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Language, law and loanwords in early medieval Gaul: language contact and studies in Gallo-Romance phonology

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3 Gallo-Romance historical phonology

3.1 Sound laws and chronology

In the preceding chapter, we have explored the methodological problems affecting the terms Vulgar Latin, Merovingian Latin and Early Romance and we defined the following important principles:

- In the Early Middle Ages, the Romance vernaculars had evolved away from the classical language.
- The evolved state of the early medieval Romance vernaculars is obscured by the persistence of the written Latin standard, consisting of an archaic orthography and archaizing literary styles.
- Any assessment of the phonology of the spoken languages should therefore combine the study of documentary evidence with the outcomes of linguistic reconstruction.
- The traditional term Vulgar Latin is too broad and does not do justice to the interplay between the spoken vernacular and the archaic writing tradition.

In chapter two, we also took a closer look at what constitutes Gallo-Romance, how it got separated from the western Romance dialect continuum and what documentary evidence provides clues to its phonology. In our evaluation of the relationship between written Latin and reconstructed Proto-Romance, we have established that linguistic reconstruction brings us closer to the basilect of spoken Romance, whereas our written sources only offer us a window on the Romance acrilect. Now that the theoretical framework is set out and our source material is evaluated, we can try to survey the problems and intricacies of Gallo-Romance phonology.

In the following, when I refer to Late Latin sound change and talk about innovations that affected all the Romance varieties, the term Proto-Romance will be used. The more localized terms Gallo-Romance, Ibero-Romance and Italo-Romance are reserved for linguistic forms and developments that post-date the break-up of the Romance dialect continuum. In my opinion, avoiding the terms Late Latin or Medieval Latin does better justice to the fact that many centuries of linguistic evolution separate the Early Medieval Romance vernaculars from the language of Republican Rome.

The aim of the following description of sound laws is not to provide a formal or theoretical account of all phonological processes at play in the evolution from Latin to Romance. For these, I gladly refer to the work of Jakob Wüest (1979), Michele Loporcaro (2009, 2015), and Xavier Gouvert (2014), who have provided in-depth analyses of the most important phonological developments that characterize the diversification of the Latin dialect

continuum. Instead, in this chapter, I will give succinct descriptions of Early Romance and Gallo-Romance sound changes, thereby highlighting their relevance to the orthography of Merovingian Latin. I will also attempt to make a seriation of these changes. This may enable us to correctly assess the chronology of the lexical transfers that will be studied in this dissertation.

As is well-known, not all issues of Romance historical phonology are resolved. Therefore at many occasions, I will confine myself to drawing attention to the most promising solutions, merely scratching the surface of the controversies of past scholarship. The relative chronology that I will present is heavily indebted to the works of Elise Richter (1934) and Georges Straka (1953, 1970), but important deviations from this traditional chronology will be made whenever recent scholarship has supplanted outdated views (e.g. Morin 2003; Loporcaro 2009). Furthermore, I will provide some new documentary evidence from Merovingian texts, epigraphy and coin legends that may shed light on the chronology of the sound changes.

Still, we should realize that the empirical basis on which a relative chronology is founded, is sometimes very small. This has led some scholars to doubt whether this enterprise is useful at all, attributing the ambiguities of the data to the different social variants of Vulgar Latin that may have been spoken in the Early Middle Ages (cf. Morin 2003). This sentiment is strongly expressed by Flobert, who remarked that Straka's relative chronology "cannot but strike horror into the heart of every Latinist" (Flobert 2002: 424).

That being said, to my mind the social-variation-solution should be invoked sparingly. We must be careful not to relegate all problems of Romance historical phonology to a sociolinguistic domain of which we know even less. We should also take care that the term Vulgar Latin does not turn into a historical black box, that is to say, we know what Latin form goes in Vulgar Latin and what Romance form goes out, but we do not consider what happened between those two points. Such an attitude is not only unfortunate but also unnecessary since linguistic reconstruction in conjunction with the evidence from lexical transfers provides ample clues to the chronology of Romance sound change; this data allows us to carefully fill in some of the gaps that are left by the record of written Latin of the Late Roman period.

The structure of this chapter will be a follows: first, the changes affecting the Latin vowel system will be covered. Then, we will move on to the changes in the Latin consonant system. Finally, the problems of Romance and Gallo-Romance syncope will be explored.

3.2 The reorganization of the Latin vowel system

We may start with the transformations in the Latin vowel system. Classical Latin possessed a symmetric vowel system of five short vowels, five long vowels and three diphthongs.

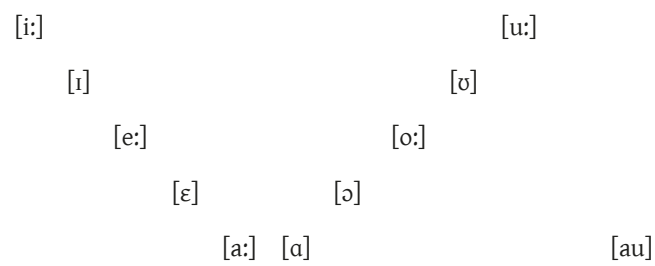
Short vowels:	Latin /i/, /e/, /a/, /o/, /u/	
Long vowels:	Latin /ī/, /ē, /ā/, /ō/, /ū/	
Diphthongs:	Latin /ai/, /oi/, /au/	= <ae>, <oe>, <au>

During the transition from Classical Latin to the Romance vernaculars, this vowel system with phonemic vowel length was abandoned in the western Romania in favor of a qualitative system. In most traditional reference works on the historical development of the Romance languages, this reorganization is often surmised by high-lighting the following developments (cf. Väänänen 1981: 30; see also Loporcaro 2009: 111):

- Quality differences arise between the short and long counterparts of a vowel
    - Latin short vowels became lax
- Monophthongization of the Latin diphthongs /oi/ and /ai/
    - Latin /oi/ > Romance /e/
    - Latin /ai/ > Romance /ɛ/
- Shift from /ens/ > /ēs/ > Romance /es/
- phonemic vowel length was lost
- Latin high mid vowels merged
    - Latin /i/ and /ē/ > Romance/e/
    - Latin /u/ and /ō/ > Romance /o/

In this traditional view, the documentation of the new vowel qualities in Vulgar Latin texts is taken as evidence for the collapse of the quantitative system (cf. Straka 1953). Loporcaro (2009), following previous investigations by Pulgram (1975), Franceschi (1976), and Fanciullo (1988), has shown that this scenario is incomplete and does not account for all the facts. He argues that the rise of new vowel qualities does not immediately entail the loss of contrastive vowel length and draws attention to the fact that qualitative distinctions between long and short counterparts of a vowel are attested in Latin epigraphy from the Pre-Classical period onwards. This shows, in his opinion, that the Latin vowel length distinctions coincided from an early date onwards with qualitative tense/lax distinctions. The vowel system that has to be reconstructed for Colloquial Latin/Proto-Romance would then be as follows (cf. Loporcaro 2009: 110):

Proto-Romance vowel system



3.3 The dialectal division of the Romania

This colloquial Latin vowel system was then reorganized in different ways in the different parts of the Romania. Following Loporcaro (2009), we can now trace these different reorganizations. This will provide a historical background to the rise of the western Romance vowel system and its subsequent developments in Gallo-Romance.

Before the break-up of the dialect continuum, the Latin diphthongs /ai/ and /oi/ were monopthongized to [ɛ:] and [e:] respectively. The resulting monophthongs are reflected in the Pompeii graffiti already, which indicates that the shift must predate the beginning of our era (cf. Richter 1934: 40, 57; Väänänen 1981: 38). Somewhat earlier, another long [e:] had arisen through compensatory lenghthening after the nasal in the Latin sequence /ens/ was dropped (cf. Richter 1934: 40; Väänänen 1981: 64). From that moment onward, only one diphthong remained in the Romance vowel system, i.e. Proto-Romance /au/.

The first reorganization of the vowel system will have occurred in the southern Romania, the dialect area comprising Sardinia and North Africa. Here the lax–tense distinction between short and long vowels was given up, so that [ɪ] and [ʊ] did not become associated with [e:] and [o:]. This loss of the tensing distinction allowed the short and the long vowels to merge in a single phoneme, i.e. [i:], [ɪ] > /i/, [e:], [ɛ] > /ɛ/, etc.). This vowel system is still found in modern Logudorese and Gallurese and it is assumed that African Romance shared in this reorganization. Evidence for this vowel system in North Africa is provided by Augustine who remarked that 'African ears' (De doctrina Christiana IV, 24) do not hear the difference between the short and the long vowels (Väänänen 1967: 31). Also the epigraphic record points in this direction, since it shows that orthographic confusion between the high mid vowels is uncommon in Africa (Adams 2007: 262).

The next development covered the remaining part of the Romance dialect continuum and consisted of the laxing of [ɪ] into [e]. This new [e] merged with the long [e:] from Latin /ē/ but the etymological difference was still marked by a contrast in vowel quantity, i.e. [e] : [e:]. This led to the asymmetric system that is still preserved in Rumanian and which can be

reconstructed for Dalmatian (Loporcaro 2009: 114; *contra* Holzer 2007: 35). Herman (1985) has argued that western Romance shared this asymmetric system for a considerable time, a suggestion that is widely accepted (Taddei 2000; Loporcaro 2009). This would be shown by the fact that, in Late Roman epigraphy from Gaul and northern Italy, orthographic confusion between /i/ and /ē/ is common, whereas orthographic confusion between Latin /u/ and /ō/ occurs more rarely (cf. Herman 1985: 75; Loporcaro 2009: 115; see also Väänänen 1981: 36).

Late Common Romance

[i:] [u]

[ʊ]

[e] [e:] [o:]

[ɛ] [ɔ]

[a:] [ɑ]

3.4 The dawn of West Romance

The next development only covered the western part of the Roman empire, also including most of the southern Italian peninsula (except Lucania, cf. Loporcaro 2009: 114). It consisted of the laxing of [ʊ] into [o] so that short [o] merged with the long [o:] from Latin /ō/. Also here, the etymological contrast between [o] and [o:] was retained in the length difference. This vowel system with its phonetic merger of Latin /i/ and /e/ and /u/ and /o/ should be reconstructed for Proto-West-Romance and is reflected in the vowel confusions of the *Appendix Probi* (ca. mid 5th c. CE). It has been argued that the phonetic merger of [ʊ] and [o:] predates the adoption of Latin loanwords into Gothic (cf. Green 1998: 201-208). This would be shown by the loss of final Latin /u/ and /ō/ in the Gothic adaptation of Latin loanwords.

Latin *vinum*	[wi:nu]	> [wi:nʊ]	> Goth. *wein*	‘wine’
Latin *pondō*	[pondo:]	> [pɔndo:]	> Goth. *pund*	‘pound

However, the loss of the Latin final vowels can also be attributed to a mismatch in vowel quality between the donor language and the recipient language. The Gothic words should therefore not be taken as cogent evidence for the completion of the phonetic merger before the fourth century CE. Solid evidence for the completion of the merger is given in the sixth-century *Etymologiae* (19, 22: 16) by Isidore of Sevilla, where it is recounted that the word *tonica* (cf. Latin *tunica*) is derived from the word *tonus* ‘sound’, because a tunic makes a sound when it hits the ground.

West Romance

[i:] [u]

[e] [e:] [o:] [o]

[ɛ] [ɔ]

[a:] [ɑ]

3.5 Ten Brink's Law

The phonetic merger became phonemic because of the operation of Romance Open Syllable Lengthening (OSL), a development that is covered by the traditional term Ten Brink's Law (cf. Voretzsch-Rohlfs 1901: 40). Ten Brink's Law states that stressed short vowels in open syllables were lengthened and stressed long vowels in closed syllables became short (cf. Ten Brink 1879). This development made vowel length dependent on syllable structure and thus obliterated the old length distinctions. Consequently, the loss of the old length distinctions forced the phonemicization of the phonetic mergers. The exact dating of open syllable lengthening is still an unsolved issue in Romance historical linguistics. The question is complicated by what seem to be some very early indications that word stress and vowel length started to coincide. The following evidence should be taken into consideration:

1. In the wax tablet letters of Gaius Novius Eunius (1st c. CE) there seems to be a connection between stress and geminate spellings (Clackson & Horrocks 2007: 243)
2. In the graffiti of Pompeii, the digraph <ae> could be used as an inverted spelling for short /e/ (Väänänen 1981: 31)
3. The grammarian Sacerdos (3d c. CE) remarks that short vowels were lengthened under the accent as a 'barbarism of our times' (Adams 2007: 264)
4. The grammarians Consentius (5th c. CE) and Commodianus (5th c. CE, *Carmen Apologeticum* 27) consider stressed vowels in open syllables to be metrically long

These facts may be interpreted as evidence that lengthening of stressed vowels in open syllables was already common in some Latin varieties from Italy and Africa in the early centuries CE. Still, it seems plausible, that in most varieties of colloquial Latin the original vowel quantities had been retained. Only in the time of the Late Empire would OSL have become more widespread. Considering the fact that it could still cover the entire Romance dialect continuum, its conclusion probably predates the break-up of the dialect continuum that followed the political dismemberment of the Roman empire around 450 CE.

Nevertheless, it is clear that the phonemicization of the new qualitative vowel system postdates the dialectal divergence of the vowel system that is outlined above. We should also note that Romance Open Syllable Lengthening must predate the operation of West Romance degemination (see section 3.28). It was this degemination that obscured the original conditions for open syllable lengthening and thereby phonologized the new vowel quantities depending on syllable structure. The new quantity distinctions in the vowel system were later lost in most of Gallo-Romance, except for several Provençal varieties (Loporcaro 2009: 136). These considerations enable us to establish the following relative chronology:

1. Lax-tense differences arise between the short and long counterpart of a vowel
    - Colloquial Latin ca. 100 BCE
2. Lax–tense distinction is given up in South Romance
    - Between 100 CE – 250 CE
3. Phonetic merger of [ɪ] and [e] in West and East Romance
    - ca. 250 CE
4. Phonetic merger of [ʊ] and [o] in West Romance
    - ca. 400 CE
5. Romance Open Syllable lengthening
    - Origin of OSL : ca. 100 – 200 CE
    - Conclusion of OSL : ca. 400 - 450 CE
6. West Romance consonant degemination phonologizes the new vowel quantities
    - After 450 CE[85]

It is my contention that the phonemicization of the new vowel qualities, just like the phonemicization of the new stop system, constitutes a turning point in the linguistic history of the emerging Romance varieties. Although these innovations will not have significantly hampered mutual intelligibility with 'high register' Latin that still adhered to the pronunciation precepts of the grammarians, they set the stage for the later operation of syncope, a development which in all likelihood did.

3.6 Romance diphthongization of the low mid vowels

Another phonological issue that has caused considerable controversy in Romance historical phonology is the diphthongization of the Latin low mid vowels (see Wartburg 1950a; Lüdtke 1956; Schürr 1970; Loporcaro 2009):

Latin /e/ > Romance /ɛ/ > /iɛ/

[85] The year 450 CE is used here as shorthand for the moment at which the western Roman Empire disintegrated.

Latin /ɔ/ > Romance /ɔ/ > /uɔ/

The puzzling thing about the diphthongization of the low mid vowels is that almost all Romance varieties display some sort of diphthongization of these vowels or have done so in the past. Still, the conditions under which these diphthongs arose are not the same for all Romance varieties, thereby preventing us from projecting the development back into Proto-Romance. We should recognize that there are two different conditions under which these diphthongs could arise in the Romance languages; some Romance languages display the effects of the first condition, others the effect of the second condition and others again a combination of the two (Loporcaro 2009: 120-135):

1. Diphthongization in open stressed syllables
    - Latin *pedem* > Rom. [pɛde] > Old French *pieḍ* [pjɛθ]
    - Latin *bona* > Rom. [bɔna] > Old French *buene* [buənə]
    - Latin *bonus* > Rom. [bɔnʊ] > Old French *buen* [buən]
2. Diphthongization because of a metaphonic factor
    - Latin *bona* > Rom. [bɔna] > Neapolitan [bɔnə]
    - Latin *bonus* > Rom. [bɔnʊ] > Neapolitan [bwonə]

The first type of diphthongization, limited to open syllables, clearly followed the operation of Romance Open Syllable Lengthening. The lengthening of stressed vowels in open syllables gave rise to the long vowels [ɛː] and [ɔː] whose moraic weight would have provoked a breaking into the diphthongs [jɛ] and [wɔ] (Lloyd 1987: 117-18). Geographically, this diphthongization is reflected in northern Gallo-Romance, Rhaeto-Romance and northern Italo-Romance. Although considerations of relative chronology would place this diphthongization relatively late, several scholars have tried to argue for an early date, quoting the epigraphic attestations <niepos> for Latin *nepōs* (Rome, 157 CE), <dieo> for Latin *deo* 'to god' (Algeria, 120 CE, CIL VIII 9181), and <puosuit> for Latin *posuīt* (Moesia, 120 CE). It stands to reason that these inscriptions cannot reflect a diphthongization that must postdate fifth-century open syllable lengthening. Therefore many scholars consider these digraphic spellings as cutter's mistakes[86] (Lloyd 1987: 130; Loporcaro 2009: 120). Still, there is one intriguing piece of evidence that is hard to dismiss: this is the word *prietium* found in the Albertini tablets of fifth-century Vandal North Africa (Väänänen 1965). Here, however, the rise of the diphthong may also have been conditioned by the metaphonic factor of the following palatal cluster.

In any case, the preceding example shows that in the fifth century CE, some kind of diphthongization of the low mid vowels must have been in place. This is confirmed by the remarks of several fifth-century grammarians who comment on the work of Donatus, i.e. Servius and Pompeius (Donatus IV 21, see also Bonfante 1999: 13). Servius tells us that the

[86] The same could be said of several inscriptions from Roman Africa. There we find and <uobit> for Latin *obit* 'died' (419 CE, Inscr.Rom.Alg. 3464) and <meeritis> for Latin *meritis* 'with merits' (ca. 350 CE, CIL 21068).

pronunciation of the /e/ in Latin *equus* is 'close in sound to a diphthong', which implies that its pronunciation must have been something like [jɛkʷʊ]. Pompeius, recounts that the word *Rōma* could be mispronounced as '*ruoma*', if the etymological vowel quantities were mixed up; this indicates that he associated the pronunciation [uɔ] with short /o/ (Wright 1982: 59).

The preceding evidence suggests that Romance diphthongization of the low mid vowels in stressed open syllables is relatively old, dating back to at least the fifth century CE. Loporcaro (2009: 134 -35), following Sanchez Miret (1998), argues that open syllable dipthongization is unrelated to metaphonic diphthongization, whose operation occurred later, and represents a linguistic innovation that could still cover a significant part of the Romance dialect continuum.[87]

The Romanist Walther von Wartburg (1938) and the Germanicist Theodor Frings (1939) have attributed the rise of spontaneous diphthongization in the western Romania to linguistic interference from the Germanic superstrate, arguing that the heavy Germanic stress accent provoked an excessive lengthening of the stressed vowels. This excessive length would have facilitated the rise of diphthongs in stressed position. The Romance diphthongs, may then have triggered the parallel diphthongization of West Germanic /ē/ and /ō/ to Old High German /ie/ and /uo/. This theory is surmised by Frings in the following way:

> "*Das Germanische griff mit seinen Längen in das Romanische ein, das Romanische griff mit Diphthongen in das Germanische zurück*." (Frings 1939: 103)

The hypothesis is strengthened by the geographic distribution of the spontaneous diphthongization, since it covers Gaul, Rhaetia and northern Italy, areas that were conquered in the fifth and sixth century by Germanic-speaking peoples (Franks, Alamans and Langobards). Nowadays, this superstrate theory is not widely supported. Modern scholars have noted that OSL exceeds the areas where Germanic peoples were settled and therefore does not need to be motivated by Germanic superstrate influence (cf. Sala 2009: 207). Also the fifth-century evidence for the spontaneous diphthongization that we have discussed above argues against it. It seems therefore more likely that spontaneous diphthongization constitutes a linguistic innovation that operated independently of the influence that Germanic stress might have had on the emerging Romance varieties.

