 GENDER ASYMMETRIES IN EARLY 12TH-CENTURY OLD FRENCH

According to our analysis, in early OF, feminine marking on D came in two forms: feminine *-a_F*, and its reduced allomorph feminine schwa *-e_F*. While phonologically different, the two allomorphs are not morphologically distinct – they bear the same features – and, consequently they are expected to pattern similarly, and trigger the same gender effect, if any. In this section, we consider non-count Ns (§3.2.1), and count Ns (§3.2.2), separately. We first link the gender asymmetries found in the variable use of determiners with non-count Ns to the presence of feminine *-a_F* in D. We then show that count Ns pattern like non-count Ns with respect to gender, which we take as a diagnosis for the presence of a feminine marking morpheme on D, namely feminine *-e_F*.

3.2.1 EXPLETIVE D IN EARLY OLD FRENCH

The determiners found with non-count Ns do not mark definiteness (Lekakou & Szendroi, 2012). In such expletive determiners, *l*- spells out D with no semantic contribution. As shown in Table 5,

⁴ Note that while final feminine /a/ weakened to /ə/, the final masculine /o/ was lost. A schwa is thus inserted to provide support to the consonant.

the determiners *li*, *le* and *la* appear with subject case *-i_{SBJ}*, feminine gender *-a_F*, or the phonologically-conditioned schwa [ə], to support the expletive D (Déchaine et al. 2018). The expletive found with non-count (abstract and mass) Ns is incompatible with plural marking⁵.

Table 5: Expletive D in early OF

| Masculine | | Feminine | |
|--|----------------------------|--------------------------------------|--------------------------------------|
| Subject | Object | Subject | Object |
| <i>l_{EXP}-i_{SBJ}</i> | <i>l_{EXP}-[ə]</i> | <i>l_{EXP}-a_F</i> | <i>l_{EXP}-a_F</i> |

In the expletive paradigm, only feminine determiners are marked for gender. The results presented in Table 3 above show that the variable use of determiners is sensitive to this contrast between feminine D marked with feminine *-a_F* and non-feminine D, unmarked for gender and used with masculine Ns: masculine Ns favor determiners (54.8%) and feminine Ns disfavor them (35.7%). Under our analysis, this gender asymmetry is triggered by the presence of the feminine-marking morpheme on D: *-a_F*. The next section shows that in early OF, count Ns present the same gender asymmetry as non-count Ns, with feminine Ns also disfavoring determiners. In our analysis, this is an indication of the presence of a feminine-marking morpheme on D, namely *-e_F*, the reduced version of *-a_F*.

3.2.2 GENDER ASYMMETRIES IN EARLY OF COUNT NOUNS

In early OF, count Ns pattern like non-count Ns. Consider again the data from *Brendan* in Table 3 above. First, the gender asymmetry found with count Ns (Δ 17.8%) appears to be parallel to that found with non-count Ns (Δ 19.1%). In both cases, masculine Ns favor determiners. Second, we observe the same difference in rate in the variable use of determiners between count and non-count Ns: while count Ns favor determiners, non-count Ns disfavor them, and this is equally true in both the masculine (Δ 22.8%) and feminine (Δ 24.1%) paradigms.

However, while the data in Table 3 seem to support the claim that feminine gender disfavors determiners, it does not in itself provide support for our claim that this gender effect is attributable to the presence of a feminine morpheme. This requires a more in-depth look at the variable use of determiners, as the D-paradigm with count Ns is more complex than the D-paradigm of non-count Ns. While both paradigms encode a gender difference, the count noun D-paradigm encodes additional definiteness (definite/indefinite) and number (singular/plural) contrasts. How does gender interact with definiteness and number?

Table 6 looks in further detail at the effect of gender on the variable use of determiners in *Brendan*. Consider first definite singular D (*le/la*) and indefinite plural D, neither of which shows a gender asymmetry. In the first case, despite the similarity of form with the expletive determiners *li*, *le* and *la*, there is no gender asymmetry. This is because the change is almost complete and the determiner is obligatory in both genders (92%M, 93%F). In the second case, that of indefinite plural D, there is no gender asymmetry because plural indefinites are categorically bare in *Brendan*.

⁵ Consequently, bare masculine non-count Ns are not ambiguous, and determiners are not required to provide crucial disambiguating information. This partly explains the fact that, overall, determiners are less frequent with non-count Ns than with count Ns, as shown in Tables 2 and 3 above.