Taking these facts into account, it seems reasonable to assume that the syllable conditioned diphthongization, occurring in the fifth century, must also have affected the Romance variety of Merovingian Gaul. The earliest documentary evidence for the diphthongization in Early Medieval Gaul is often considered to be present in a seventh-century diploma issued by king Chlothar III in 671 CE (cf. Bourciez 1921: 61):

[87] According to Loporcaro (2009: 135), a decisive argument in this regard is the partial participation of Daco-Romance, whose diphthongization of /ɛ/ > /jɛ/ postdates open syllable lengthening but predates the operation of metaphonic raising, e.g. Romanian *fier* 'iron' : *jarbă* 'grass' < **fjɛru, *hjɛrba* (cf. Latin *ferrum*, *herba*).

"*datum Morlacas vico publico quod fecit minsis Marcius dies dieci anno* XVI *regni domni nostri Chlothachariae gloriosi regis.*" (Tardif 1866, diploma 19, line 38)

"Given publicly in the town of Morlay in the month March on the tenth day in the year 16 of our lord Hlothar, the glorious king."

Although a haplography provoked by the diphthong in the preceding <dies> cannot be excluded, it seems plausible that the digraph in *dieci* represents the diphthongization of stressed /ɛ/ in open syllable (see also Richter 1934: 138). Despite this early attestation, Romance diphthongization as a pronunciation feature of Merovingian Latin is almost never expressed in spelling and even the oldest Old French text monument, the Strassbourg Oaths, does not reflect it. Whether the diphthongization of /ɛ/ occurred simultaneous to the diphthongization of /ɔ/, is an issue that will be taken up in the discussion of Gallo-Romance syncope (see section 3.40).

3.7 Diphthongization because of a following palatal

Posterior to the diphthongization in open syllables, the low mid vowels /ɛ/ and /ɔ/ were diphthongized in the entire Gallo-Romania whenever they were followed by a patalal consonant (cf. Richter 1934: 226-28). This diphthongization or 'breaking' may have been caused by assimilation at a distance, in this case the premature raising of the tongue in anticipation of the following palatal consonant (cf. Pope 1934: 162). In those cases where a secondary yod arose before the palatal consonant (i.e. Rom. /rj/ and /sj/), Pre-French undergoes simplification of the resulting triphthong, i.e. Gallo-Rom. [iɛj] > Pre-French [i], Gallo-Roman. [uɔj] > Pre-French [uj].

Latin	Romance	Gallo-Romance		OProv	OFrench	
vetulum	[βɛklʊ]	> [vɛʎo]	> [v**iɛ**ʎə]	*vielh*	*viell*	old
mei	[mɛi]	> [mɛj]	> [m**iɛ**j]	*miei*	*mi*	mine [pl.m.]
noctem	[nɔkte]	> [nɔχte]	> [n**uɔ**çtə]	*nuoit*	*nuit*	night
corium	[kɔrjʊ]	> [kɔrʲo]	> [k**uɔ**jrə]	*kuer*	*cuir*	leather
ecclēsia	[iklɛsja]	> [iglɛsʲa]	> [igl**iɛ**jsa]	*glieiza*	*iglize*	church

This development runs parallel to the diphthongization conditioned by metaphony that is reflected in many other Romance varieties. Still, the specific environments under which this younger diphthongization arose are different for each Romance variety. It may be noted though that the diphthongization before palatal consonants is shared by Gallo-Romance, Rhaeto-Romance, northern Italo-Romance and Catalan (Loporcaro 2009: 125). It seems therefore likely that his diphthongization constitutes a late fifth-century or maybe even sixth-century innovation that could still spread across the western Romance dialect continuum.

3.8 Diphthongization of the high mid vowels

In the north of the Gallo-Roman dialect continuum, the stressed high mid vowels /e/ and /o/ in open syllables could also diphthongize, giving rise to the diphthongs /ei/ and /ou/. In traditional reference works on the historical phonology of French, this diphthongization is often called the 'secondary diphthongization', thereby distinguishing it from the older diphthongization of the low mid vowels in open syllables which is often called the spontaneous diphthongization or primary diphthongization (*diphthongaison spontanée,* cf. Alkire & Rosen 2010: 17).

1. spontaneous diphthongization = /ɛ/ and /ɔ/ > /iɛ/ and /uɔ/
2. secondary diphthongization = /e/ and /o/ > /ei/ and /ou/

The first evidence for this diphthongization may be found in the seventh-century verse correspondence between Frodebert and Importun (cf. Richter 1934: 206).

"*Calcavit iure et pudoris*

Qui ***fei*** *date et prioris*

Alodis sui reparatoris

Sordidas vomit pudoris[88]" (Zeumer 1886: 224)

"He who tred on rights and on decency,

On an oath he had given,

And on his restorer of the former heritage

He hurls filth and stench."

[88] Lenited spelling of Latin *pūtores* 'stenches'.

Here we should note that the form ***fei*** is not unambiguous; the form may just be a misspelling of correct Latin <fidei> [dat.sg.] (cf. Zeumer 1886: 224). It is also conceivable that the form was corrupted by the ninth-century copyist, in whose time the diphthong /ei/ was surely present.

If we reject this Merovingian attestation as a genuine reflection of northern Gallo-Romance /ei/, we have to wait until the ninth-century Eulalie sequence for the next instances where we find the secondary diphthongs spelled out:[89]

- Early Old French *concreidre* < Latin *concrēdere* 'to trust someone'
- Early Old French *bellezour* < Latin **bellātiōrem* 'more beautiful'

We should note that the diphthongization of the high mid vowels /e/ and /o/ has a limited distribution in Gallo-Romance; it only occurred in northern Gaul and did not reach the western dialects of Old French (Pope 1934: 106). The development is therefore confined to the areas that were most heavily settled by Germanic-speaking colonists. For this reason, it has been argued that also this diphthongization may have been provoked by linguistic interference from the Germanic superstratum (Wartburg 1950a, 1950b).[90]

Nevertheless, both the late secure attestations of the phenomenon and considerations of relative chronology, which will be covered later on in the section on Romance syncope, seem to indicate that Gallo-Romance secondary diphthongization is a late innovation (see section 3.40). It is therefore likely that the parallel development of /e/ and /o/ in Rhaeto-Romance and northern Italo-Romance, should be separated from it.

3.9 Germanic loanwords and Gallo-Romance diphthongization

Another issue that might shed light on the relative chronology of Gallo-Romance spontaneous diphthongization is the influx of Germanic lexis into the Romance vernaculars of Late Roman Gaul. Guinet (1982: 70-81) has shown that several Germanic loanwords entered Gallo-Romance before OSL and the operation of spontaneous diphthongization, i.e. before the fifth century CE.

- Gm. **medu* → Rom. **mɛdʊ* > OFr. *mied, mies* 'mead'
- Gm. **fehu* → Rom. **fɛfu* > OFr. *fief* 'property'
- Gm. **alōd-* → Rom. **alɔdʊ* > OFr. *aluef* 'inheritance'
- Gm. **brōk-* → Rom. **brɔkʊ* > OFr. *bruec* 'brook'

[89] The early ninth-century Moselle Romance form *Munzefehil* might also reflect the diphthongization, if it goes back to earlier *Moncevilla* (with spurious vowel shortening, cf. Jungandreas 1979: 28).

[90] It seems likely that Old Frankish, the dialect that presumably most of the Germanic colonists in Gaul spoke, possessed the diphthong /ei/, e.g. *reipus* (Pactus Legis Saliace) < Gm. **raip-* 'rope'. It is possible that the Franks applied this diphthong to the pronunciation of the long Gallo-Romance vowel /e/ in open syllables.

However, this does not mean that these Germanic loanwords cannot be connected to the settlement of the Franks in northern Gaul. It is very well conceivable that these words entered the northern Gallo-Romance varieties via Old Frankish in the fourth century already, and only expanded southwards when Frankish farmers entered the rest of Gaul in the early sixth century.

Now that we have discussed the rise of the Gallo-Romance diphthongs, we may tentatively put them in chronological order:

1. Short vowels develop lax pronunciation
    - ca. 100 BCE
2. Conclusion of OSL
    - ca. 400 – 450 CE
3. Diphtongization of stressed /ɛ/ and /ɔ/ in open syllables (spontaneous diphthongization)
    - Before 450 CE
4. Diphthongization of stressed /ɛ/ and /ɔ/ before palatal consonants
    - After 450 CE
5. Gallo-Romance secondary diphthongization of stressed /e/ and /o/
    - Before 666 CE
        - verse correspondence of Frodebert and Importun
    - Before 881 CE
        - Sequence de Eulalie

In conclusion, we may note that this chronology constitutes a major obstacle for Peter Schrijver's hypothesis (2004, 2014) that the Gallo-Romance diphthongs arose by language contact with Gaulish where Gaulish L1 speakers imposed Gaulish diphthongs on their pronunciation of colloquial Latin as L2. The relatively late date of both the primary and the secondary diphthongization render this theory highly improbable.

3.10 Merovingian spelling and the Gallo-Romance vowel system

We have seen in our discussion of Merovingian Latinity that Merovingian scribes had a predilection for writing the merger products of Latin /i/ and /ē/ and /u/ and /ō/ as <i> or <u> (Vielliard 1927: 5-14). Traditionally, this habit has been interpreted as an inverted spelling for the normal Romance merger products /e/ and /o/. It is therefore remarkable that the expected spellings <e> and <o> are statistically underrepresented in Merovingian Latin documents. We should also note that the spelling of /o/ and /e/ as <u> and <i> is ubiquitous in Merovingian epigraphy and Merovingian coin legends.

This prompted the Belgian romanist Guy de Poerck (1953) to formulate a different hypothesis. In his opinion, the predominant spelling <i> and <u> for the merger products of the high mid vowels actually indicates that in the Romance variety of Gaul the high mid vowels had not merged in the qualities /e/ and /o/, but in the qualities /i/ and /u/. These /i^{2}/ and /u^{2}/ did not merge with the Gallo-Romance outcome of Latin /ī/ and /ū/ and would have been maintained into the ninth century. According to De Poerck, these qualities are still reflected in the Strassbourg oaths, where Romance /e/ and /o/ are also rendered as <i> and <u>. Only later in the ninth century, would these Gallo-Romance /i^{2}/ and /u^{2}/ have diphthongized to the secondary diphthongs /ei/ and /ou/.

Reactions to this hypothesis were mixed; whereas the romanist Mario Roques considered De Poerck's study to be "*très original et très vigoreux*" (1954: 142), Helmut Lüdtke (1957: 208) was decidedly negative and called it the "*naivste Buchstabenphilologie*". A more balanced assessment of De Poerck's hypothesis was given by Bengt Löfstedt in his *Studien über die Sprache der langobardischen Gesetze* (1961: 69), where he calls it a "revolutionizing thesis", but still maintains that the traditional view is too well-founded and its empirical base too solid to abandon it. Löfstedt calls attention to the phonetic environments in which Gallo-Romance could raise Romance /e/ to /i/ (e.g. following palatal consonants), and argues that the raising in these environments might have facilitated the inverted spelling. We may also note that the secondary diphthongization must have been completed before the ninth century CE, as it is reflected in the Eulalie sequence. It is rather implausible that the diphthongization still had to occur in 842, but was completed in 880 CE.[91] Löfstedt's critique effectively buried the contentions of De Poerck, so that in recent romanist scholarship the theory is rarely cited.

3.11 Gallo-Romance /ei/ in Germanic borrowings

De Poerck's hypothesis was accepted by Maurits Gysseling (1992), who invoked the reconstruction of Gallo-Romance /i^{2}/ in his assessment of the Latin and Romance loanwords in the Germanic languages. The issue at hand is the fact that many Latin loanwords in the West Germanic languages substitute Latin /ē/ by West Germanic /ī/ (see also Rauch 1967: 79). Gamillscheg (1934: 236) argued that this might have been caused by the lack of an early West Germanic long /ē/.

[91] It should be noted that the secondary diphthong /ei/, in the northern region, already shifted to /oi/ in the tenth century CE (cf. Jungandreas 1969: 29).

Early West Germanic				continental West Germanic		
[i:]		[u:]	>	[i:]		[u:]
	[o:]		>		[e:] [o:]	
	[æ:]		>		[a:]	

After all, early West Germanic for a time only had two front vowels, i.e. Gm. /ī/ and /ǣ/, a situation that changed when continental West Germanic backed /ǣ/ to /ā/ and acquired a new /ē/= [ɛ:]. This new *e*-vowel, the so-called *ē^{2}, arose through the monopthongization of /ia/ (cf. Gm. **hiar* > **hēr* 'here', cf. Kroonen 2013: 225) and through the introduction of an analogical lengthened grade in the VII class of the strong verbs (cf. Kortlandt 2010: 190, 209, 290). This substitution process Latin /ē/ → West Germanic /ī/ may be illustrated by the following examples:

Latin *mēta*	> [me:ta]	> Gm. **mīta*	'haystack'	(cf. MDu. *mīte*)
Latin *mensa*	> [me:sa]	> Gm. **mīsa*	'table'	(cf. OE *mīse*)
Latin *expensa*	> [^{e}spe:sa]	> Gm. **spīsa*	'provisions'	(cf. OHG *spīsa*)

However, some Latin loanwords that were clearly borrowed at a relatively late date also show a substitution of Latin /ē/ by Germanic /ī/. The late date for these lexical transfer is clear from the fact that they were affected by Romance lenition or represent Christian terminology. For this period, it might be argued that the West Germanic languages had acquired their new /ē^{2}/ vowel and the substitution of Romance /e/ with Germanic /ī/ was no longer necessary. However, the relatively late date for the lexical transfers make an adoption at the West Germanic stage very unlikely.

- Latin *poena* > [pe:na] > [pe:na] > WGm. ***pīna* 'punishment'
  - (cf. OHG *pīna*)
  - Christian terminology
  - Postdates Old High German sound shift
- Latin *vēlum* > [we:lʊ] > [we:lo] > WGm. ***wīl* 'veil of a nun'
  - (cf. MHG *wīle*)
  - Christian terminology
- Latin *fēria* > [fe:rja] > [fe:rja] > WGm. ***fīra* 'holiday'
  - (cf. OHG *fīra*)
  - Christian terminology

- Latin *crēta* > [kre:ta] > [kre:da] > WGm. ***krīda* ‘chalk’
  - (cf. OHG *krīta*)
  - Postdates Romance lenition
- Latin *saeta* > [se:ta] > [se:da] > OHG *sīda* ‘silk’
  - Postdates Romance lenition
  - Postdates Old High German sound shift
- Latin *cēpulla* > [ke:pʊlla] > [ʦe:bola] > OHG *zwībollo* ‘onion’
  - Postdates Romance lenition
  - Postdates Old High German sound shift
- Latin *Sēquana* > [se:kʷana] > [se:gʷəna] > OHG *Sīgona* ‘Seine’
  - (cf. OE *Sīgene*)
  - Postdates Romance lenition

In order to explain the Germanic /ī/ reflex in these recent loanwords, Gysseling assumed that in the Romance donor language, /e/ had shifted to Gallo-Romance /i^2/ and that this /i/ vowel would have been equated with West Germanic /ī/.

But not in all Romance loanwords do we find West Germanic /ī/ for Romance /e/. In Old High German we find several loanwords that substitute Romance /e/ with West Germanic /ē^2/.

- Latin *pensilis* > [pe:sɪle] > WGm. **pē^{2}sal* > OHG *pfiesal* ‘heated chamber’
- Latin *mensa* > [me:sa] > WGm. **mē^{2}sa* > OHG *miasa* ‘table’
- Latin *rēmum* > [re:mʊ] > WGm. **rē^{2}mō* > OHG *riemo* ‘oar’
- Latin *thēca* > [te:ka] > WGm. **tē^{2}ka* > OHG *ziahha* ‘cover’
- Latin *beta* > [be:ta] > WGm. **bē^{2}ta* > OHG *biezza* ‘beet’
- Latin *tēgula* > [te:gʊla] > WGm. **tē^{2}gal* > OHG *ziagal* ‘tile’

These loanwords with /ē^2/contrast sharply with the above listed loanwords that are also late and render Romance [e:] with West Germanic /ī/ (cf. Rauch 1967: 79).

We may note that the equation of Latin /ē/ with Germanic /ī/ is regular in Old English (cf. Wollmann 1990: 161). No /ē^2/ reflexes are found in the Latin and Romance loanwords of the Old English dialects.[92] A possible explanation for this might be, that, at the time of the borrowing, the Anglo-Frisian /ē^2/ was a low mid vowel [ɛ:] and was only pushed to [e:] when Pre-English /æ/ shifted to [ɛ:]. The closest substitute for Romance /e/ would therefore, in Pre-English, still have been /ī/.

[92] Only two late loanwords show Old English /ē/ for Latin /ē/, i.e. OE *bēte* ‘beet’, OE *mēse* ‘table’ (cf. Dietz 1993: 509). These are perhaps best explained as late loanwords from ecclesiastical Latin.

Early West Germanic			Pre-English		
[i:]	[u:]	>	[i:]		[u:]
	[o:]	>		[o:]	
[æ:]		>	[ɛ:]		
			[æ:]		
			[a:]		

Nevertheless, the double reflex of Romance /e/ in Old High German remains enigmatic. Gysseling's theory with its appeal to Gallo-Romance /i²/ does not offer a plausible solution, since De Poerck's reconstructions of /i²/ and /u²/ have failed to convince. It is therefore clear that another explanation for the Early Medieval substitution of Romance /e/ with continental West Germanic /ī/ is needed.

I want to propose that late Romance loanwords in the continental West Germanic dialects, which reflect Romance [e:] as West Germanic /ī/, may have been adopted from Gallo-Romance at a stage when secondary diphthongization to [ei] had operated. This Gallo-Romance diphthong /ei/ might have been perceived by Germanic-speakers as /ɪ.i/ which might have facilitated a simplification into /ī/.

If this hypothesis is correct, the affected loanwords provide a further means of dating Gallo-Romance secondary diphthongization. That is to say, secondary diphthongization must have occurred during the lenition process that affected Latin voiceless /t/ and more precisely, before voiceless /t/ reached the fricative stage /ð/. It would also mean that Gallo-Romance secondary diphthongization happened both before and after the Old High German sound shift took place.

- OHG *sīta* < Pre-OHG **sīda* ← [seida] (cf. OFr. *seie*)
- OHG *krīda* < Pre-OHG **krīda* ← [kreida] (cf. OFr. *creide*)
- OHG *pīna* ← [peina] (cf. OFr. *peine*)
- OHG *evina* ← [aveina] (cf. OFr. *aveine*)

Perhaps the same process is shown in several Romance loanwords in Old High German, which have /ū/ for Latin /ō/ (see also Stifter 2009: 270). It is conceivable that also these words were adapted from donor forms that had a Gallo-Romance diphthong [ou].

- OHG *mūrberi* ← [mour] (cf. OFr. *mour*) 'mulberry'
- OHG *ūla* ← [oula] (cf. OFr. *ole, oule*) 'pot'

Let us now return to the cases where Romance /e/ feeds into West Germanic /ē²/; these cases can now be explained as lexical transfers from the intermediary period between the creation of /ē²/ and the secondary diphthongization of Gallo-Romance. Still, this time window is rather small and we may also attribute the /ē²/ substitution to contact with a Romance dialect that did not undergo secondary diphthongization. Especially the Romance dialects in Central Gaul and the Alps would then be plausible candidates. This enables us to reconstruct the following stages:

1. Latin /ē/ = Early West Germanic /ī/
    - Before the rise of West Germanic /ē²/
    - After Latin /ens/ > Romance /ēs/
    - Before Latin /w/ > Romance /β/
    - Before Romance lenition
2. Romance [e:] = Late West Germanic /ē²/
    - After the rise of West Germanic /ē²/
    - Before Old High German sound shift
    - Before Romance lenition
3. Gallo-Rom. [ei] > continental West Germanic /ī/
    - After West Romance lenition
    - Before and after Old High German sound shift
    - Between 500 – 700 CE?

3.12 Gallo-Romance /iɛ/ in Germanic borrowings

In the preceding section, we have seen that in several cases Romance [e:] fed into the new Germanic vowel /ē²/. One of the other sources for continental West Germanic /ē²/ was Romance [ɛ] (i.e. Latin /e/and /ae/) in open syllables. In Romance loanwords, this vowel is normally reflected by the West Germanic vowel /ē²/ (see also Rauch 1967: 78), showing that in the Romance donor language the vowel was long under the stress. That the West Germanic /ē²/ was initially a monophthong, is shown by two Germanic loanwords in Old French, one of which predates the spontaneous diphthongization, the other one postdates it.

West Germanic		Romance	Gallo-Romance	Old French	
*tē²ri	(OHG *ziari*)	→ [tɛ:rja]	> [tiɛʲrʲa]	> tire	‘ordened row’
*lē²ha	(MHG *liehe*)		→ [lɛ:ha]	> lehe	‘wild sow’

It is generally assumed that at the start of the Carolingian period, Germanic / $\bar{e}^2$/ shifted to /ie/, /ia/ or /io/ in Old High German, /ie/ in Old Saxon and /ie/ in Old Dutch (Braune-Mitzka 1967: 34-35).

Latin	Romance	West Germanic	Old High German	
Graecus	> [grɛ:kʊ]	→ **krē²k*	> OHG *kriech*	Greek
Rhaetium	> [rɛ:tjʊ]	→ **rē²t*	> OHG *Riez*	Rhaetia[93]
Petrus	> [pɛ:trʊ]	→ **pē²tar*	> OHG *pietar*	Petrus
febris	> [fɛ:βre]	→ **f ē²ƀar*	> OHG *fiebar*	fever
brevis	> [brɛ:βe]	→ **brē²f*	> OHG *brief*	letter
phlebotomus	> [flɛ:ɔtɔma][94]	→ **flē²tuma*	> OHG *flietema*	scalpel
presbyter	> [prɛ:sβʊtɛr]	→ **prē²star*	> OHG *priester*	priest
ceresea	> [kɛrɛ:sja]	→ **krē²sija*	> OHG *chriesi*	cherry
speculum	> [spɛklʊ]	→ **spē²gal*	OHG *spiegal*	mirror

However, there is a distinct possibility that not all of these Romance [e] vowels fed into the continental West Germanic monophthong /$\bar{e}^2$/. Alternatively, we might argue that some Romance loanwords were borrowed from Gallo-Romance after the spontaneous diphthongization of the low mid vowels had occurred. Here we touch upon a long debate in both Romance and Germanic linguistics that concerns the interconnectedness of the Romance spontaneous diphthongization and the Old High German diphtongization. The specifics of this debate will not be covered here and are summarized by Irmengard Rauch in her 1967 monograph *The Old High German diphthongization.* Suffice it to say that a direct link between the two diphthongizations is still moot (cf. Rauch 1967: 76; *contra* Van Durme 1996: 105).

If the above listed Romance loanwords entered Germanic after the spontaneous diphthongization of the low mid vowels, we would be dealing with an adoption of the Early Gallo-Romance diphthong /iɛ/ into the West Germanic vowel system as a loan phoneme /ie/.

[93] See Sonderegger (1987) for the attestations.

[94] The word was continued in the Romance daughter languages without the medial /b/, supposing a pre-stage **fleotomus* (cf. FEW VIII: 390).

This solution was considered by Franck (1896), Wiget (1922) and Gysseling (1992) and provides a plausible scenario for several of these words. Note that the relatively late date of borrowing is in the cases of OHG *pietar* and OHG *flietema*[95] corroborated by the operation of Romance lenition.

Latin	Old French	Gallo-Romance	WGm.	Old High German
Rhaetium	-	[rjɛʧə]	> *rjeta	> Riez
Petrus	Pieḍre	[pjɛdrə]	> *pjedar	> pietar
febris	fievre		> *fjeƀar	> fiebar
brevis	brief	[brjɛvə]	> *brjef	> brief
phlebotomus	flieme	[fljɛdəma]	> *fljedəma	> flietema

This scenario cannot be invoked for all loanwords that reflect Romance /ɛ/. In the cases of Latin *Graecus*[96] and *presbyter,*[97] a borrowing as monophthongal /ē²/ is the only plausible solution, and in the case of Latin *ceresia* an early date of borrowing is confirmed by the preservation of Latin velar /k/.

In the case of OHG *spiegal,* the diphthong cannot be credited to Gallo-Romance spontaneous diphthongization, since the Latin suffix *–culum* was syncopated to [klʊ] before OSL occurred, i.e. Rom. **spɛklʊ* (cf. ModIt. *specchio*). It is also not likely that the word was borrowed with a diphthong caused by a following palatal consonant (cf. OProv. *espielh* 'mirror'), since then we would not expect the cluster /kl/. Rather, the form *spiegal* may be a Merovingian *mot savant*, a class of words that is amply represented in Old French, cf. OFr. *aveugle* 'blind', *siegle* 'century'. We may note that these Old French words have diphthongized the mid vowels but rendered the Latin cluster <cl> as voiced /gl/ (see Paris 1900: 372). It seems likely that Old High German *spiegal* was borrowed from a similar hybrid Romance donor form.

[95] In Gallo-Romance, also an early syncopated form **fletme* existed, which was borrowed into Old English as *flytme.*

[96] In the case of OHG *Kriech,* a monophthongal /ē²/ vowel is reflected in Gothic *Krēks* and Old English *Crēcas.*

[97] In the case of OHG *priester*, the Romance [ɛ] stood in a closed syllable and could therefore not undergo spontaneous diphthongization of the low mid vowels. The diphthongization in closed syllables of Walloon, which is invoked by Gysseling, probably occurred too late to account for the Germanic diphthong in Old High German. Also the monophthongal spelling OHG *prēster* argues against it.

The preceding considerations on Germanic /ɛ̄²/ in Romance loanwords allow us to reconstruct the following substitution processes in the lexical lexical transfers between Romance and West Germanic:

1. Rom. [eː] = Gm. /ɛ̄²/
    - After rise of West Germanic /ɛ̄²/
    - After Latin /ens/ > Romance /ēs/
    - Before Latin /w/ > Romance /β/
    - Before Romance lenition
2. Rom. [ɛː] = Gm. /ɛ̄²/
    - After rise of Germanic /ɛ̄²/
    - Before Romance palatalization of /k/ before front vowels
    - Before Romance lenition
3. Gallo-Rom. [jɛ] = WGm. /ie/
    - After Romance lenition
    - Before Old High German sound shift

3.13 Gallo-Romance fronting of /u/

In several western Romance dialects, Romance /u/ from Latin long /ū/ was fronted to /y/ in both closed and open syllables. This development is shared by French, Provençal, western Rhaeto-Romance and multiple northern Italo-Romance dialects (Piedmont, Liguria, Lombardia). This fronting was explained by Ascoli (1882) through linguistic interference from Gaulish phonology. In Gaulish, Celtic /u/ may have been palatalized to [y], a development which it would share with British Celtic. Striking in this regard is that the French palatalization of [u] crosses the language border into Dutch. Since the southern Netherlands in the Roman period had a Gaulish speaking population, it is possible that the fronting in Dutch is also due to the retention of a Celtic substratum feature. In a similar vein, Schrijver also argued that this isogloss might be ascribed to substratum influence, although he opts for a Romance substratum (cf. Schrijver 2014: 151[98]).

Still, the Gaulish substratum theory is heavily contested and nowadays skepticism prevails. The fronting of Celtic [u] in Gaulish is hard to substantiate, and there are even scholars who deny the possibility that Gaulish survived long enough to influence colloquial Latin (cf. Posner 1996: 238; Loporcaro 2009: 138). It is therefore commonly assumed that the fronting of [u] in Gallo-Romance might not be old, some even placing it as late as the seventh century CE (cf. Loporcaro 2009: 138; Richter 1934: 254-56). This relatively recent date may be

[98] For a different opinion, see De Vaan (2017: 40-42).

confirmed by the failure of East Walloon and several dialects of Franco-Provençal to participate in the shift.[99]

In Gallo-Romance, the fronting of [u] > [y] must have preceded the raising of [o] > [u] in closed syllables, since the new [u] did not undergo the palatalization to [y].

- Latin *murum* > **muro* > **myrə* > **myr* = Old French *mur* 'wall'
- Latin *ursus* > **orsʊs* > **orsəs* > **urs* = Old French *ours* 'bear'

3.14 Gallo-Romance fronting of /a/

After Ten Brink's Law had redistributed vowel length according to syllable structure, Latin short /a/ = [ɑ] and Latin long /ā/ = [a:] had merged in single phoneme /a/ = [a] ~ [a:]. It has been argued by Herman (1985) that Latin short [ɑ] was in some Late Latin varieties phonetically fronted to [æ]. This may have happened in order to move it away from [ɔ], and would account for the occasional but persistent misspelling of Latin /a/ as <e> in inscriptions from the Late Empire (Loporcaro 2009: 137-38). It seems plausible that northern Gallo-Romance had at some point also a fronted pronunciation [æ] for Romance /a/ (cf. Richter 1934: 223; Zink 1986: 107-08). There are two facts that point in this direction:

1. In northern Gallo-Romance, /k/ and /g/ were palatalized and affricated in front of /a/
    - Early Old French *chanter* 'to sing' < Latin *cantāre*
2. In northern Gallo-Romance, /a/ in stressed open syllables was fronted and raised to [e]
    - Early Old French *espeḍe* 'sword' < Latin *spatha*

These two facts are hard to reconcile with a phonetic interpretation of Romance /a/ as Gallo-Romance [a], and would rather argue for a more palatal realization [æ] (see Posner 1996: 240).

However, the shift of /a/ in stressed open syllables to [e] is normally not taken as evidence for a fronted pronunciation. Most scholars assume that /a/ in open syllables was subjected to diphthongization, a view that is widely held among romanists and should therefore be given due consideration.

In this view, the Pre-French development of Latin /a/ in open syllables is seen as an exponent of the Gallo-Romance diphthongization, the same diphthongization in open syllables that had affected Romance /e/ and /o/ (cf. Straka 1953: 284; Posner 1996: 247; Taddei 2000: 122-26). Straka (1953) argues that Latin /a/ in open syllables was first diphthongized to /ae/, a sound which only briefly existed in phonetic terms and was soon assimilated to a long

[99] For Walloon, we may assume that the Gallo-Romance fronting of /u/ was reversed under influence of the Germanic substratum (see chapter 4).

[eː] = /e/ around the seventh century CE (cf. Zink 1986: 56-57). The strange thing about the resulting /e/ is that it stayed distinct for a while from the other Old French *e*-vowels. This is shown by the fact that in Old French poetry, it did not assonate with the normal Old French vowels [ɛ] and [e] (Pope 1934: 107; Posner 1996: 248). Zink (1986), following Bourciez (1956), solves this by assuming that the resulting vowel was Gallo-Romance long [ɛː], which shifted to [eː] in the Old French period. [100] Because the inherited Romance [ɛ] and [e] where phonetically short and etymologically limited to closed syllables, the new long raising product [ɛː] or [eː] from Romance [aː] may have been perceived as different. This solution is not completely satisfactory because it is unclear why assonance would be sensitive to vowel length. Also we may note that the diphthongal stage between Romance /a/ and Old French /e/ has been called into question by Richter (1934: 223), who remarked that the spelling <ae> for Latin /a/ does no more prove a diphthongal stage than the spelling <ae> for Latin /e/.[101] We may therefore wonder whether there is not a simpler way to account for both the secondary palatalization of /k/ and /g/ before /a/ and the shift of /a/ in open syllables.

3.15 Gallo-Romance palatalization and Bartsch' Law

In my opinion, Elise Richter's suggestion of a general Latin /a/ > Gallo-Romance [æ] shift in open stressed syllables is more promising (Richter 1934: 224).[102] According to Richter, this [æ] quality in stressed syllables was retained in Early Old French, which would account for the fact that this vowel did not assonate with the other Old French <e> vowels. It also explains why in the oldest Old French text monument, the Strasbourg oaths, /æ/ was still written as <a>, e.g. Early Old French *fraḍre* 'brother', *paḍre* 'father'.

Unlike Richter, though, I want to propose that this /a/ > /æ/ shift occurred in both open and closed stressed syllables. This way, we can take the Gallo-Romance [æ] shift as the trigger for palatalization of Latin /ka/ and /ga/ to /ʧæ/ and /ʤæ/. The exact date of this development is controversial, but should probably be placed in the late Merovingian period (see section 3.39). After the palatal nature of the following [æ] triggered the affrication of the velar stops, the vowel was retracted again in closed syllables, which would bring us to the developmental stage of Old French.

The relative order of these developments might have been as follows: first, the fronting of /a/ > [æ] in open syllables occurred. Then, the sequences [kæ] and [gæ] were affricated to [ʧæ] and [ʤæ]. After the affrication, the vowel of the palatalized sequence /ʧæ/ was raised

[100] Pope (1934: 106) argues that /ae/ was immediately monophthongized to [eː] without an intermediary [ɛː] stage.
[101] The only other piece of evidence that might support an early Gallo-Romance stage /ae/ or /ai/ comes from the Mosel Romance place-name element *–preith-* from Latin *pratum* (Jungandreas 1979: 33). This diphthong is mainly found in the *preith*-names, which are no older than the ninth century; the evidence is therefore rather meagre (see Pitz 2008; 448).
[102] This Gallo-Romance shift from /a/ > /æ/ may have been unconnected to the fronted pronunciation of /a/ that is found in some Late Latin inscriptions.

to /ɛ/, possibly simultaneously with the raising of /ei/ > /i/ following palatals consonants (see 3.18).

Then, Gallo-Romance [æ] was retracted to /a/ in the following environments, thereby restoring the original vowel:

- Before /l/
  - Latin *cav**a**llus* > OFr. *chev**a**l* 'horse'
- Before /w/, where /aw/ via /ɔw/ developed into /ɔ/, /u/ (cf. Zink 1986: 208)
  - Latin *c**a**usa* > OFr. *ch**o**se* 'thing'
  - Latin *cl**a**vus* > OFr. *clou* 'nail'
- In closed syllables, including the newly closed syllables, which were created by Gallo-Romance syncope
  - Latin *c**a**ntus* > OFr. *ch**a**nt* 'song'
  - Latin *r**a**pidus* > OFr. *r**a**de* 'quickly'
- Before /n/, where /a/ > /ai/
  - Latin *m**a**nus* > OFr. *m**ai**n* 'hand'

Then, in northern Gallo-Romance, Bartsch Law occurred, that is the breaking of the vowel /ɛ/ to /jɛ/ following the palatal /ʧ/.[103] At this stage, the northern border dialects of Gallo-Romance (Norman French and Picardian) may have reverted the palatalization and restored /k/ (Müller 1979: 725).

- Gallo-Latin *canem* > **kæne* > **ʧɛne* > **ʧjɛn* > OFr. *chien* 'dog'
- Gallo-Latin *caput* > **kæbo* > **ʧɛvo* > **kjɛf* > OPic. *kief* 'head'

Next, Gallo-Romance apocope occurred, entailing the loss of the reflexes of Romance [e] and [o] in final position and the weaking of final /æ/ to schwa. The operation of apocope yielded new closed syllables and obscured the original distribution of the allophones [æ] and [a], thereby making the phonetic vowel split phonemic.

Now that we have accounted for the development of Latin /a/ in stressed syllables, we can take a look at the unstressed syllables as well. We may note that in unstressed syllables we also find palatalization of Latin /ka/ and /ga/ and the operation of Bartsch Law. However, the vowel /jɛ/, that was the result of Bartsch Law, collapsed into schwa in unstressed syllables.

- Gallo-Latin *cavallum* > **kævælo* > **ʧjɛvælo* > **ʧəval* = OFr. *cheval* 'horse'

Since we also find palatalization of /ka/ and /ga/ in unstressed syllables, it might seem attractive to posit a quality [æ] in unstressed syllables as well. This solution is reminiscent of

[103] In this regard, the development is similar to the Pre-English breaking of **kæ-* ~ **kǣ* > Old English *cea-* ~ *cēa-* (cf. OE *ceaster, cēace* < WGm. **kastar* 'fortress', **kaukō* 'jaw', see Campbell 1959: 69).

Pope's suggestion of an /a/ > /ɛ/ shift in countertonic position (Pope 1934: 164). In order to make this work, one would have to assume that all instances of unstressed Gallo-Romance [æ] that were not affected by Bartsch Law were restored to /a/, e.g. Gallo-Latin *gabellus* > **ʤævɛlo* > OFr. *javel* 'javelin'. Although this scenario seems plausible, it remains to be seen whether this suggestion holds up to further scrutiny.[104] For now, it might be prudent to restrict the fronting rule to stressed position.

The oldest documentary evidence for the shift of /a/ > [æ] in stressed syllables comes from the Merovingian spelling <primetus> for Latin *primatus* 'prime' and <rogetus> for <rogatus> (see also Vielliard 1927: 2). Other early attestations may be found in the ninth-century place name *Caziei* 'Chézy' < Gallo-Latin *Catiacum* of the Anglo-Saxon chronicle (cf. Dietz 1993: 490) and the early tenth-century place-name *Namiei* 'Nennig' < Gallo-Latin *Nanniacum* from the Moselle region (Jungandreas 1979: 37).[105]

At the end of the Early Old French period, Old French /æ/ was shifted to /e/, the stage of general Old French (cf. Zink 1986: 57). In the same period, ca. 1100 CE, Gallo-Romance /k^{w}a/ was delabialized, thereby creating a new sequence /ka/ in Old French and phonemicizing the opposition of /ʧa/ : /ka/ (Haudricourt & Juilland 1970: 95-98). We may note that this development, i.e. delabialization of /k^{w}/, did not reach the eastern Walloon dialect area (cf. Remacle 1948: 73; see section 4.11).

Some final remarks are due to the Gallo-Romance diphthong /au/ which was also affected by the shift from /aw/ to /ɔw/. This development seems to have gone through an intermediate stage /ao/ which is reflected in Merovingian spellings (cf. Dietz 1993: 501).[106]

- AORIACO VICO (7th c. triens[107]) < Latin *Auriacum* (ModFr. *Orry*)
- Merovingian *aoster* (Pseudo-Fredegar) < Latin *auster* 'East realm'
- Merovingian *fraos* (Pseudo-Fredegar) < Latin *fraus* 'deceit'

Richter, however, proposed an early Merovingian monophthongization of /au/ > /ɔ/ on the basis of several inverted <au> spellings in the sixth-century Merovingian *Angiers Formularies,* a suggestion that was followed by Straka (Richter 1934: 211-14; Straka 1964):

- <austes> : <hostes>
- <caus> : <quos>

[104] We may note that unstressed Latin /ka/ that ended up in hiatus after the loss of Gallo-Romance stops, could also be restored to /a/, e.g. Latin *catellus* > OFr. *chael* 'little dog'. Here, the dialectal variant OFr. *chieau* fits the proposed development better.