The situation is different in the case of definite plurals and indefinite singulars, which both show an important gender asymmetry. In both plural definites (Δ 26%) and singular indefinites (Δ 38%), feminine Ns strongly disfavor D. This gender asymmetry is unexpected if the schwa found in definite plurals and indefinite singulars is always epenthetic or marks singular. However, it follows nicely if the schwa found in the feminine *les* and *une* is an allomorph of a_F .

Table 6: Use of determiners with masculine and feminine count Ns in *Brendan*

| Definite | | | | Indefinite | | | |
|----------|------|--------|------|------------|------|--------|------|
| Singular | | Plural | | Singular | | Plural | |
| Masc. | Fem. | Masc. | Fem. | Masc. | Fem. | Masc. | Fem. |
| 92% | 93% | 93% | 67% | 45% | 7% | 0% | 0% |

3.3 SUMMARY

We argued that the reduction of unaccentuated /a/ in Gallo-Romance created an allomorph of feminine $-a_F$: feminine $-e_F$. We provided two types of evidence in favor of the analysis. First, this feminine marking morpheme e_F accounts for the gender asymmetries found in count Ns in early 12th century OF. Second, the effect of gender on the variable use of determiners appears to be independent of the phonological form of the feminine morpheme as we find similar gender contrasts in non-count Ns, where the feminine morpheme is the unreduced $-a_F$ ($l-a_F$), and count Ns, where the feminine morpheme is the reduced $-e_F$ ($l-e_F-s_{PL}$ and $un-e_F$). We take this parallel behavior to indicate that, in early OF, the schwa e_F found in *les* and *une* is indeed an allomorph of $-a_F$. The next section shows the impact of the loss of this feminine $-e_F$ on the D-system of OF.

4 DETERMINERS IN OLD FRENCH

4.1 THE REANALYSIS OF [ə] IN 12TH-CENTURY OLD FRENCH

The reduced allomorph of feminine $-a_F$, feminine schwa $-e_F$, was subsequently reanalyzed during the 12th century, either as an epenthetic schwa [ə] in closed syllable (as in *les*), or a singular marking morpheme $-e_{SG}$ word-finally (as in *une*). As a result of this change, OF still had two schwas: the epenthetic schwa [ə], found in both masculine and feminine *les*, and a new singular schwa $-e_{SG}$, found not only in feminine *une*, but also, as we will see in section 4.3, masculine *le*. The resulting OF system is given in Table 7, which also shows the new indefinite plural determiner *des*.

Table 7: OF definite and indefinite determiners

| | | Masculine | | Feminine | |
|------------|----------|--------------|----------------|----------------|----------------|
| | | Subject | Object | Subject | Object |
| Definite | Singular | $l-i_{SBJ}$ | $l-e_{SG}$ | $l-a_F$ | $l-a_F$ |
| | Plural | $l-i_{SBJ}$ | $l-[ə]-s_{PL}$ | $l-[ə]-s_{PL}$ | $l-[ə]-s_{PL}$ |
| Indefinite | Singular | $un-s_{SBJ}$ | un | $un-e_{SG}$ | $un-e_{SG}$ |
| | Plural | ∅ | $d-[ə]-s_{PL}$ | ∅ | ∅ |

Supporting evidence for this proposal comes from three changes in the variable use of determiners in 12th-century OF.

4.2 THE LOSS OF FEMININE $-e_F$ IN COUNT NOUNS

In section 3.2.2, we showed that in *Brendan*, the gender asymmetry is restricted to definite plurals and indefinite singular count Ns, and linked this asymmetry to the presence of feminine schwa $-e_F$. In sections 4.2.1 and 4.2.2, we argue that the subsequent loss of the gender asymmetry in these two contexts is the result of the loss of feminine schwa $-e_F$.