[105] The lack of an <e> spelling in the first syllable of *Chézy* may be due to the Picardian dialect from which the Old English compilator adopted the place name. The Picardian provenance is also shown by the rhotacism in the form <cariei>,

[106] We may note that this development ran parallel to the Rhine Frankish monophthongization of /au/ via <ao> to /ō/ (cf. Braune-Mitzka 1967: 44).

[107] The identification sign of this coin is Belfort 5915.

In this case, Richter's chronological assumptions seem to be ill-founded. Burdy rightly remarks that the manuscripts, which preserve these spellings, are too young to serve as compelling evidence (cf. Burdy 2006: 25). According to him, we should take the Late Merovingian <ao> spelling as the first secure sign of the evolved pronunciation [ao] for Latin /au/.

In open stressed syllables, Gallo-Romance /ao/ developed into [ɔ:] before the ninth century CE. The sound shift was completed by the time of the Strasbourg oaths and the Eulalie sequence, where we find Early Old French *cosa* and *cose* for Latin *causa* (Pope 1934: 190-91).

3.16 Fronted /æ/ and palatalization of /ɣ/

The Gallo-Romance /a/ > [æ] shift can also explain the puzzling instances where the lenition product /ɣ/ develops into /j/ before unstressed /o/ (see 3.31). In these cases, the Gallo-Romance /ɣ/ was preceded by stressed /a/. To my mind, the palatalization of /ɣ/ to /j/ is better understood by assuming that stressed /a/ was at that time still a palatal [æ:].

- Latin *verācum* > [vɛræ:ɣo] > Old French *verai* 'true'
- Latin *lacus* > [læ:ɣo] > Old French *lai* 'lake'
- Latin *Tornacum* > [tornæ:ɣo] > Old French *Tournai* 'Tournai' (Belgium)

It seems to me that a northern Gallo-Romance /a/ > /æ/ shift in the proposed chronology can account for all the facts. Note that in this dissertation we continue the convention of reconstructing Galllo-Romance /a/ so as to maintain the convention of traditional Romance studies.

3.17 Gallo-Romance brightening and relative chronology

It is striking that the phonemicization of the shift of /a/ > /æ/ in open syllable coincides with the area of the sixth-century Frankish empire, extending also to the Poitou region and Burgundy (Pope 1934: 163-64). We may therefore wonder whether the limitation of this /a/ > /æ/shift to northern Gaul may be explained as Germanic substratum influence (see chapter 4). The Germanic variety that could be held accountable for this shift would be the Ingvaeonic dialects. These dialects did not have an /a/ in their vowel system because they had shifted West Germanic /a/ to /æ/, a process known in Old English studies as 'brightening' (Campbell 1959: 52-53). It is possible that the language of the western Merovingian Franks possessed this feature, which they may have imposed on their pronunciation of fifth-century Gallo-

Romance. In this regard, we may note that multiple scholars have proposed that the language of the Salian Franks possessed some Ingvaeonic features (e.g. Quak 2007: 2008b[108]).

Now that we have discussed the developments that pertain to the fate of Romance /a/, we may summarize the proposed relative chronology:

1. Gallo-Rom. [aː] > [æː] in open syllables
    - Ca. 400 – 550 CE
2. Gallo-Rom. /k/ and /g/ > Pre-French /ʧ/ and /ʤ/ before [æ] ~ [æː]
3. Syncope of post-tonic vowels
4. raising of [æ] >[ɛ] when following a palatal consonant
    - Before 900 CE
5. Backing of [æ] > [a] in closed syllables and before /w/ and /n/
6. Bartsch Law: dipthongization of [ɛ] > [jɛ] when following a palatal consonant
7. Apocope
    - Before 700 CE
    - Phonologization of [æː] as /æ/ in open syllables
8. Labialization of [aw] > [ɔw]
    - 600 – 700 CE
    - Before 841 CE
9. Reduction of initial unstressed [jɛ] to schwa (cf. OFr. *cheval* 'horse' < **ʧjɛval*)
10. Raising of /æ/ > /e/
11. Delabialization of /k^{w}a/ > /ka/

3.18 Gallo-Romance metaphony and umlaut

Early in the Gallo-Roman period, Gallo-Romance vowels were susceptible to metaphony. They were influenced by adjacent palatal consonants, often entailing a raising or breaking of the vowel in question. In the following list, the different raising effects are summarized:

1. Diphthongization before palatal consonants
    - Latin *vetulum* > **vɪɛʎə* > Old French *viell* 'old'
    - Latin *noctem* > **nuɔçtə* > Old French *nuit* 'night'
2. Raising of Pre-French /æ/ > /ɛ/ after palatal consonants (Bartsch' Law)
    - Latin *caput* > **ʧiɛvə* > Old French *chief* 'head'
3. Raising of Pre-French /ei/ > /i/after palatal consonants
    - Latin *mercēdem* > **mɛrtseiðə* > Old French *merci* 'mercy'

[108] It has been suggested that the legal formula *maltho thi atomeo lito* 'I declare you, bondsman, half free' in the Salic Law represents such an Ingvaeonic feature. In this sentence, the accusative personal pronoun *thi* aligns with the Northsea Germanic dialects (cf. OE *þe*, OS *thi* 'you') and sharply contrasts with Rhine Franconian *thih*, *dih* [pers.pron.2.sg.dat.] (Quak 2008b: 143).

- Latin *cēra* > **tseira* > Old French *cire* 'wax'

The raising of /ei/ > /i/after palatal consonants may have occurred simultaneous with the raising of /æ/ > /ɛ/ under the same conditions, which would place them both in the late Merovingian period. The relatively late date for the raising of /ei/ is also suggested by the dialectal difference between Old French *givre* 'rime' and *joivre* 'rime', both going back to Gallo-Romance **ʤeivrə* < Gaulish **gēβero* 'winter' (PCelt. **gem-,* see Matasović 2009: 170; FEW IV: 129-30). The form *joivre,* limited to the eastern dialects of Gallo-Romance, shows that occasionally the raising after palatal consonants was resisted in the east of Gaul.

Gallo-Romance vowels could also be raised by a following /i/ in the next syllable, a development mirrored in Germanic and the metaphonic dialects of Italy. In Old French and Old Provençal, umlaut only comprised the mutation of Romance /e/ to /i/. Richter (1934: 132-33) argued that evidence for this umlaut may be reflected in Merovingian Latin, and would thus foreshadow the mutated reflexes in Old French and Old Provençal.

Desiderius > [dizdɛrjʊs] = *Disiderius* (cf. Old French *Didier,* hypocor. *Dido*)

fecit > [fitsiθ] = *ficit* (cf. Old French *fit* 'made')

However, the Merovingian evidence is ambiguous, because we have seen that Merovingian Latin often rendered the merger product of Latin /i/ and /ē/ with orthographic <i>. The first certain examples of umlaut come from the Old French stage where its effects are visible in several places in Gallo-Romance morphology. The following examples are found in the pronominal system:

Old French *il* [nom.pl.m.] < **elli* < Latin *illī*

Old French *ist* [nom.pl.m.] < **esti* < Latin *istī*

Old French *neïs* [nom.pl.n.] < **nekisti* < Latin *nec istī*

The umlaut is also present in the conjugation of the strong perfect verbs. There, Romance /e/ in the first singular person of the paradigm is umlauted to /i/ under influence of the ending /i/. In the second singular, we find the ending **-esti*, umlauted to *-isti.*

Old French		Gallo-Romance		Latin			
1.sg.	2.sg.	1.sg.	2.sg.	1.sg.	2.sg.		
pris	presis	< *presi	*presesti	< prēndī	prēndistī	prēndere	‘to take’
vit	vedis	< *vedi	*vedesti	< vidī	vidistī	vidēre	‘to see’
vin	venis	< *venis	*venesti	< venī	venistī	vēndere	‘to come’

A final type of umlaut that also affected Early Gallo-Romance, but is clearly different from the normal umlaut that only affected /e/, is the change in the Gallo-Latin suffix *-*arjʊs* (Latin -*arius*) to Old French -*ier* [iɛr] (Schwan-Behrens 1966: 47). This outcome presupposes a Gallo-Romance stage [ɛrʲ] which underwent conditioned diphthongization of the low mid vowels to [iɛrʲ].

- Latin *primarius* > Old French *primier* ‘first’
- Latin *villarius* > Old French *viliers* ‘homestead’
- Latin *pannarius* > Old French *panier* ‘bread basket’

Pope (1934: 15) argued that the raising of the /a/ to /ɛ/ in the suffix -*arius* may have been influenced by Germanic umlaut, which was probably at this point still a phonetic process. Germanic-speakers, who umlauted /a/ to /e/ before /i/ or /j/ in the following syllable, may have imposed this phonotactic rule on their pronunciation of Gallo-Romance (cf. Reiner 1980: 126). Alternatively, we could argue that we are here dealing with a case of Romance metaphony. However, the possibility of Germanic influence is strengthened by the parallel raising found in the Old French reflexes of Frankish names on –*hari* ‘army’ > [hɛrʲ] > [iɛr] and –*gair* > [gɛrʲ] > [giɛr] and the fact that, in the Merovingian period, Germanic names were occasionally written with <ero> instead of <ario> (see Vielliard 1927: 3).

- MerLat. *berhero/berhario* < OFrnk. **berhari*
- OFr. *Lohier* < OFrnk. **Hlodahari*
- OFr. *Gaultier* < OFrnk. **Walthari*
- OFr. *Lethgier* < OFrnk. **Leudagairi*

3.19 Latin glides

Early in the Romance period, the unstressed front vowels /e/ and /i/ developed into yod before back-vowels (see Alkire & Rosen 2010: 57-58).

- Latin *palea* > **palja* > OFr. *paille* 'straw'
- Latin *senior* > **senjor* > OFr. *sendre* 'lord'
- Latin *faciēs* >> **fakja* > OFr. *face* 'face'

This yod had the tendency to transfer its palatal nature to the neighboring segments, which may be the reason why already in the Roman period we find cases where the sequence /rj/ is spelled without the yod, e.g. <adverssaro> for Latin *adversarios* in a third-century curse tablet from Croatia (AIJ 557, cf. Barta 2017). Another consequence of this sound change is that scribes in the Late Roman and Medieval period were often unsure about whether to write <e> or <i> for the glide, e.g. <veator> = Latin *viator* (CIL XIII 11213, cf. Herman 2000: 35).

In the Romance period, the Latin glide /u̯/ was prone to loss after complex consonant clusters or geminates, as can be shown by the evolution of the following words (see Zink 1986: 150):

- Lat. *battuere* > **battere* > OFr. *batre* 'to fight'
- Lat. *februarium* > **fɛβrarjʊ* > OFr. *fevrier* 'february'
- Lat. *futtuere* > **fʊttere* > OFr. *foutre* 'to fuck'

Perhaps a special case is the evolution of Latin *manualis* into Old French *manel* 'belonging to the hand', which shows a development /nw/ > /n/ that is also found elsewhere in the Romance languages (cf. Malkiel 1968: 299-303). In Merovingian Latinity, the <u> glide of this root is omitted in MerLat. *dismanatas* < Latin *dismanuatas* (Vielliard 1927: 66). We may note that in later Germanic loanwords, the etymological sequence /nw/ is treated differently, e.g. Gm. **manwjan-* > OFr. *manevir* 'to prepare' (Meyer-Lübke 1913: 126).

3.20 Romance prosthesis

In Classical Latin, the medial clusters /sk/, /st/ and /sp/ could not be the onset of a syllable, and the syllable boundary was therefore between the two consonants, e.g. Latin *festa* 'feast' = /fes$ta/, Latin *respīrō* 'I breathe' = /respiro/ (cf. Alkire & Rosen 2010: 26-27). In the Late Roman period, this syllable constraint was extended to word initial position, so that in Late Latin/Proto-Romance these clusters could no longer be the onset of a syllable (cf. Loporcaro 2009b: 98). The resyllabification was probably provoked by sentence sandhi, i.e. Latin *illa sponsa* 'the betrothed' = /illaspon$sa/ and necessitated vowel-prosthesis whenever the syllable constraint was not met, e.g. Latin *in scripta* 'in writing' > /iniskrip$ta/.

In Latin epigraphy and Late Latin texts, we find the operation of this rule reflected in the spelling of a prosthetic vowel <i> or <e> in front of the above mentioned clusters (Väänänen 1967: 49). The prosthetic vowel shows up in Merovingian Latin in such spellings as MerLat. *istabilis* for Latin *stabilis* 'stable' and MerLat. *estodiant* for Latin *estudiant* 'they study' (Vielliard 1927: 102-03). We may note that in Old French the prosthetic vowel was generalized as /e/:

- Latin *spatha* > Old French *espeḍe* 'sword'
- Latin *scrībere* > Old French *escrivre* 'to write'

In Early Old French, the prosthesis rule was still active and is reflected in the eleventh-century hagiography of saint Alexis (cf. Zink 1986: 67-68).

Or revendrai al pedra et a la medra

Et a la ***sp****usa qued il out* ***esp****usethe* (Vie de saint Alexis, stanze XXI, 1.2)

"Now I will go back to the father and the mother

And to the fiancée to whom he was betrothed."

3.21 Ascoli's Law

It was noted by Ascoli (1878) that a Latin initial front vowel /ē/, /e/ or /ae/ before a tautosyllabic /k/, /kʷ/, /β/, /s/ or /t/ could be subjected to far-going reduction. According to Ascoli, these vowels could be reduced to a short /i/ vowel, that was often retained in Old French, but prone to loss or support by an intrusive nasal in other Romance varieties. The introduction of a nasal probably occurred in order to adapt the initial syllable to a segment structure that protected the vowel from apheresis; the choice for the introduction of a nasal instead of lengthening the vowel may have happened in analogy with the unstressed prefix *–in*. To conclude, the rise of this short /i/ vowel and its support by an intrusive nasal is therefore also known as Ascoli's Law (cf. Malkiel 1983: 324).

- Lat. *ecclēsia* > [ⁱglɛ:sja] > OFr. *iglise* ≠ ModIt. *chiesa* 'church'
- Lat. *aequāle* > [ⁱgʷa:le] > OFr. *ivel* ≠ OFr. *enval* 'equal'
- Lat. *ēbriacum* > [ⁱβrja:kʊ] > OFr. *ivraie* ≠ ModIt. *imbriaco*[109] 'drunk'
- Lat. *ebureus* > [ⁱβorjʊ] > OFr. *ivoire* ≠ Catal. *bori* 'ivory'

3.22 Gallo-Romance final vowels

In the Romance varieties of Late Antiquity, the vowel distinctions in final position were reduced by merging the mid vowels /e/ and /ɛ/ and /o/ and /ɔ/ into two general mid vowels

[109] The Standard Italian word for 'drunk' is *ubriaco.*

/e/ and /o/ (cf. Lausberg 1969 §272; Loporcaro 2009: 65-69). This means that, at the start of the Gallo-Romance period, only five vowels could occur in word final position, i.e. Rom. /i/, /e/, /a/, /o/, /u/ (Sampson 1980). The west Romance high vowels /i/ and /u/ were still distinct from the mid vowels, as is shown by their capacity to trigger umlaut. In western Romance, umlaut triggered by /i/ was common, and is also reflected in the prehistory of French, e.g. Latin *vēnī* > Old French *vin* 'I came' : Latin *vēnistī* > Old French *venis* 'you came'. The high vowel /u/ only triggered umlaut in Rhaeto-Romance, e.g. Rumantsch *iert* [sg.], *orts* [pl.] 'garden' < Latin *hortus, hortos* (Lausberg 1969 §196).

In the course of the sixth century, the Gallo-Romance word-final mid vowels collapsed into schwa (Richter 1934: 230-34). This situation is probably reflected in the verse correspondence of Frodebert and Importun, where *donum* [donə] and *annone* [anonə] could rhyme (see chapter 2). The high vowel /i/ survived longer and was retained until after medial stops were lost through lenition which put them right next to a stressed vowel. The result was a diphthong in which the old /i/ formed an offglide /j/.

- Latin *potui* [pɔdwi] > [pɔði] > Old French *poi* [pɔj] 'could'
- Latin *placui* [plaɣwi] > [plawi] > Old French *ploi* [plɔj] 'liked'
- Latin *focum* [fɔɣo] > [fow] > Old French *fou* [fow] 'fire'
- Latin *caecus* [ʦjɛɣo] > [ʦjɛw] > Old French *cieu* [ʦjɛw] 'blind'

It is my contention that the offglide /w/ in Old French *pou* 'few', *fou* 'fire' and *jou* 'game' does not indicate the survival of final Latin /u/, which after all had shifted to the mid vowel /o/, but rather continues the lenition product /w/ from Gallo-Romance /ɣ/ (*contra* Schwan-Behrens 1966: 55; *contra* Sampson 1980: 32).

The schwa that continued the mid vowels was dropped later in the Merovingian period, leaving only /a/ in final position, which may have been pronounced as [æ] (cf. Richter 1934: 230-34). Before the ninth century CE, this final /a/ had collapsed into schwa as well. This stage is represented in the Strasbourg oaths, where the final [ə] from the mid vowels was lost and the final [ə] from /a/ or supporting [ə] from a stop + resonant clusters could be rendered orthographically by both <a> and <e>.

- Latin *amorem* > *amur* [amour] 'love'
- Latin *placitum* > *pleit* [plait] 'agreement'
- Latin *fratrem* > *fradra ~ fradre* [fraðrə] 'brother'
- Latin *adiuta* > *aiudha* [ajyðə] 'aid'

The same vacillation between <a> and <e> for final [ə] is found in the Eulalie sequence in the words <domnizelle> 'little mistress' against <pulzella> 'maiden' (cf. Loporcaro 2009: 67). Considering these facts, we can now establish the following relative chronology:

1. Merger of the mid vowels in final position

a. /e/ and /ɛ/ > /e/
b. /o/ and /ɔ/ > /o/

2. Mid vowels /e/ and /o/ centralize to schwa
    a. Before 666 CE (verse correspondence of Frodebert and Importun)
3. voiceless stops reach the fricative stage
    a. /i/ > /j/ after stressed vowel
4. High vowels /i/ and /u/ centralize to schwa
5. Low vowel /a/ is centralized to schwa

Nevertheless, it has not gone unnoticed that there are several environments where the Gallo-Romance mid vowels /e/ and /o/ do survive as schwa into the Old French period (see Sampson 1980: 30-31):

- Latin *porticus* > [pɔrteko] > Old French *porche* 'doorway'
- Latin *facere* > [fakere] > Old French *faire* 'do'
- Latin *comitem* > [kɔmete] > Old French *konte* 'count'

In the first two examples, the schwa has a supporting function which explains why it was retained (see section 3.40). The case of Old French *conte* is more problematic, since we would expect the /e/ of *conte* to share the same fate as the final vowel of Latin *ponte* > Old French *pont* 'bridge'. The regularist scholars have tried to solve this problem by arguing that proparoxytone nouns affected by late Gallo-Romance syncope could retain their final vowel as schwa (cf. Pope 1934: 114-115; Schwan-Behrens 1966: 57-58). Modern scholars have downplayed the importance of relative chronology in this matter and and attributed greater importance to sociolectal variation, as it might be the case that some variants of Gallo-Romance withstood apocope for a longer time than other varieties (cf. Loporcaro 2009b: 64).

3.23 Affrication of /tj/ and /kj/

It is generally acknowledged that in the Proto-Romance period (100 – 500 CE) the Latin sequences /tj/ and /kj/ could be subjected to two different developments (Lausberg 1967 § 451; Brandão de Carvalho 2008):

- The yod in Latin /tj/, /kj/ could trigger palatalization of the preceding stop
- The yod in Latin /tj/, /kj/ could trigger gemination of the preceding stop

These two developments are postulated on account of the evidence from Latin epigraphy and Late Latin texts and the reflexes and etymological contrasts in the Romance daughter languages (Loporcaro 2009: 144-50). The palatalization is evidenced in the spelling confusion of <ci> and <ti> in Latin inscriptions and texts and in the affricate reflexes of the cluster in many of the West Romance languages. The gemination is preserved in Central and South

Italian dialects (including Sardinian) and is part of a wider gemination-before-yod development (Lausberg 1967 § 451-478).

An interesting problem, however, is that in the West Romance languages these two developments seem to have crossed each other. In the case of Latin /tj/, we find two different reflexes for the same etymological sequence. The sound developments given below reflect Lausberg's overview of the Romance intermediary stages.

- Latin /tj/
  - Latin /tj/ > Rom. /ʧ/ > Gallo-Rom. /ʤ/
  - Latin /tj/ > Rom. /ttj/ > Rom./tʦ/ > Gallo-Rom. /ʦ/

The regular development of Latin /tj/ in the West Romance languages seems to be the affrication to /ʧ/ and subsequent voicing to /ʤ/, e.g. Latin *ratiōnem* > **ratʃone* > **radʒone* > OSp. *razón,* OProv. *razun* 'reason'. The divergent development is the gemination-before-yod and assibiliation to /ʦ/ outcome, e.g. Latin *platea* > **plattja* > **plattsa* > Old French *place.* We may note that the Old French word *amblaiz* 'yoke belt', which is a continuation of a Gaulish substratum word **ambulation,* underwent the same evolution of /tj/ > /ttj/ > /ʦ/ (see FEW XXIV: 408). In this case, the Gallo-Romance stage /ʦ/ seems to be reflected by Old High German word *amblāza* 'yoke belt', which presupposes a Gallo-Romance donor form **amblatsa* (see Müller & Frings 1968: 90-91).

In the case of Latin /kj/, the two different sound developments, palatalization and gemination, are both assumed to yield the affricate /ʦ/ in West Romance.

- Latin /kj/
  - Latin /kj/ > Rom. /ʧ/ > Gallo-Rom. /ʦ/
  - Latin /kj/ > Rom. /kkj/ > Rom. /ttʃ/ > Gallo-Rom. /ʦ/

We may note that the evolution of the geminate sequence /ttj/ and /kkj/ into West Romance /ʦ/is corroborated by Latin words that already contained a geminate consonant, such as Latin *mattea* and *brachium*; they undergo the same development as the geminates that were the result of the gemination-before-yod process:

- Latin *mattea** > WRom. **matsa* > OFr. *mace* 'flail'
- Latin *brachium* [brak:jum] > WRom. **brats* > OFr. *braz* 'arm'

It seems possible that in the case of Latin /kj/ the gemination and affrication were part of the same development, i.e. Latin /kj/ > /kkj/ > / ttʃ / > WRom. /ʦ/. In the case of Latin /tj/, it is not possible to reduce the developments to one sound change. We therefore have to assume that, in the case of the West Romance words that show /tj/ > /ʦ/ in the daughter languages, a different development took place that bled the voicing of the affricate. We may consider the following scenarios:

- In some words, Latin /tj/ may have been confused with the geminate /ttj/ which yielded /ʦ/.
- Some words may have entered West Romance from another Romance variety where Latin /tj/ yielded /ʦ/ anyway.
- Some words may have entered West Romance from a learned reading tradition in which written Latin <ti> and <ci> were both pronounced as /ʧ/. This would also explain the interchangibility of the sequences in Merovingian Latinity.

As concerns the dating of these developments, it is clear that the affrication of these clusters followed the change of pre-vocalic /e/ and /i/ to /j/, because also this new yod triggered the affrication. It is generally assumed that the affrication of /tj/ in post-consonantal and post-vocalic position occurred in the early centuries CE; early evidence for this date is provided by the following epigraphic evidence from the second and third centuries CE (Väänänen 1981: 54):

- <crescentsianus> < crescentianus (personal name, ca. 140 CE)
- <vincentzo> < vincentius (personal name, ca. 100 - 200 CE)
- <ampitzatru> < amphitheatrum (ca. 100 – 200 CE)

The affrication of /tj/ is also reflected in the Late Latin loanwords of Gothic and the Slavic. The Gothic words occur in Ostrogothic sources from early-sixth-century Italy and the Slavic words were probably borrowed in the Balkan when the Slavs settled there in the fifth and sixth centuries CE. This suggests that the lexical transfer of the Late Latin words into Gothic and Slavic must at least predate the sixth century.

- Latin *lectiō* > Rom. **lɛkʧʊ* → Goth. *laiktsjo* 'reading'
- Latin *cautiō* > Rom. **kautʧʊ* → Goth. *kawtsjo* 'warranty'
- Latin *platea* > Rom. **platʃa* → CS *ploča* 'market place'

In the prehistory of French, we must also reckon with a younger layer of loanwords in which both Romance and Germanic /tj/ was adapted as Gallo-Romance /ʦj/. This Gallo-Romance /ʦj/ then joined the development of /sj/, undergoing *i*-infection and yielding /is/ in Old French (cf. Meyer-Lübke 1913: 128, see also section 3.26).

- Gm. **satjan-* → Gallo-Rom. **satsjire-* > OFr. *saisir* 'to acquire, to grab'
- Rom. **palatjʊ* → Gallo-Rom. **palatsjo* > OFr. *paleis* 'palace'
- Rom. **sarmatja* → Gallo-Rom. **sarmatsja* > OFr. *Sarmaise* (regionym)

The affrication of /kj/ to /ʧ/ is first mentioned by the Latin grammarians Servius and Papirianus in the fourth and fifth centuries CE (Väänänen 1981: 54). The affrication of /kj/ in

post-consonantal position must have happened earlier, since its occurrence is evident from the <ci> <ti> spelling confusions as found in Latin <tercius>/<tertius>.[110]

The affrication of /kj/ in inter-vocalic position occurred relatively late; we can infer that it occurred after the affrication of /tj/, since it missed the intervocalic voicing that affected /tj/.

- Latin *faciēs* >> **fakja* > Rom. **fatʃa* > WRom. *fatsa* > OFr. *face*

A later date for the affrication of /kj/ in intervocalic position is also evident from the Latin loanwords in West Germanic that preserve the sequence /kj/.

- Latin *aciarium* >> Rom. **akjale* →OHG *echol,* OS *ekil* 'steel'
- Latin *brachium* > Rom. **brakjʊ* → MHG *bracke* 'wooden beam'
- Latin *vicia* > Rom. **wikja* → OS *wikkia* 'vetch' (Vicia cracca)

We may note that some Germanic loanwords that have /kj/ entered the Romance language of Gaul at a stage in which it could still feed into the gemination-before-yod and the affrication process. It seems unattractive to assume that the West Germanic words had already gone West Germanic gemination before yod, since traditionally this development is placed rather late (Braune-Mitzka 1967: 91).

- WGm. **makjōn* 'mason' > OFr. *maz, maçon*
- WGm. **bakjōn* 'baker' > OFr. **baz, *bacon* (cf. Norm.Fr. *bache*)

To sum up: largely the chronology of the developments that affected Latin /tj/ and /kj/ is clear. Affrication of intervocalic /tj/ happened first, affrication of intervocalic /kj/ happened later. Nevertheless, we have to reckon with some words displaying a non-etymological development of /tj/. The most plausible scenario for this non-etymological development is that we are dealing with loanwords from the written register, in which a more archaic pronunciation was retained.

- Latin /tj/
    1. Pre-vocalic /e/, /i/ > /j/
    2. Affrication of /tj/ > /tʃ/
    3. Lenition of intervocalic /tʃ/ > /dʒ/
- Latin /ttj/
    1. Pre-vocalic /e/, /i/ > /j/
    2. palatalization of /ttj/ > /tts/
    3. Degemination and assibilation of /ttʃ/ > /ts/
- Latin /kj/

[110] The sequence /kj/ in the Gothic word *unkja,* a loanword from Latin *uncia,* seems to contradict the early affrication of /kj/ in post-consonantal position. Here we must assume that the word was transferred into Gothic via a Romance variety that had preserved the /kj/ sequence in all positions.

1. Pre-vocalic /e/, /i/ > /j/
2. Gemination of /kj/ > /kkj/
3. Affrication of /kkj/ > /tʧ/
4. Degemination and assibilation of /tʧ/ > /ʦ/

3.24 Palatalization of /k/ before front vowels

Posterior to the affrication of the stop-plus-yod clusters, the velar stop /k/ was palatalized to /ʧ/ before the front vowels /i/, /e/ and /ɛ/. This sound change is only attested in inscriptions from the fifth century onwards (e.g. CIL VIII 21801 *intcitamento* = *incitāmento*) and cannot not have happened much sooner (cf. Lausberg 1967: 9-10; Straka 1953: 200). It must have occurred after Sardinian was separated from the Romance dialect continuum, since in Logudorese and Campidanese Sardinian, Latin /k/ before front vowels did not undergo the palatalization.[111]

Latin *caelum* > Logudorese *kelu* 'heaven'

Latin *cena* > Logudorese *kɛna* 'meal'

In Gallo-Latin however, the palatalization may already have affected the velars in the fourth century. This early dating depends on the question whether the word *caelo* in a single verse line by Ausonius of Bordeux alliterates with *salo* and *solo*, thereby implying that it was pronounced as [ʦɛ:lo] (Väänänen 1981: 55). It is interesting to note that Latin loanwords in Germanic and Celtic rarely show the sound change, e.g. Latin *Caesar* 'emperor' > Goth. *kaisar,* Latin *cellārium* 'pantry, basement' > OHG *kellar,* Latin *cista* 'chest' > OHG *chist,* Latin *certus* 'certain' > Old Welsh *certh*. This may corroborate a relatively late date for the palatalization of /k/ before front vowels. Two West Germanic loanwords in Old French also point in this direction (Guinet 1982: 36-37; Pfister 1987: 182-83).

- WGm. **kiþ-* → WRom. **kitone* > OFr. *cion* 'sprout'
- WGm. **kerana-* → WRom. **kerana* > OFr. *ceraine* 'churn'

The question of the dating of the palatalization recurs in the testimony of Romance toponyms. Especially the toponyms at the former western frontier are informative in this regard. It has been noted by Pfister (1987) and Haubrichs (1998, 2014), that, from the Mosel valley to Switzerland, numerous place-names fail to show the effects of the palatalization of velars before front-vowels. Since these toponyms were probably adopted into Germanic in the wake of the Frankish and Alamannic settlements of the fifth and sixth century CE, Pfister (1987) drew the conclusion that in the fifth and sixth centuries the palatalization had not yet

[111] It should be noted that Balkan Romance had also withstood palatalization of /k/ before front vowels (cf. Holzer 2007: 29).

affected the north-eastern border dialects of Gallo-Romance. The following place-names bear witness to this lack of palatalization.

- *Macher, Mecher* (Moselle) < Latin *maceria*
- *Kempraten* (Zürich) < Latin *centum prata*
- *Kirkel* (Saarland) < Latin *circulum*
- *Tackenpail* (Moselle, Dieuze) < Latin *decem pagi*
- *Kermeter* (Moselle Franconian) < Latin *coemeterium*

The Franconian toponymical element *macher* 'wall' going back to Latin *maceria* 'brickwork' is a case in point. Its Germanic fricative /χ/ suggests that the Romance donor form still possessed a velar /k/, which, after adoption into Germanic, could undergo the effects of the Old High German sound shift. As such, it contrasts with the place-names *Messeren, Metzeral* and *Metzerohl* from the Lorraine and Alsace region, which also are derived from Latin *maceria,* but do reflect the palatalization.

Although it is possible that the Gallo-Romance border dialects retained the Latin velars longer than the rest of Gallo-Romance, in the case of the place-names, we might just be dealing with fossilized onomastic material that retained an older pronunciation, because the link to the corresponding appellative had been lost (cf. Stroop 1984). Therefore the toponymic evidence and the Romance loanwords in Germanic do not necessarily contradict a dating of the palatalization to the late fourth century or fifth century CE (*contra* Pfister 1987).[112] In the Merovingian period, the assibilated pronunciation [ʦ] for Latin /k/ before front vowels can be inferred from spelling variations such as *Beceancorum* for *Byzantinorum* and *Niseam* for *Nicaea* (Vielliard 1927: 47).

In short, the affrication of /kj/ and the palatalization of /k/ before front vowels yielded a West Romance palatal /ʧ/, which was assibilated to /ʦ/ in the Gallo-Romance period. This assibilation must have happened at a relatively early date, since Romance /ʧ/ was kept apart from the secondary Gallo-Romance /ʧ/ that arose in the late Merovingian period.

3.25 Merger of /dj/, /j/ and /g/ before front vowels

In the early centuries CE, the sequences /dj/ and /j/ in prevocalic position developed into the affricate /ʤ/. Later, Latin /g/ before front vowels also developed into /ʤ/ and in most Romance dialects this led to a merger of etymological /dj/, /j/ and /g/ before front vowels.

[112] Pfister (1987: 183) adduces epigraphic evidence, such as the Greek spelling *ουρσικινος* for the name *Ursicinus* from Late Roman Trier (4th or 5th c. CE), in order to prove the persistence of a velar pronunciation [k] for front vowels. This evidence is interesting, as the recording of the name might predate the palatalization. However, in the case of onomastic material, we should also consider the possibility that the name preserves an archaic pronunciation.

The first change to occur was the gemination of yod in prevocalic position, i.e. /j/ > /jj/. This gemination is reflected in the long scansion of *maiorem* and *peiorem* in classical poetry, in occasional geminate spellings in epigraphy (e.g. *maiiorem*) and in the remarks of the Latin grammarians (Väänänen 1981: 52). The geminate /jj/ then got fortified to /ʤ/, a fortition that is typologically well-known from other unrelated languages (e.g. in Norse, Gothic, and Berber).

After the fortition of /jj/ > /ʤ/, the affrication of the yod-cluster /dj/ occurred. We may assume that the affrication of /dj/ > /ʤ/ ran parallel to the affrication of /tj/ > /ʧ/ and happened relatively early. The merger of /j/ and /dj/ into /ʤ/ in syllable-initial position is documented in the inscriptions of Pompeii and occasioned the inverted spelling <codiugi> for Latin *coniugī* 'to the spouse' (CIL X 2559, Väänänen 1981: 52). In Christian Latin texts, this affricate could be spelled with the letter <z>, which was pronounced as Greek dzeta = [ʣ], e.g. *zabolus* 'devil' < *diabolus, zaconus* 'deacon' < *diaconus* (cf. Väänänen 1981: 53).

According to Loporcaro, the palatalization of /g/ > /ʤ/ before front vowels is a relatively young development (Loporcaro 2009: 145), which did not happen simultaneously with the palatalization of /k/ > /ʧ/ before front vowels (Loporcaro 2009: 145-147). It seems likely that the palatalization of /g/ before front vowels post-dates the merger of /j/ and /dj/; this is suggested by the etymological contrasts that were maintained in Rumanian and Rhaeto-Romance (Väänänen 1981: 53), where the outcomes of /j/ and /dj/, on the one hand, and /g/ before front vowels, on the other, were kept separate, e.g. Grischun *džèndr* 'son-in-law' and *gjuf* 'yoke' (Rohlfs 1975: 9).

It seems that Gallo-Romance had a different merger of /dj/ and /gj/ in syllable-initial position than in intervocalic position. In syllable-initial position, the merger yields Gallo-Romance /ʤ/. In intervocalic position, /dj/ and gj/ merged in a yod (Meyer-Lübke 1913: 131; Zink 1986: 95; Pierret 1994: 163).

- Lat. *gaudia* > Gallo-Rom. **ʤæuja* > OFr. *joie* 'joy'
- Lat. *exagium* > Gallo-Rom. **essæjo* > OFr. *essai* 'test, experience'

In Merovingian Latinity, we find this merger reflected in the spelling confusion of the three sequences <di>, <gi> and <i>; as an example may serve the spelling of the Gallo-Roman name *Remegius* as *Remedius* and the word *maius* as *madius* 'larger' (Vielliard 1927: 59-60). The fact that we find the spelling <chlogio> for the Frankish royal name *Hlodio* in the works of Gregory of Tours, suggests that the merger was concluded in the sixth century already (*Libri Historiarum X,* liber 2, 9).

In the Merovingian redactions of the Salic Law, we occasionally find the sequence <zi> alternating with a grapheme <gi> in the Malberg glosses. In these cases, we may assume that <z>, which was normally used to render Greek [ʣ], was read as Gallo-Romance [ʤ].

- <thunzinus> : <thunginus> = OFrnk. **þungil-* ‘venerable one’[113]
- <chengisto> : <chanzisto> = OFrnk. **hangist-* ‘stallion’
- <ingymus> : <inzimis> = OFrnk. **ain-gim-* ‘one-year old’

Curiously, this spelling <z> for [ʤ] is only found in the Malberg glosses and is never used in the Latin lexis of the law text. This also makes Van Helten’s suggestion that we might be explain the <z> from a misreading of <g> in insular minuscule script (= <ȝ>) very unlikely (see Van Helten 1900: 241).

3.26 Patalalization of /nj, /lj/

In the late empire, sequences of /n/ and /l/ followed by yod gave rise to the new palatal consonants /ɲ/ and /ʎ/. The new palatal /ʎ/ is perhaps reflected in the epigraphic spellings <fiios> for Latin *filios* (CIL VI 667) and <aureia> for Latin *Aurelia* (CIL VII 9455, see Haadsma & Nuchelmans 1963: 29), although for these instances also dialectal influence of Faliscan might be invoked. The palatalization of /nj/ and /lj/ followed the rise of a secondary yod through resyllabification of /e/ and /i/ before back vowels and is generally dated to a moment around the fourth century CE (Lloyd 1987: 134).

- Latin *vīnea* > **βiña* > Old French *vigne* ‘vine’
- Latin *folia* > **fɔʎa* > Old French *fueille* ‘leaf’

In the case of palatal /ɲ/, the development must be placed before 400 CE, since it is reflected in the fifth-century Daniel inscription of the Daillens belt buckle, i.e. DAGNIHIL = Dañiel (Deonna 1945: 309). This spelling was made possible by the Romance palatalization of the Latin sequence /gn/ to /ɲ/, cf. Latin *signa* > ModSp. *seña,* ModFr. *signe* ‘sign’ (Zink 1986: 112-13). The next Merovingian attestation for this development is found in the chronicle of Pseudo-Fredegar, where Latin *regnante* and *cognomento* are spelled as *raenante* and *quoinomento* (cf. Richter 1934: 112; Rice 1902: 96; Devillers & Meyers 2001: 45).

3.27 Gallo-Romance i-infection

In the Early Medieval period, the Romance variety of Gaul also palatalized the apico-alveolar consonants /r/ and /s/ whenever they were followed by yod, i.e. Latin /rj/ > [rʲ] and Latin /sj/ > [ʃ]. These new palatal consonants provoked the rise of a secondary yod before the consonant, i.e. Gallo-Romance [jrʲ], [jʃ].

Latin *mansiōnem* > Gallo-Rom. **majʃonə* > Old French *maison* ‘house’

[113] The identification was already made by Kern (1872). Wenskus (1964) and Schmidt-Wiegand (1991) prefer a connection to Gm. **þing-*, which in my opinion is neither more nor less convinging (see also ONW s.v. *thungin*).