4.2.1 THE REANALYSIS OF FEMININE $-e_F$ IN *LES*

Table 8 contrasts the distribution of masculine and feminine plural definite determiners in subject and object position in *Brendan* and *Marie de France*. First, let us consider the subject position. Here we see a clear gender effect in both *Brendan* and *Marie de France*: the masculine still favors determiners (Δ 30% in *Brendan*, Δ 23% in *Marie de France*). Consider now the object position. In *Brendan*, masculine Ns still favor determiners (Δ 15%), but this gender contrast is neutralized in *Marie de France* (Δ 1%). In *Marie de France*, the plural definite determiner becomes near-categorical in object position (93%M, 92%F). Moreover, while masculine Ns show a subject/object asymmetry in *Brendan* (subjects favor determiners), no such asymmetry with masculine Ns is found in *Marie de France*. The situation is the opposite with feminine Ns: there is no subject/object asymmetry in *Brendan*, but, surprisingly, objects favor determiners in *Marie de France*.

Table 8: Use of determiners with plural definite count nouns in *Brendan* and *Marie de France*

| | Masculine | | Feminine | |
|------------------------|-----------------------|-----------------------|------------------------|-----------------------|
| | Subject (<i>li</i>) | Object (<i>les</i>) | Subject (<i>les</i>) | Object (<i>les</i>) |
| <i>Brendan</i> | 97% | 82% | 67% | 67% |
| <i>Marie de France</i> | 90% | 93% | 67% | 92% |

The above table shows that the gender contrast is neutralized in object position, and identifies the object position of feminine Ns as the locus of change. In *Brendan*, the masculine and feminine determiners were homophonous (both are realized as [lɛs]), while morphologically distinct. In *Marie de France*, degrammaticalization of feminine $-e_F$ as an epenthetic vowel [ə] led to syncretism between masculine *les* and feminine *les*, and the reanalysis of feminine $l-e_F-s_{PL}$ as gender-neutral $l-[ə]-s_{PL}$, presumably the result of analogical change. We now turn to the second context identified in section 3.2.2 as the locus of change: indefinite singular D.

4.2.2 THE REANALYSIS OF FEMININE $-e_F$ IN *UNE*

Table 9 contrasts the variable use of singular indefinite determiners in *Brendan* and *Marie de France*. *Brendan* presents a clear gender asymmetry, with masculine Ns clearly favoring determiners, and, for both masculine and feminine Ns, a subject/object asymmetry, with the subject position favoring determiners. The situation is quite different in *Marie de France*. While

masculine singular indefinite determiners are relatively stable and maintain a clear subject/object asymmetry, feminine singular indefinites behave differently. Here, we have an important increase of determiners in both subject and object positions. As a consequence, the sharp contrast found between masculine and feminine singular indefinites in *Brendan* disappears in *Marie de France*. The change is abrupt and affects both object and subject positions equally. The consequence of this change is the loss of the gender effect in *Marie de France* singular indefinites. Notice that we still see a difference between masculine and feminine singular indefinites. The masculine shows an important S/O asymmetry in both texts (Δ 37% in *Brendan*, Δ 29% in *Marie de France*), which is weakened in the feminine (Δ 12% in *Brendan*, Δ 8% in *Marie de France*).

Table 9: Use of determiners with indefinite singular count nouns in *Brendan* and *Marie de France*

| | Masculine | | Feminine | |
|------------------------|------------------------|----------------------|------------------------|-----------------------|
| | Subject (<i>uns</i>) | Object (<i>un</i>) | Subject (<i>une</i>) | Object (<i>une</i>) |
| <i>Brendan</i> | 78% | 41% | 17% | 5% |
| <i>Marie de France</i> | 77% | 48% | 62% | 54% |

As can be seen from Table 9, the loss of the gender asymmetry in *Marie de France* is the result of the drastic increase in feminine singular indefinite determiners. In the previous section, we attributed the loss of the gender asymmetry in *Marie de France* plural definite determiners to the loss of feminine e_F in *l-e_F-s*. Extending this analysis to singular indefinites leads us to believe that the loss of the gender asymmetry in *Marie de France* is also linked to the loss of feminine $-e_F$. In section 3.2.2, we proposed that *Brendan*'s gender asymmetry in singular indefinites is attributable to the presence of feminine $-e_F$ in *un-e_F*. We now propose that the loss of gender asymmetry in *Marie de France* is a consequence of the reanalysis of feminine $-e_F$ in *un-e_F* as a singular marking morpheme $-e_{SG}$. Independent evidence for the reanalysis of $-e_F$ as $-e_{SG}$ comes from changes in the variable use of determiners with non-count Ns.