Latin *area* > Gallo-Rom. **ajrʲa* > Old French *aire* 'air'

The recurring spelling <chairibertus> from the chronicle of Pseudo-Fredegar (MGH SS Rer.Merov. II: 134) shows that in the case of palatal /r/, this development was completed in the seventh century CE, i.e. Old Frankish *Harjaberht* [χarjaberχt] > Gallo-Rom. **haʲrʲəbert* = <chairibertus> (cf. OFr. *hairbert*). The rise of a secondary yod also affects fricative consonant clusters that only arose in the late Gallo-Romance period, thereby corroborating a late date for the *i*-infection.

Latin *repatriāre* > Gallo-Rom. **rəpaðrʲar* > **repəjðrʲar* > Old French *repairier* 'to return'

3.28 Pan-Romance lenition

The Latin stop system with its three-way distinction of voiceless stops, voiced stops and geminate stops underwent a drastic reorganization in the western Romania. Somewhere between the Classical Latin period and the first text monuments in the western Romance vernaculars, the Latin singulate stops were lenited and the Latin geminate stops were degeminated. The intervocalic voicing has a close typological parallel in the Celtic languages, which prompted Ascoli (1882: 33) to formulate the theory that Romance lenition should be attributed to a Celtic substratum. However, the case for continental Celtic lenition is controversial, and the epigraphic evidence that might substantiate it is ambiguous (Lloyd 1987: 160; Mees 2003: 15). We should also note that the southern Italian varieties whose historical populations were not influenced by Celtic-speakers, were affected by Romance lenition as well (cf. Posner 1996: 234-36). Nowadays, internal explanations for Romance lenition are favoured and scholars generally assume that lenition and degemination are two interrelated developments (cf. Lloyd 1987: 140-45).

- Latin /pp/, /tt/, /kk/> /p/, /t/, /k/
- Latin /p/, /t/, /k/ > /b/, /d/, /g/
- Latin /b/, /d/, /g/ > /β/, /ð/, /ɣ/

The directionality of this chain shift was discussed by twentieth-century structuralists such as Martinet (1952) and Weinrich (1958) and the dating of this chain shift has remained one of the great conundrums of Romance phonology. Scholars have traditionally considered the lenition to be a relatively young phenomenon (cf. Herman 2000: 46-47; Väänänen 1981: 57). Here, however, the epigraphic record provides evidence to the contrary: from the first century CE onwards, we find occasional but persistent spellings that suggest that Latin voiceless stops were voiced between vowels (Cravens 1991). It is remarkable that these spellings cover the entire Roman Empire, that is to say, lenited spellings are not only found in the western Roman Empire, where this chain shift is reflected in the west Romance daughter languages but also in the eastern Roman Empire where the Romance varieties

retain the Latin stops in their unshifted capacity. These facts have puzzled scholars for generations, and were subjected to a new investigation by Thomas D. Cravens (1991, 2000).

Cravens (1991), following a suggestion by Figge (1966: 185-188), argued that lenition had once been a phonetic voicing rule that encompassed the entire Romania and operated across word-boundaries. This would account for three salient facts: 1) epigraphic evidence for intervocalic voicing is attested very early, 2) voiced spellings are also found in the eastern Romania, and 3) in isolated lexemes initial Latin voiceless stops are continued as voiced stops in the Romance languages (see also Figge 1966).

Latin *conflāre*	'to inflate'	> MidFrench *confler*	'to make larger'
		> French *gonfler*	'to inflate'
Latin *tragula*	'rope'	> French *traille*	'ferry cable'
		> French *draille*	'stay line'
Latin *pruina*	'rime'	> OFrench *pruine*	'rime'
		> French *bruine*	'drizzle'

According to Cravens, data from the Italian dialects to the south of the La Spezia-Rimini line suggests that lenition had at one time been a pan-Romance allophonic rule (cf. Cravens 1991: 54-55). Although these southern Italian dialects seem to have withstood reorganization of the Latin stop system, voiceless and voiced stops often have weakened surface forms in intervocalic position. Noteworthy examples are the spirantization in the Tuscan dialects and the allophonic variation in Sicilian and Sardinian. Also, many southern Italian dialects do possess shifted stops in several isolated lexemes, e.g. Southern Italian *pagare* 'to pay' < Latin *pacāre,* Southern Italian *ago* 'needle' < Latin *acum,* Southern Italian *luogo* 'place' < Latin *locum.*

This led Cravens to suggest that the pan-Romance phonetic voicing rule was at one time present in the Eastern Romania as well, but was lost later on. This may have happened when the eastern Romance dialects extended the unshifted allophones to the intervocalic positions, which restored the original stop system and protected it from phonemic reorganization. It is exactly this phonemic reorganization that affected the western Romance dialects and radically distanced their phonology from that of Classical Latin.

Following the investigations by Cravens (1991, 2000), we can reconstruct the different developments in the Latin stop system that led to its reorganization in the western Romania. The sandhi-induced gemination rule known as syntactic doubling (Italian *raddoppiamento fonosintattico*) plays a pivotal role in these developments. Syntactic doubling consists of an assimilation of Latin initial stops with the final stop of a preceding word, i.e. Latin *vadit bene* > *vadibbene* > ModIt. *vabbene*. It was already suggested by Hall (1964) that syntactic doubling was a synchronic assimilation rule in colloquial Latin that covered the entire Romania.

Assuming that the rule affected such a wide area is a bold supposition, since syntactic doubling is only reflected in Italo-Romance. Still, it is clear that the origin of syntactic doubling must be projected back into the Roman period (cf. Loporcaro 1997, 2001: 276), as the assimilation rule is attested in the early centuries CE already. Evidence for this assimilation is found in the epigraphic record[114] (cf. Cravens 2002: 62) and in the scansion of a Pompeii graffito (cf. Fanciullo 1997).[115]

Syntactic doubling and the rise of a geminate allophone in initial position may have been the first step towards the reorganization of the stop system (cf. Cravens 2000). Following the gemination across word boundaries, a Latin stop[116] could have two allophones in initial position:

/p/ = [p:] post-consonantally (following a word ending in a stop)
[p] in all other positions

/b/ = [b:] post-consonantally (following a word ending in a stop)
[b] in all other positions

Then Romance lenition arose as a phonetic voicing rule which affected all intervocalic positions. Not only the intervocalic stops in the middle of words were lenited, but also initial stops that were preceded by a final vowel of the preceding word. At this second stage, the voiceless singulate stops were voiced and the voiced singulate stops were spirantized. Consequently, a Latin stop now had three allophones in initial position. Cravens assumes that this must have been the Proto-Romance situation:

/p/ = [p:] post-consonantally
[p] at the beginning of a phrase
[b] in all intervocalic positions

/b/ = [b:] post-consonantally
[b] at the beginning of a phrase
[β] in all intervocalic positions

The catalyst for the reorganization in the western Romania was the degemination of the geminate stops. This degemination stabilized the voiceless allophone in initial position,

[114] Examples from Latin epigraphy include *at tuos* (CIL VI 31066) and the famous sixth-century *abboce* inscription (ICVR II 6449, 39) in the tomb of Comodilla.

[115] Pompeii graffito 100.1173 (*quisquis ama valia peria qui nosci amare*) is often quoted as evidence for the loss of final dentals in Italo-Romance, but Fanciullo has argued that the distich is only metrical if we assume that the final dental assimilated to the following initial stop (cf. Loporcaro 2009b: 93).

[116] In the following excursus, the labial stops /p/ and /b/ are used to illustrate the phonological changes.

reducing the possible allophones from three to two. Since the eastern Romania was not affected by the degemination, in these regions the reorganization of the stop system was averted.

/p/ = [p] post-consonantally or at the beginning of a phrase
[b] in all intervocalic positions

/b/ = [b] post-consonantally or at the beginning of a phrase
[β] in all intervocalic positions

At this point, the western Romance reorganization of the stop system took place. In initial position, the voiceless allophone was restored in all phonetic environments: this could happen because, after the west Romance degemination, there were now more positions were the voiceless allophone occurred at the beginning of a word than the voiced allophone. The stabilization of the initial stops disturbed the predictability of the voicing rule and provoked phonemicization of the voiced allophones in the middle of words. This way, Latin /p/ between vowels was phonemicized as /b/ and Latin /b/ between vowels was phonemicized as /β/. After the stabilization of the voiceless allophones in initial position and phonemicization of the voiced allophones in medial position, the reorganization of the stop system was complete.

Latin /p/ > /p/ in initial position
> /b/ between vowels in the middle of words

Latin /b/ > /b/ in initial position
> /β/ between vowels in the middle of words

Because the voicing rule remained allophonic in the eastern Romania, no phonemicization of the shifted allophones occurred. In southern Italo-Romance, some allophony in initial position was retained (cf. Cravens 2000). In Daco-Romance, the unshifted allophones were restored in all intervocalic position, which explains why no lenition of the stop system is found in Rumanian (Alkire & Rosen 2010: 260).

Latin *capu*	'head'	> Rumanian *cap*
Latin *spatha*	'sword'	> Rumanian *spată*
Latin *acum*	'needle'	> Rumanian *ac*

Because of the phonetic nature of the voicing rule, the same restoration of the stop system could occur in some isolated areas in the western Romania. This is what happened in the Gascon varieties of Bearnais (Vallées of Aspes, Barétous) and in Aragonese Spanish, possibly under influence of a Pre-Basque substratum.

3.29 Gallo-Romance lenition

We have seen that Merovingian Latin orthography provides sporadic evidence for the voicing of the Latin voiceless stops. However, the fricative stage that is part of the above described chain shift stays largely invisible in Merovingian Latinity (cf. Pope 1934: 137). This is probably due to reluctance of the contemporaries to abandon the orthographic convention of using the voiced spellings <b>, <d> and <g> for the voiced spirants. The fricative stage is perhaps reflected in the spelling <lisa>[117] for <lida> [ljɛða] (cf. Gm. **lǣt* 'freed man') in the *Pactus Legis Alamannorum* (7th c. CE, MGH LL Nat.Germ. V: 22) but only surfaces in full in the Early Old French period. In the Strassbourg Oaths[118] we find the spelling <aiudha> for Latin *adiuta* 'help' and in the Anglo-Saxon chronicle (anno 890 CE) we find the borrowed place-names *Sant Loðan*, *Caðun* and *Roðem*[119] (cf. Modern French *saint-Lô, Caen, Rouen,* see Dietz 1993: 505).

Some indication as to when the voiceless stops reached the fricative stage is provided by the Gallo-Romance loanwords in Old English. The following loanwords are connected to the introduction of Christianity to Anglo-Saxon England, and are therefore unlikely to have been borrowed before the Gregorian mission of 597 CE (cf. Campbell 1959: 210).

- Old English *lǣden* < [la:dɪna] < Latin *latina* 'Latin language'
- Old English *byden* < [bo:dɪna] < Latin *butina* 'barrel, vat'
- Old English *abbod*[120] < [abba:de] < Latin *abbātem* 'abbot'

These words show voicing of intervocalic /t/ > /d/ and fricativation of /d/ > /ð/, but not the shift of the voiceless stop /t/ to fricative /ð/, suggesting that in the sixth century CE, the Latin voiceless stops had not yet reached the fricative stage (cf. Wollmann 1993: 23, 25). The fricative stage of Late Gallo-Romance, when also the Latin voiceless stops became spirants, is reflected in the loanwords that show Old English /ð/ for Latin /t/ (cf. Campbell 1959: 210):

- Old English *Cundoð* < [kɔnda:ðe] < Latin *Condātum* 'Condé'
- Old English *morað* < [mora:ðo] < Latin **mōrātum* 'mulberry wine'
- Old English *sæþerige* < [saðore:ja] < Latin *saturēia* 'savory'

3.30 Conditioned loss of Latin /g/

In some phonetic environments, Latin /g/ may have been lost before the reorganization of the stop system in western Romance. This conditioned loss of Latin /g/ is attested in Latin

[117] Compare also Old French *bies* 'brook' (< OFrnk. **bedi*) and also Old French *resne* 'rein' for *reḍne* (< Lat. *retina*).
[118] Nithard, the ninth-century chronicler who recorded the oaths, is quite consistent in rendering contemporary Gallo-Romance /ð/ by the spelling <dh>, cf. <cadhellonica> = *catalaunica* (cf. ModFr. *Châlons*).
[119] Reflected in Early Middle English <roðem>, Petersborough chronicle, anno 1124.
[120] The /o/ in Old English in *abbod* is in all likelihood a weakening from older short /a/.

epigraphy from the late Empire onwards and is often reflected in the Romance daughter languages. The different phonetic environments that conditioned this loss are illustrated below:

1. Latin /g/ between non-back vowels — Latin *viginti* > *vinti* (CIL VIII 1163)
2. Latin /g/ between stressed vowel and /u/ — Latin *augusto* > *austo* (CIL VIII 9877)
3. Latin /g/ between two unstressed vowels — Latin *sarcofagus* > **sarcofus* > OFr. *sercueu*
4. Latin /g/ before /m/ — Latin *sagma* > *sauma* > OFr. *somme*

Development 1 is reflected in Latin epigraphy and the *Appendix Probi,* where we read *calcostegis non calcosteis* 'bronze roof beams' (line 12, Baehrens 1967: 5). Its consequences in Gallo-Romance can be illustrated by the Latin words *frigidus* 'cold' and *digitus* 'finger', the second of which is found in the Salic Law as *dido* (manuscript C6, cf. MGH LL Nat.Germ. IV, 1: 269).

- Latin *frigidus* > Rom. **fredɤ-* > Old French *freit* 'cold'
- Latin *digitus* > Rom. **detɤ-* > Old French *deit* 'finger'

Developments 2 and 3 are amply reflected in Merovingian Latinity and probably followed Romance lenition. In this stage, Romance /g/ had lenited to /ɣ/, a sound that was liable to assimilation in velar environments, such as following the vowels /o/ or /u/. Evidence from the Merovingian period include the following words:

- *Astodunum* (ca. 549 CE[121]) < Latin *Augustodunum* (cf. OFr. *Autun*)
- *Rotomaus* (ca. 511 CE[122]) < Latin *rotomagus* (cf. OFr. *Rouens*)
- *veltrauis* (ca. 516 CE[123]) < Latin *vertragus* (cf. OFr. *veltre* 'lévrier')
- *siutium* (ca. 507 CE[124]) < Latin *segusius* (cf. OFr. *siuz* 'sleuth hound')

The examples show that especially the environment between /a/ and /u/ was prone to loss of Gallo-Romance /ɣ/. Still, the form *seusius* from the *Pactus Legis Salicae* indicates that the loss could also occur between another stressed vowel and /u/ (cf. Meyer-Lübke 1890: 443).

Development 4 consists of the vocalization of /g/ to /u/ before /m/.[125] The development is also found in the *Appendix Probi,* where we read *pegma non peuma* 'bookcase' (line 85) and in the Late Latin forms *sauma* for *sagma* 'packsaddle' and *fraumentum* for *fragmentum* 'fragment' (Väänänen 1981: 65; Baehrens 1967: 5-8). A similar vocalization of /g/ to /u/ could occur before /d/ (cf. Richter 1934: 108), as is illustrated by the case of *smaragdus*

[121] Found in the council of Orléans 549 (MGH Conc. I: 110).
[122] Found in the council of Orléans 511 (MGH Conc. I: 10).
[123] Found in the Lex Gundobada (MGH LL Nat.Germ. II: 40)
[124] Found in the *Pactus Legis Salicae* (MHG LL Nat.Germ. IV, 1: 36-37)
[125] It should be noted that this development runs parallel to the West Germanic development of **bagma-* > **baum* (cf. OE *beam,* OHG *baum* 'tree') and **draugma* > **draum* (cf. OE *dream,* OHG *traum*).

'emerald' (cf. OFr. *ésmeraud, esmerald,* OSp. *esmeralda,* see FEW 12: 9) and the French place-name *Laon* < **lagdunum* < Gallo-Latin *Lugdunum*.[126]

3.31 Latin /k/ to Late Gallo-Romance /ɣ/

In the Gallo-Romance period, Latin /k/ was voiced intervocalically to /g/, and later reached the fricative stage /ɣ/. This Gallo-Romance /ɣ/ shifted to /j/ between non-back vowels, i.e. Gallo-Romance /a/, /e/, /ɛ/ and /i/ (cf. Pope 1934: 128; Richter 1934: 187-88). Since the fricative stage /ɣ/ was only reached in the seventh century CE, it should not surprise us that the shift to yod is not reflected in Merovingian Latinity.

- Latin *pacāre* 'to reconcile' > MerLat. *pagare* > OFr. *paier* 'to compensate'
- Latin *secāre* 'to cut' > MerLat. *segare* > OFr. *seier* 'to mow'

The transition to yod must have been completed before the ninth century CE, as it is reflected in the Old English form *Iona* for the Gallo-Roman place-name *Icauna* in the Anglo-Saxon chronicle (anno 887, cf. Dietz 1993: 499).

The Gallo-Romance /ɣ/ in velar environments developed into /w/ and was prone to loss. This happened whenever the /ɣ/ was in contact with the back-vowels /o/ or /u/ (cf. Pope 1934: 139); this means that the loss must have occurred when the final vowel /o/ was not yet reduced to schwa.

- Latin *paucum* > [pauwo] > Old French *po* 'few'
- Latin *Saugonna* > [sauwɔna] > Old French *Saona* 'Saône'
- Latin *secūrus* > [sewuro] > Old French *seür* 'secure'
- Latin *caecus* > [tsjɛwo] > Old French *cieu* 'blind'

A puzzling exception to this rule is found in the cases where /ɣ/ is positioned between stressed /a/ and unstressed /o/. In these cases, Gallo-Romance /ɣ/ also turned to yod (cf. Meyer-Lübke 1933: 149; Richter 1934: 184-85; Straka 1953: 299).

- Latin *vērācus* > [vəˈrayo] > Old French *verai* 'true'
- Latin *lacus* > ['layo] > Old French *lai* 'lake'
- Latin *Tornacum* > [torˈnayo] > Old French *tournai* 'Tournai'

Although Richter (1934: 183) and Straka (1953: 299) have argued that the loss of Latin /k/ and /g/ in velar environments must have happened simultaneously, this seems unlikely, and is contradicted by the testimony of Merovingian Latin. The loss of Latin /g/ is attested from the Early Merovingian period onward, whereas the loss of Latin /k/ is not reflected in Merovingian Latinity at all. It seems therefore likely that first Latin /g/ was lost and only

[126] The Romance reflex **esmaraudu-* provoked a reanalysis as **esmeraldu* (see FEW XII: 9).

later Latin /k/. Since the loss of Latin /k/ and /g/ will probably have occurred at the fricative stage /ɣ/, this is to be expected. After all, the fricative stage was reached significantly earlier for the Latin voiced stops (5th c. CE) than for the Latin voiceless stops (7th c. CE).

This also connects well with Tummers' (1966: 549-56) argument that a different development of place-names in *-ācum* can be found in Wallonia and Lorraine. In the spelling of early medieval Walloon place-names like <gemblaus> (Gembloux) and <stabelaus> (Stavelot), we find a reflex /aw/ for Latin *-acum.*[127] According to Tummers, this shows that these place-names are relatively young and joined the development of Latin /g/ between /a/ and /u/, e.g. Latin *fagus* > **faw* > Old French *fou* 'bush, shrubbery'. He connects this younger layer of place-names with the establishment of a Carolingian road from Attigny to Aix-la-Chapelle.

Taking the discussions on Romance lenition and the loss of the Latin velars into account, we may sketch the following developments.

Latin				Early Gallo-Rom.				Late Gallo-Rom.				Pre-French		
p	t	k	>	b	d	g	>	β	ð	ɣ	>	v	ð	j/ø
b	d	g	>	β	ð	ɣ/ø	>	v	ð	j/w/ø	>	v	ð	j/ø

It is interesting to note that the German place-names *Remagen* and *Dormagen* must have been adopted in the voiced or fricative stage of the Gallo-Latin suffix *-ācum,* indicating that certain areas of the German Rhineland may have remained Romance-speaking until the sixth or seventh century CE (cf. Richter 1934: 185).

Intimately related to the Gallo-Romance evolution of intervocalic Latin /k/, is the development of intervocalic Latin /kʷ/. Generally, the [k] element of intervocalic /kʷ/ follows the development of normal intervocalic /k/; Latin /kʷ/ first develops into /ɣʷ/, after which the [ɣ] is palatalized to yod and merges with the preceding vowel, or is lost next to a following /o/ (cf. Pope 1934; 134-135; Zink 1986: 149). In the former case, this left the /w/ as the sole remaining consonant; the intervocalic /w/ developed in Old French into /v/, but in the northern border dialects, the /w/ was often maintained, e.g. Latin *aequālis* > Walloon *ewel* 'equal'. In the latter case, the evidence of Merovingian Latinity makes it plausible that the labial element of /kʷ/ was lost at an early date, since Merovingian scribes often wrote Latin <co> as <quo> and <quu> as <cu>, e.g. Lat. *coactus* > MerLat. *quoactus* 'ancient', Lat. *antiquus* > MerLat. *anticus* (cf. Vielliard 1927: 44, 65-66). This gives us the following regular reflexes of intervocalic Latin /kʷ/ in Gallo-Romance:

[127] This Old Walloon /aw/ is reflected in the modern dialects as /u/ and /o/, a split which is probably due to an intermediate Old Dutch stage that affected the Walloon place-names in /o/.

- Latin *aequālis* > [iɛɣ^{w}æle] > [iɛjwæl] > Old French *ivel* ‘equal’
- Latin *antīquum* > [antiɣ^{w}o] > [antiɣo] > Old French *anti* ‘ancient’

In some cases, however, it seems that this regular development was circumvented and we find a different development of Latin /k^{w}/. This is especially clear from the Old French words, that continue Latin *aqua* ‘water’, where we find as much as three different reflexes of the same etymon (cf. Pope 1934: 135).

- Latin *aqua* > [æɣ^{w}a] > Old French *ewe, eawe* (cf. ModFr. *eau*)
- Latin *aqua* > [æg^{w}a] > Old French *egue*
- Latin *aqua* > [æχ^{w}a] > Old French *aive*

In the case of Old French *egue,* we might be dealing with a Merovingian *mot savant,* that is, a borrowing from the written language. In the case of Old French *aive*, we might consider the possibility that the Romance etymon was contaminated with a Germanic word for water, i.e. WGm. **aχwa* ‘water’ (cf. Goth. *ahva,* OHG *aha* ‘id.’).

3.32 Lenition of stops + resonant clusters

Romance lenition did not only affect intervocalic stops, but also the voiced environment of a stop followed by a resonant. In the prehistory of Old French, lenition of Latin stops occured before /r/, /l/ and /n/. The following clusters are therefore affected:

	cluster	Latin	Gallo-Romance	Old French	
KR	/kl/	macula	> *mayla	> maille	stain
	/kr/	lacrima	> *layrima	> lairme	tear
	/gl/	bragulare	> *brayla	> brailler	to cry
	/gr/	flagrāre	> *flayrar	> flairer	to reek
PR	/pl/	duplum	> *doblo	> double	double
	/pr/	opera	> *uɔβra	> uevre	work
	/bl/	flēbilis	> *fleible	>> feible	feeble
	/br/	febris	> *fjɛβris	> fievre	fever
TR	/tl/	spatula	> *espaðla	> espaḍle	shoulder

	/tr/	fratrem	> *fraðre	> freḍre	brother
	/dl/	*hrodoland	> *froðland	>> Roḍlant	personal name
	/dr/	hedera	> *jɛðra	> ieḍre	Helix hedera (ivy)
TN	/tn/	Rhodanum	> *roðno	> Roḍne	Rhône

As discussed above, the Latin stop system reached the fricative stage in Late Gallo-Romance of the seventh and eighth century CE. In their development to Old French, these lenition products were either retained or modified. In the case of a velar before resonant, the lenition product /ɣ/ turned to /j/. In the case of the labials before resonants, the lenition product /β/ turned to /v/ before /r/, but was fortified to /b/ before /l/. The dental stops are the only ones in the series that also underwent lenition in front of /n/. The lenition product /ð/ was retained into the Early Old French period, but was lost shortly after that.

3.33 Loss of /h/ and final /m/

Two developments that had been characteristic of colloquial Latin since the republican period, are the loss of /h/ and the loss of final /m/ in polysyllabic words.

The loss of final /h/ is ridiculed in a first-century BCE poem by Catullus (Carmen LXXXIV, see Haadsma & Nuchelmans 1963: 27) and is amply represented in the Latin graffiti in Pompeii (Väänänen 1967: 57). In Merovingian Latinity, the convention of writing Latin <h> was generally respected, but occasionally Latin <h> is omitted, as is the case in MerLat. <abiat> for Latin *habeat* 'may he have'. More often, however, hypercorrect <h> graphemes were added to Latin words that did not start with one. It is possible that the spelling of a non-etymological <h> was also motivated by a hiatus breaking aspiration across word boundaries, as is suggested by the Merovingian spelling <antehactis> for Latin *ante actis* (Vielliard 1927: 75-77).

The weakening of final nasals in polysyllabic words is reflected in the scansion of Classical poetry, and is commented upon by the rhetorician Quintilian (Väänänen 1967: 68). From the first century CE onwards, we find spellings where the final nasal in polysyllabic words is omitted, e.g. in the graffiti of Pompeii (Haadsma & Nuchelmans 1963: 27). In Merovingian Latinity, the amount of words in which final /m/ is omitted is beyond the counting (cf. Vielliard 1927: 72). We find relatively secure examples of the loss of final /m/ in the spelling of the Merovingian Latin numerals; in these words, spellings with <m> are seldom encountered (l.c.).

- MerLat. *cento* = Latin *centum* 'hundred'
- MerLat. *dece* = Latin *decem* 'ten'
- MerLat. *septe* = Latin *septem* 'seven'

We should however note that some omissions of <m> could be due to the misreading or loss of a nasal abbreviation in the manuscript tradition.

3.34 Fortition of Latin /w/

In the early centuries CE, the Latin approximant /w/ was fortified to /β/ in all positions (Lausberg 1967 § 5: 33, 35). This fortition is already found in the Pompeii graffiti (*baliat = valeat,* cf. Väänänen 1981: 50) and the first century CE wax tablet letters of Gaius Novius Eunus (*dibi = divi,* cf. Clackson & Horrocks 2007: 242). In initial position, the fortition is reflected in the *Appendix Probi,* where we read *vāpulō non baplo* = [βaplo] and *baculus non vaclus* = [βaklo]. It probably took some time before this development covered the entire Romania. We may note that a considerable amount of Latin loanwords in the Old Germanic languages equates Latin /w/ with Germanic /w/, cf. Latin *vinum* [wi:num] > Gm. **wīna-*. However, this does not necessarily mean that all loanwords that show this substitution date back to the time before the fortition (*contra* Van Loon 2014: 54). Gallo-Romance /v/ from the Merovingian period could apparently also be equated with Germanic /w/ (cf. Tummers 1962: 46-47), e.g. Gallo-Romance **villare* > WGm. **wīlari* (cf. ModGerm. *Weiler*), Gallo-Romance **vime* > WGm. **wīma* (cf. MidDu. *wīme* 'twig of a willow', cf. Müller & Frings 1968: 503-04). Three different stages in the development of Latin /w/ are reflected by the following Germanic words that all continue Latin *cavea* 'hollow, cage for animals' [kawea] (see also Weijnen 1999: 36-37).

Latin	Late Latin	Romance	Pre-French	Germanic	
cavea	> **kawja*			> MidDu. *koye, couwe*	'cage'
cavea	> **kawja*	> **kaβja*		> OHG *kebia,* MidDu. *kevie*	'cage'
cavea	> **kawja*	> **kaβja*	> Wall. **kavja*	> MidDu. *kave* (Flemish)	'chimney'

At some point in the Late Roman period, phonetic lenition affected the stop system. Because of this development, the lenition product [β] of Latin /b/ joined the fortition product /β/ from Latin /w/. In the middle of words, this led to a phonemic merger of Latin /b/ and Latin /w/. In initial position, however, the lenition rule was eventually reversed, thereby averting a phonemic merger. Romance /β/ was then free to shift to /v/ in Gallo-Romance and Italo-Romance. In several other Romance dialects (Sardinian, Southern Italy, Spanish, Catalan and Gascon), the /β/ still merged with the lenition product /β/ of the labial stops, a phenomenon

known as betacism[128] (Lausberg 1967 § 5: 35; Väänänen 1981: 50-51). In my opinion, it is this Romance allophony of /β/ in initial position that could explain the Flemish variant *vigge* 'piglet' (also Mons Walloon *vigot*) next to Middle Dutch *bigghe* (MNW s.v. *big*), and possibly also provide an etymology for the Dutch word *baas* 'supervisor', if its connection to French *vassal* 'nobleman' is correct (cf. Kerkhof 2015).

It seems likely that, in the reading tradition of Medieval Latin, the bilabial pronunciation /β/ for Latin <v> persisted. This would explain the numerous Medieval <b> spellings for Latin initial <v> and the inverted <v> spellings for Latin <b>. My impression is that these spellings occur more frequently in words that do not belong to the Classical Latin register, and for which therefore no Latin spelling norm existed (see Niermeyer 1984), e.g. Medieval Latin *bassus* for Latin *vassus* 'servant' (< Gaul. **wassos*) and *velfredus* for Latin *belfredus* (cf. OFr. *belfrei* 'wall-tower' < Old Frankish **bergfriþu*).

3.35 Latin /p/ and /k/ in stop + dental clusters

Latin /p/ and /k/ in the consonant clusters /pt/, /ps/, /kt/ and /ks/, in some varieties of colloquial Latin, were assimilated to /tt/ and /ss/ in the first centuries CE. This development probably started in Italy (cf. Richter 1934: 42) and is reflected in the common epigraphic spelling <vissit> for Latin *vixit,* inverted spellings like *opscultat* for Latin *auscultat* in the Pompeii graffiti and in the *Appendix Probi* where we read *auctor non autor* and *miles non milex* (cf. Baehrens 1967).

However, in other parts of the Romance-speaking world, Latin /k/ was spirantized to /χ/ when preceding a dental stop (Lausberg 1967, §430; 50). The resulting clusters /χt/ or /χs/ have then developed into /çt/ and /çs/,[129] whose palatal nature often facilitated the rise of a secondary yod, e.g. Latin *lacte* > **laçte* > ModSp. *leche* 'milk', Latin *coxa* > **koçsa* > ModIt. *coscia* 'hip' (see also Bonfante 1999: 36-37).

Curiously, the same development occurred in Gallo-Romance, although there it might have been facilitated by different sociolinguistic circumstances. It has been argued that the Gaulish substratum had provoked a peculiar Gallo-Latin pronunciation of the Latin consonant clusters /kt/, /ks/, /pt/ and /ps/ (cf. Adams 2007: 286-87). In this regard, we should note that in the Gaulish language, the stop /k/ was also fricativized to [χ] whenever it was in contact with a following /s/ or /t/.

- PCelt. **deksiwa* > Gaul. *deχsiwa* 'the right one' (Matasović 2009: 92)

[128] The Romance loanwords in South Slavic show that the pronunciation /β/ persisted in Balkan Romance until the sixth century (Holzer 2007: 31-32).

[129] The clusters /çt/ and /çs/ can be reconstructed for Balkan Romance for the moment that the oldest stratum of loanwords was borrowed into South Slavic (Holzer 2007: 32). Lausberg (1967 II § 430: 50) assumes that the Italian reflex /tt/ from Latin /kt/ also first went through a /çt/ stage.

- PCelt. **brikta* > Gaul. *briχtia* 'magic' (Matasović 2009: 79)

The results of this sound change merged with the outcome of another Gaulish development, that is, the shift from /φt/ and / φs/ to /χt/ and /χs/.

- PCelt. **uφselos* > Gaul. **uχselos* 'heighthened'

It is plausible that this Gaulish phonotactic rule was applied by Gaulish-Latin bilinguals to the pronunciation of the Latin sequences /pT/ and /kT/. Evidence for this Gallo-Latin pronunciation is provided by the La Graufesenque ostraca (1st c. CE), where we read *paraxidi* 'plates' for Latin *paropsidi* (< Gk. παροψίδες) and the Gaulish personal name *caχtos* from Latin *captus* 'captive' (Delamarre 2003: 112).

The merger of Latin /pt/ and /kt/ in Gallo-Romance /χt/ is first reflected in the Merovingian verse battle of Frodebert and Importun where Latin *acta* could be rhymed with *apta*. The fact that the Gallo-Romance sequence /χt/ provoked the rise of a secondary yod in Pre-French (e.g. Latin *facta* > Old French *fait*) shows that, at a later stage, it must have developed a palatal character, i.e. Latin /kt/ or /pt/ > Gallo-Romance /χt/ > Pre-French /çt/. It seems plausible that at the time that the Franks settled in northern Gaul in the fifth and sixth century CE, Gallo-Romance was still in the stage/χt/. This is supported by the fact that, in Germanic loanwords in Old French, the Germanic cluster /χt/ underwent the same development as the Gallo-Romance cluster /χt/, cf. Gm. **waχtan* 'to wait' > Old French *guaitier* 'to guard', Gm. **naχt* 'night' > East Walloon *né* : Latin *tractāre* > Old French *traitier* 'to engage with someone' (cf. Tuttle 1915).

In Merovingian Latinity, the etymological spellings are maintained for a long time, thereby obscuring a pronunciation feature which must have been quite old (Vielliard 1927: 48-49).[130] Still, we may note that in Merovingian Gaul the spelling <x> came to be used to denote etymological /s/ (cf. Rice 1902: 87-88). This is due to the fact that Gallo-Romance did participate in the simplification of Latin preconsonantal /ks/ to /s/ in groups of three consonants (i.e. /kst/ and /nks/), e.g. Latin *iuxta* > **justa* > Old French *juste.* Examples of the simplification can be found in the *Pactus Legis Salicae* where we read <espoliare> for Latin *expoliare* 'to plunder' and in inverted spellings such as <expatium> for Latin *spatium* 'space' (Schramm 1911: 25). Furthermore, it seemed that Merovingian scribes had a predilection for writing Latin /ks/ with a non-ambiguous sequence <xs>, a feature we have already encountered in our discussion of the Merovingian Latin texts (see Chapter 2).

[130] To my mind, the occurrence of the spelling <visit> for Latin *vixit* in the Merovingian epitaphs from Trier (cf. Jungandreas 1979: 71) should then also be taken as an inverted spelling provoked by the equation of <x> with <s>. It is perhaps possible that the Merovingian <th> spelling, which is occasionally found for Latin words with /kt/ and /pt/, was motivated by the fricative pronunciation of the cluster (Vielliard 1927: 78).

3.36 Gallo-Romance /st/

In Merovingian Latinity, something peculiar seems to be going on with the sequence /st/ of both Germanic and Romance origin. In isolated cases, Merovingian scribes confused the etymological sequences /st/ with /çt/ (< /χt/ < /kt/). In these cases, a spelling mistake involving <st> and <ct> does not seem likely, as the <s> and <c> graphemes were easy to distinguish in the various Merovingian scripts.

- <auctoritate> : <austoritate> < Latin *austēritātem*[131]
- <forecte> : <foreste> < Latin *forestis*[132]
- <tructis> : <trustis> < Gm. **druht-* 'troop' (Salic Law)
- <bructe> : <bruste> < Gm. **brust-* 'breast' (Salic Law)

A possible explanation could be, that, in some varieties of Gallo-Romance, the /s/ in the sequence /st/ had been reduced to an aspirated sound /h/, thereby foreshadowing the later loss of /st/ in Old French. The new sequence /ht/ could then have been associated with etymological /χt/, written as <ct>. We may note that Jungandreas noticed the same phenomenon in the Romance spelling of German place-names from the Moselland (1979: 38):

- <esternaco> [817] : <epternaco> < Gallo-Lat. *epternacum* (Echternach)
- <crusta> [897] : <cruochten> < Gallo-Lat. **crupta* (Kruchten)

A similar sound development /st/ > /χt/ occurred in the prehistory of Franco-Provençal, although the relative date of the sound shift is unclear (cf. Bern Deutsch *Tschachtlan* : MFr. *chastelain* 'castle lord', see Glatthard 1987).[133] It is possible, therefore, that the Merovingian <ct> spelling for /st/, and the inverted spelling <st> for /χt/, represents an old Gallo-Romance dialect feature. However, as long as the full scope of the phenomenon has not yet been established, this explanation must remain hypothetical.[134]

3.37 The Gallo-Romance palatal consonants

In the Gallo-Roman period, a new range of palatal consonants arose. Several of the processes that led to the rise of these new palatal consonants we have already discussed in the sections above. Here we will survey all the sequences that yielded a palatal consonant in the prehistory of the Gallo-Romance dialects, including those we have not yet discussed (see also

[131] Found in a manuscript containing the fifth-century *epitoma chronicon* (MGH Auct.Ant. Cron.Min.I, 463).

[132] Found in a manuscript containing an eighth-century formulary from Morbaix (MGH LL Form.Mer., 336)

[133] Glatthard (1987), following Tagmann (1946), assumes that this sound shift in Old Franco-Provençal occurred in the Late Middle Ages, but the date of the lexical transfers into Alemannic German only gives us a *terminus ante quem.*

[134] If this explanation is correct, parhaps MidDu. *luchter* 'candle-stick' can then be explained as a borrowing from a Gallo-Romance dialect variant [lyχtrə] next to expected [lystrə] (= OFr. *lustre* 'candle-stick'), the latter form being reflected in MidDu. *luster* and *luister* (*contra* Philippa e.a. EWN s.v. *luchter*).

Pope 1934: 120-134). These palatal consonants exerted considerable influence on the surrounding vowels, and their genesis therefore had profound consequences for the history of the Gallo-Romance dialects.

Latin	Romance	Gallo-Romance	Old French	
vetulum	> βɛ**kl**ʊ	> viɛʎə	vieil	‘old’
macula	> mɑ**kl**a	> maʎa	maille	‘stain’
rēgula	> re**gl**a	> reʎa	reille	‘bar’
integrum	> ɪntɛ**gr**ʊ	> entɛ**rʲ**ʊ	entiere	‘whole’
nascentem	> nɑ**skɛ**nte	> naʃɛntə	naissant	‘being born’
postea	> pɔ**stj**a	> puɔʃ	puis	‘further’
cuneus	> kʊ**nj**ʊs	> ko**ñ**ə	cuin	‘corner’
folium	> fɔ**lj**ʊ	> fuɔʎə	fueil	‘leaf’
mēssionem	> me**sj**one	> meʃon	meisson	‘harvest’
corium	> kɔ**rj**ʊ	> kuɔ**rʲ**ə	cuir	‘leather’
noctem	> nɔ**kt**e	> nuɔ**çt**ə	nuit	‘night’
platea	> pla**ttj**a	> pla**ts**a	place	‘place’
facia	> fɑ**kj**a	> fa**ts**a	face	‘face’
mercēdem	> mɛr**ke**de	> mɛr**ts**iðə	merci	‘mercy’

In the case of Latin *vetulum* we may note that the secondary sequence /tl/, newly created by syncope, was substituted in the Romance languages by /kl/, a development which mirrors the /tl/ > /kl/ substitution of Pre-Latin that happened almost a thousand years before, e.g. Latin *pōculum* ‘cup’ < **pōklom* < **pōtlom* (De Vaan 2008: 485). The operation of this sound change is reflected in the *Appendix Probi* where we read *vetulus non veclus, vitulus non viclus* and *capitulum non capiclum* (*Appendix Probi*, lines 5, 6, 167, Baehrens 1967: 5-8) .