4.3 EXPLETIVE D AND NON-COUNT NOUNS

As discussed in section 3.2.2, in *Brendan*, determiners are less frequent with non-count Ns than with count Ns. Despite this overall difference in rate, determiners present a parallel effect of the gender factor in count (Δ 17.8% in *B*) and non-count Ns (Δ 19.1% in *B*), with masculine Ns favoring the use of determiners. In section 2.2, Table 2 showed a surprising decrease in determiners with non-count Ns between *Brendan* and *Marie de France*, which Table 3 shows to be the result of a decrease in the use of determiners with masculine non-count Ns: the use of determiners with masculine non-count Ns decreased by 37%, from 55% in *Brendan* to 18% in *Marie de France*. No such change affected feminine non-count Ns, which show a stable use of determiners across the two texts (36% in *Brendan*; 34% in *Marie de France*).

The reanalysis of $-e_F$ as a singular marking morpheme $-e_{SG}$ triggered the reanalysis of the epenthetic schwa [ə], as the singular marking morpheme $-e_{SG}$. This change occurred in both definite $l_{DEF}-e$ and expletive $l_{EXP}-e$. The reanalysis of definite singular determiner *le* from $l_{DEF}-[ə]$ to $l_{DEF}-e_{SG}$ had no effect on its distribution, as count Ns are compatible with (singular or plural) number marking. The same cannot be said about expletive *le*. Non-count Ns are not only incompatible with plural marking, but also with singular marking. This incompatibility caused the

use of masculine expletive to disappear in late 12th-century OF. As shown in Table 10, the change did not affect feminine non-count Ns, as the feminine marking morpheme $-a_F$ found in the expletive determiner *la* does not mark number.

Table 10: Expletive D in OF

| Masculine | | Feminine | |
|-----------|--------|------------------------|------------------------|
| Subject | Object | Subject | Object |
| ∅ | ∅ | <i>l-a_F</i> | <i>l-a_F</i> |

4.4 SUMMARY

The loss of feminine $-e_F$ and its reanalysis as either an epenthetic vowel [ə] in *les*, or as a singular marking morpheme $-e_{SG}$ in *une* and *le* accounts for three changes in 12th-century OF. The first change affected feminine definite plural *les* in object position: the gender contrast was neutralized in object position due to the reanalysis of feminine *l-e_F-s_{PL}* as gender-neutral *l-[ə]-s_{PL}*, presumably a result of analogical change. The second change affected feminine indefinite singular *une* in both subject and object positions: the gender contrast was lost due to the reanalysis of feminine *un-e_F* as gender-neutral *un-e_{SG}*. Finally, the third change affected masculine expletive D: the new singular morpheme $-e_{SG}$ was extended to the expletive D, *l_{EXP}-e_{SG}*, which is incompatible with mass and abstract Ns, accounting for the decrease of masculine expletive D with non-count Ns. The next section discusses the effect of these changes on the nominal spine.

5 THE REANALYSIS OF THE NOMINAL SPINE

Changes in the variable use of determiners in Old French shed light on the origins of a puzzling syntactic feature of the French nominal spine: French is unlike most other Romance languages in that Gen and Num are realized on the same F-head. According to our analysis, the change took place during the 12th century, as a consequence of the reanalysis of feminine schwa $-e_F$.

As discussed in section 1, in Proto-Romance, Gen and Num are distinct F-heads.

- (1) $[_{KP} [_{DP} I [_{\#P} S [_{GenP} O_M/a_F [_{nP}]]]]]$ Proto-Romance

We argued that the reduction of unaccentuated [-a] to [-ə] during the 8th century created an allomorph of $-a_F$: $-e_F$. This feminine schwa $-e_F$ shared the same morphosyntactic feature as its non-reduced counterpart $-a_F$. Consequently, this morphophonological change had no effect on the nominal spine, and Gen and Num still co-occurred as distinct F-heads.

- (2) $[_{KP} [_{DP} I [_{\#P} S [_{GenP} O_M/ə_F/a_F [_{nP}]]]]]$ Gallo-Romance and early OF

This analysis is supported by the fact that in early Old French, the count determiners *les* and *une*, with the reduced allomorph $-e_F$, participated in the same type of gender asymmetries in their variable use as expletive D, with the non-reduced allomorph $-a_F$.

Reanalysis of the structure of the nominal spine took place as a result of the reanalysis of feminine $-e_F$ as a singular $-e_{SG}$ during the 12th century. With the loss of $-e_F$, the reduced allomorph of feminine $-a_F$, feminine marking on D is now restricted to singular *la*. This means that the morphemes lexicalizing Num (singular/plural) and Gen (feminine) no longer co-occur. The

complementary distribution of Num and Gen caused a reanalysis as in (3), where they are realized on the same head (they are no longer distinct F-heads).

- (3) $[_{KP} [_{DP} I [_{\#P/GenP} S_{PL} / a_F / \emptyset_{SG} [_{nP}]]]]$ Old French

The reanalysis of feminine $-e_F$ as the singular marking morpheme $-e_{SG}$ is supported by two changes in the variable use of determiners in 12th-century Old French: a sharp increase of the use of determiners *les* and *une* with feminine count Ns and an equally sharp decrease in the use of determiners with masculine non-count Ns. While the first change follows from the fact that the determiners *les* and *une* used with feminine count Ns are no longer marked for gender, the second change is a consequence of the fact that the determiner *le* is now marked for number. The change did not affect definite singular masculine count Ns, which are compatible with singular marking, but had a major impact on the use of determiners with non-count nouns. The incompatibility of abstract and mass Ns with the singular marking morpheme $-e_{SG}$ provoked the loss of expletive D with masculine Ns. This in turn explains why masculine Ns, and only masculine Ns, disfavor the use of the determiners in *Marie de France*.

6 DISCUSSION

The nano-syntactic approach to OF determiners developed in Déchaine et al. (2018) has proved extremely useful for further exploration the OF D-system, both synchronically and diachronically. Our analysis shares many of the insights of Déchaine et al. (2018). First, OF instantiates two distinct DP structures, one where Num and Gen are additive (Spanish-like), and one where they are substitutive (Modern French-like). In the Déchaine et al. (2018) analysis, Num and Gen are conditioned by definiteness. In the definite series, Num and Gen are substitutive; in the indefinite series, they are additive, and can thus co-occur. Our analysis differs in that we argue that synchronically, either Num or Gen are additive (as in proto-Romance or early Old French), or they are substitutive (as in Old and Modern French). Thus, while in Déchaine et al. (2018), Gen and Num are distributed differently in the indefinite, definite and expletive paradigms, we argue that synchronically they are distributed evenly in all three paradigms, but this may change over time. Second, the inventory of schwas in OF includes three distinct morphophonological objects: epenthetic [-ə], feminine $-e_F$, and singular $-e_{SG}$. Déchaine et al. (2018) argue that $-e_F$ and $-e_{SG}$ are found in both *Brendan* and *Marie de France*: $-e_F$ with the feminine indefinite singular *une*, and $-e_{SG}$ masculine definite *le*. In our analysis, $-e_F$ occurs only in *Brendan* (with *une* and *les*), and $-e_{SG}$ occurs only in *Marie de France* (with *une* and *le*). Finally, the study of the variable use of determiners highlights the role of gender as the locus of change in OF. According to Déchaine et al. (2018), *Brendan* and *Marie de France* show a change in how gender conditions D-Drop in OF. Under our analysis, there is no need to postulate such a change in conditioning: when marked, feminine gender always favors D-drop. These distinctions allow us not only to answer some of the questions left unanswered in Déchaine et al. (2018) with regards to the loss of the gender effect in *Marie de France*, but also to propose an account of the restructuring of the nominal spine in the history of French.

7 CONCLUSION

This paper builds on previous results from Déchaine et al. (2018) and Dufresne et al. (2018) and argues that changes in the variable use of determiners in 12th-century OF resulted from the loss of feminine *-e_F*, a reduced form of feminine *-a_F*. During the 12th century, this feminine *-e_F*, was reanalyzed either as an epenthetic vowel [ə], or as a new singular morpheme *-e_{SG}*. Evidence for this proposal came from gender asymmetries in the variable use of determiners in 12th-century French. The proposed analysis accounts for the neutralization of gender in *les*, and *une* in count Ns, and the decrease of expletive masculine *le* in non-count Ns. The proposed analysis also shows how a phonological change (the reduction of unaccentuated /a/) yields to a morphological change (the introduction of a new singular morpheme *-e_{SG}*) and a syntactic change (the restructuring of the nominal spine in French). Our analysis explains how French went from a system where Gen and Num are distinct F-heads to a system where they are realized on the same F-head.

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