3.38 Fortition of /j/ following labials

In the section on the merger of Latin /j/, /dj/ and /g/ plus front vowels, we have discussed the early fortition of geminated /jj/ to /ʤ/. During the differentiation of the Gallo-Romance speech area, a second fortition of /j/ occurred: Gallo-Romance post-consonantal /j/ was fortified to /ʤ/ whenever it was preceded by the labial consonants /p/, /b/, /β/ and /m/ (Pope 1934: 129). The resulting clusters /pʤ/, /bʤ/ and /mʤ/ were later simplified to /ʧ/, /ʤ/ and /nʤ/ respectively. We may assume that the sequence /pʤ/was first assimilated in voice to the initial consonant, after which the initial consonant was lost, i.e. /pʤ/ > /pʧ/ > /ʧ/:

Latin *sapiam*	> **sapja*	> **sapʧa*	> Old French *sache* [saʧə]	'may know'
Latin *rubeum*	> **rʊbjʊ*	> **robʤə*	> Old French *roge* [roʤə]	'red'
Latin *cavea*	> **kaβja*	> **kabʤa*	> Old French *cage* [kaʤə]	'cage'
Latin *somnium*	> **sɔmjʊ*	> **sɔmʤə*	> Old French *songe* [sɔnʤə]	'dream'

This fortition represents a late development that only affected the northern Gallo-Romance dialects, not reaching the areas south of the river Loire. The only northern dialect that bypassed the development was Walloon (Remacle 1948: 74-75), the border dialect of a region that was predominantly Germanic-speaking until the ninth century CE (cf. Devleeschouwer 1957).[135] In Walloon, the yod was lost and the initial consonant was retained, a conservatism that may have been facilitated by the Germanic substratum where /pj/ and /bj/ were common (see section 4.11).

If we want to ascribe a date to this development, we may turn to several pieces of documentary evidence from the Merovingian period. We have already seen that the Gallo-Roman place name *Ambianis* (ModFr. *Amiens*) entered Old Frankish as **Ambini* (cf. *Embenum,* Anglo-Saxon chronicle, anno 884, Dietz 1993: 496) before the fortition took place. This makes it likely that the fortition postdates the settlement of the Franks in northern Gaul, i.e. the fifth century CE. That the place name *Ambianis* did undergo the fortition at one point, a development that is not reflected in the modern form *Amiens,*[136] is suggested by the Merovingian coin legends (see Eufe 2013: 71). The coin legends AMBEGANIS and AMBIGANIS (early 7th century, cf. Lafaurie 1953: 207) perhaps reflect the stage after fortition had operated, but before the simplication to /mʤ/ had taken place, i.e. Gallo-Rom. **Ambʤans* = AMBEGANIS.

The coin legends AMIANIS (B.N. n° 1113) and AMEANIS (B.N. n° 1111) could then represent the pre-stage of later Old French *Amiens*, i.e. Gallo-Rom. **amjanes* > *Amiens*. This

[135] It is possible that Mosel Romance also withstood the development, if the 12th century place name *Conpiul* goes back to **cumbiola* 'small valley' (cf. Jungandreas 1979: 67).

[136] The modern form Amiens might have undergone a substitution of /ʤ/ by /j/ after the /b/ was lost.

spelling, which fits the evolution of the modern French place-name, might reflect a different reading tradition than the one corresponding to spoken Gallo-Romance (see section 2.10); additional evidence for a different pronunciation of the cluster /mbj/ comes from the Merovingian spelling *concamio* for Latin *concambio* and *camiare* for *cambiare* (cf. Rice 1902: 98; Vielliard 1927: 59).[137]

When dating the affrication of the labial stops + yod, we also have to consider the following chronological facts:

- The entire development, from fortition of post-consonantal yod to cluster simplification, is completed in Early Old French already.
- The result of the cluster /pj/ was a palatal consonant /ʧ/ that did not merge with Romance /ʧ/. It therefore postdates the assibiliation of West Romance /ʧ/ to /ʦ/,
- The development has a limited geographic distribution and only affected northern Gallo-Romance.

Taking this into account, it seems clear to me that the fortition of yod behind labial consonants must be placed in the early Merovingian period. This dating situates the fortition early enough to be a Pre-French innovation, but late enough to postdate the assibillation of Romance /ʧ/ to /ʦ/ and the borrowing of the place-name *Ambianis* into Old Frankish. It is likely that the same fortition was applied to yod in the Merovingian pronunciation of Latin /nj/ and /rj/, as exemplified by the following Latin loanwords in Old French (Pope 1934: 229; Zink 1986: 228-29).

- Old French *linge* [linʤə] < Latin *linea* 'lead line'
- Old French *lange* [lanʤə] < Latin *lanea* 'woolen garment'
- Old French *serorge* [sərərʤə] < Latin *sororium* 'brother-in-law'

3.39 Gallo-Romance palatalization of /k/ and /g/ before /a/

One of the hallmarks of the northern Gallo-Romance dialect continuum is the palatalization of /k/ and /g/ before /a/ and /au/ (Pope 1934: 127). It is plausible that this palatalization was facilitated by a fronted realization of the conditioning vowel /a/ as [æ] (Zink 1986: 107-08), an issue that is covered extensively in the section on Gallo-Romance /a/ (see section 3.14). The palatalization of /k/ in front of /a/ is shared by all central French dialects, but bypassed the northern dialects of Normandy and Picardy (Pope 1934: 487).[138]

[137] We might hypothesize that this alternative pronunciation was employed by a more learned stratum of the clergy, seeing as Amiens was a bishop see in the Early Middle Ages which might have introducing a more learned pronunciation of the place-name.

[138] The occurrence of a parallel palatalization of Latin /ka/ in Rhaeto-Romance and northern Italy has been interpreted as evidence that this early northern Gallo-Romance innovation eventually reached the Swiss and Italian Alps and was capable

- Latin *cantare* > Rom. **kantare* > Old French *chanter* [ʧanter]
- Latin *gaudium* > Rom. **gaujʊ* > Old French *joie* [ʤɔjə]

Richter suggested that the Merovingian <cha> spelling for <ca>, which is found in the Merovingian place-names *Charisago* (ModFr. *Cherisey*) and *Chaciaco* (ModFr. *Chassy*), might reflect the evolved pronunciation of /k/, which would justify dating the shift to the sixth century CE (Richter 1934: 215, 217). This supposition is tenuous at best, since we also find Merovingian <ch> spellings for <c> in positions that are not liable to palatalization, e.g. MerLat. *chunctis* for Latin *cunctis* (Vielliard 1927: 45; see also Müller 1979: 738). At any rate, the palatalization must have been concluded by the time the Rhineland field name *Tschalm* (Schweighausen) < Gaul. **kalmis* 'uncultivated land' was transferred from Gallo-Romance into Old High German, a transfer which is commonly dated to the Carolingian period (see Kleiber 2008: 337).

In terms of relative chronology, the palatalization of **ka-* > **ʧa-* occurred after the assibiliation of Romance /ʧ/ to /ʦ/ in initial position, because the two sounds did not merge. The Gallo-Romance affricates /ʧ/ and /ʤ/ were retained well into the Old French period, after which they assibilated to /š/ and /ž/. The dating of this palatalization must be placed early in the Gallo-Romance period, because Germanic loanwords in Old French are also affected by it.

- Old Frankish **Karal* > Old French *Charles*
- Old Frankish **marka* > Old French *marche* 'border district'
- Old Frankish **hlanka* > Old French *flanche* 'side'

The phonemicization of the palatalized allophone is traditionally associated with the delabialization of /kʷ/ in the Early Old French period, which introduced a new sequence /ka/ to Old French.

The first written reflection of the palatalization may be present in the verse correspondence between Frodebert and Importun, assuming that the two poetic lifts of the first verse line and the first poetic lift of the second line alliterate.

> *"non gaudeas de dentes*
>
> *deformas tuos parentes*" (4, line 24-28)
>
> Don't rejoice in your teeth,
>
> You dishonor your parents (Shanzer 2007: 404)

of affecting the Romance varieties there (cf. Eichenhofer 1989: 26-27). It seems likely, though, that The palatalization of /k/ and /g/ before /a/ in Rhaeto-Romance is a parallel, but unconnected development (cf. Rohlfs 1975; Müller 1979).

If this is the correct way of reading the verse line, we may reconstruct the pronunciation: [nɔn ʤæwjas de dɛntes // deɸormas tos parɛntes].

3.40 Gallo-Romance syncope

The following sections of this chapter concern some of the most debated issues of the prehistory of French: the dating of the different waves of Gallo-Romance syncope and apocope and their place in the chronology relative to lenition and spontaneous diphthongization. Due to limitations of space, this debate will not be covered in full. An exhaustive outline of the *Forschungsgeschichte* can be found in Yves Charles Morin's article of 2003. Rather, I will limit myself to providing a general overview of the rounds of syncope that affected Gallo-Romance, and discuss some of the more pertinent examples.

Naturally, this discussion follows the considerations of relative chronology that we have already established. To recapitulate: in this dissertation I have argued for the early operation of phonetic lenition in the stop system, but a relatively late phonemicization in the fifth century. Also, we have found that spontaneous diphthongization of the low mid vowels was a relatively late fifth-century, process that was preceded by OSL. These two considerations may prove to be essential for establishing the place that the different rounds of syncope hold in the chronology.

Syncope in the prehistory of French was dependent on stress, which was inherited from Latin: Latin stress was divided over a strong main accent, whose position was dictated by the Latin penultimate rule, and a weaker countertonic accent which generally lay on the initial syllable. Any syllables between the countertonic accent and the main accent can be called pretonic or intertonic (cf. Pope 1934: 112). The Latin penultimate rule states that, if the penultimate syllable of a Latin word was heavy, it bore stress. If the penultimate syllable was light, the stress was on the antepenultimate syllable. The tendency to reduce unstressed vowels was already present in pre-classical Latin (cf. Loporcaro 2009b: 61). However, no Romance variety was affected by syncope so drastically as the Old French dialects. This has fueled the suspicion that the heavy stress accent of the Germanic-speaking Franks may have facilitated the far-reaching syncope of the northern French dialects (cf. Pope 1934: 15; for a critique, see Noske 2009).[139] According to Loporcaro, it was this syncope of the Merovingian period that pushed the Gallo-Romance vernacular away from the Latin writing tradition (cf. Loporcaro 2009:69).

[139] Noske argues that Pre-French syncope and apocope cannot be caused by Frankish superstrate influence, because the Franconian dialects did not reduce the unstressed vowels before the eleventh century. This argument seems ill-informed since it leaves West Germanic apocope, syncope after heavy syllables and shortening of long vowels out of consideration.

We may observe that the Romance varieties of Gaul in their evolution from Latin onwards deleted the following unstressed vowels:

1. Final syllables other than /a/ were lost
    - Romance /a/ is retained as schwa
    - a supporting schwa is retained after consonant + resonant clusters
2. All vowels in unstressed penultimate syllables were lost
3. Vowels other than /a/ are deleted in intertonic syllables (Darmesteter's Law)
    - Romance /a/ is retained as schwa
    - a supporting schwa is retained after consonant + resonant clusters
4. If the Latin stress is preceded by two unstressed syllables, the first syllable is lost
    - Unless the first unstressed syllable is /a/

The third rule implies that vowels in Gallo-Romance intertonic syllables were treated the same way as Gallo-Romance vowels in final syllables:

- The vowel /a/ was retained as schwa in Old French
- Vowels other than /a/ were only retained as schwa when they supported a preceding consonant + resonant cluster.

This prosodic rule was first described by Darmesteter, and was therefore known as Darmesteter's Law (cf. Voretzsch 1901: 21; Meyer-Lübke 1913: 107; Malkiel 1983). We may observe the operation of these rules for vowel deletion in the following examples:

- Latin *pertica* = pértica > Old French *pérche* 'perch'
- Latin *latrōnem* = latrónem > Old French *larrón* 'bandit'
- Latin *vindicāre* = víndicàre > Old French *vengiér* 'to avenge'
- Latin *armatōrium* = ármatòrium > Old French *armeűr* 'weapony'
- Latin *līberātiōnem* = líberatiònem > Old French *livraisón* 'deliverance'

However, the reductions of these unstressed vowels was not a uniform process, and it has been noted that different rounds of syncope happened at different times, spanning a period that covered many centuries (Väänänen 1967: 40-45). If we want to untangle the order in which these reductions happened, we are dependent on considerations of relative chronology and on documentary evidence from Late Antique and Early Medieval Latinity. The available data enables us to recognize that syncope in some phonetic environments was very old and in others relatively recent. Here, I will take a look at the reductions that have affected all the West Romance languages equally and must therefore be ascribed to the Late Roman period.

1. Syncope of post-tonic vowel between liquid and dental
    a. Latin *viridis* > *virdis* 'green'
    b. Latin *laridus* > *lardus* 'lard'

2. Syncope of post-tonic vowel between a consonant and a liquid
    a. Latin *speculum* > *speclum* 'mirror'
    b. Latin *tabula* > *tabla* 'table
3. Syncope of unstressed vowel between /s/ and /t/
    a. Latin *posita* > *posta* 'put' [past ptc.]
    b. Latin *quaesita* > *questa* 'inquiry'

The relatively early date of these reductions is confirmed by the *Appendix Probi* (5th c. CE), where vowel loss in these positions is reflected in the spelling of 25 of the 227 erroneous forms (Väänänen 1981: 41; Baehrens 1967: 5-8).

It has been recognized from the early twentieth century onwards (cf. Richter 1934; Straka 1953, 1970) that the Latin variety of Roman Gaul underwent syncope in two further phonetic environments. This syncope happened before the break-up of the Roman Empire, but operated independently from the neighboring Romance dialects in Italy and Spain.

1) syncope of post-tonic vowels between /m/ and /n/
    - Latin *dominus* > Old French *don, dan* 'lord'
2) syncope of post-tonic vowels between /n/ and /t/
    - Latin *genitum* > Old French *gente* [adj.] 'of noble birth'

The early date of these reductions can be inferred from the above listed Old French words *don* and *gente,* since neither of them were affected by spontaneous diphthongization. Additionally, we can see in the Old French word *gente* that the /t/ of Latin *genitum* had not been voiced between vowels; this would place the syncope before the fifth-century phonemicization of the phonetic voicing rule.

Also in other environments, an unstressed vowel followed by /t/ was dropped before Romance lenition restructured the stop system. This can be illustrated by the following Old French words:

- Old French *bonteḍe* < Latin *bonitātem* 'goodness'
- Old French *det* < Latin *dēbitum* 'debt'
- Old French *faute* < Latin **fallita* 'mistake'
- Old French *hoste* < Latin *hospitem* 'host'

Further attempts at a relative chronology of Gallo-Romance syncope have been made by the romanist Straka. Straka (1970: 300-01), following Krepinsky (1931), identified several other environments where the reduction of the unstressed vowel can be dated relative to the operation of lenition and the spontaneous diphthongization of the low mid vowels. The following examples seem to indicate that the spontaneous diphthongization of /ɛ/ > /iɛ/ did not happen at the same time as the diphthongization of /ɔ/ to /uɔ/.

1. Reduction of unstressed penultimate vowel between /m/ and /t/

- Old French *frient* 'droning' < Latin *fremita*
    - Predates lenition
    - Postdates spontaneous diphthongization of /ɛ/ > /iɛ/
- Old French *conte* 'count' < Latin *comitem*
    - Predates lenition
    - Predates spontaneous diphthongization of /ɔ/ to /uɔ/

2. Reduction of unstressed penultimate vowel between /β/ and /t/ and / β / and /n/
    - Old French *muete* 'pack' < Latin *movita*
        - Predates lenition
        - Postdates spontaneous diphthongization of /ɔ/ to /uɔ/
    - Old French *juene* 'young' < Latin *juvenis*
        - Predates lenition
        - Postdates spontaneous diphthongization of /ɔ/ to /uɔ/

According to Straka, it is clear that the loss of unstressed penultimate vowels predates the operation of secondary diphthongization, i.e. /e/ > /ei/ and /o/ > /ou/ altogether. This can be illustrated by the following examples, in which the loss of the unstressed vowels blocked the conditions for OSL and the secondary diphthongization:

- Old French *det* [det] < Latin *dēbitum* 'debt'
- Old French *boḍne* [boðnə] < Gaulish *butina* (cf. OIr. *buden*) 'border mark'

We may note that the Old French word *bodne* underwent the syncope after the stabilization of the lenited stop system. This chronology is also implied by the Old French word *paḍne* 'wooden support for rafters' [paðnə] < Latin *patina* 'saucer' and *waḍne* 'puddle' [waðne] < Gaul. **wadana*.

However, it must be stressed that Straka's relative chronology is based on a small empirical basis, the data pool comprising just a dozen words. For this reason, the chronology that these words imply has often been contested (see Morin 2003). We may for example note that the early loss of unstressed vowels between /β/ and /t/ is contradicted by the following examples:

- Old French *coude* 'elbow' < **kóβıta* < Latin *cubita*
- Old French *malade* 'sick' < **maláβıtʊ* < Latin *malehabitum*

In these cases, syncope apparently postdated the phonemicization of intervocalic voicing. The case of Old French *coude* 'elbow' is complicated even further by the alternate form *coute* which did not undergo lenition and by the Picardian form *ceute* which on top of that may also have undergone secondary diphthongization, i.e. /o/ > /ou/ > /eu/ (Morin 2003: 135-36; FEW 2: 1450).

Because of these counterexamples, listed by Fouché in his *Historique Phonétique du Français* from 1969, most scholars assume that the regular reflexes of syncope are crossed by the influx of unsyncopated forms from social variants of Romance that have withstood the early vowel reductions (cf. Zink 1986: 40). Also the influence of literary Latin through *mots savants* should be taken into account, which especially in the cases of monastic vocabulary may have played an important role.

3.41 Neumann's Law

Another controversial topic is the dating of syncope of unstressed vowels before Latin /ka/. Traditionally, scholars have assumed an early syncope in paroxytone formations that end in Romance *–ɪka* (Latin *–ica*) and a later syncope in proparoxytone formations in Romance *-ɪkare* (Latin *-icare*). This would be implied by the Old French outcomes of Latin *pertica* 'perch' and Latin *vindicare* 'to avenge'.

- Latin *pertica* > Rom. **pɛrtɪka* > Old French *perche* [pɛrʧə]
- Latin *vindicare* > Rom. **vendɪkare* > Old French *vengier* [venʤiɛr]

The early syncope of Romance *-ɪka* would have predated the operation of lenition, i.e. **pɛrtɪka* > **pɛrtka*. The resulting form **pɛrtka* would then have undergone the effects of Gallo-Romance palatalization of /k/ before /a/, i.e. **pɛrtka* > **pɛrʧa* > Old French *perche.*

The syncope in proparoxytone formations in Romance *-ɪkare* would have postdated the operation of syncope, so that the intervocalic /k/ was first voiced to /g/, i.e. **vendɪkare* > **vendɪgare*. Then, syncope of pretonic vowels in proparoxytone words took effect, i.e. **vendɪgare* > **vendgare.* Finally, the operation of Gallo-Romance palatalization of velar before /a/ would have palatalized the /g/ to /ʤ/, i.e. **vendgare* > * **vendʤare* > Old French *vengier.*

We may note that the distinction between the two syncopes would have generated an allomorphy between the proparoxytone word forms and paroxytone word forms:

- Rom. * *vendɪkáre* > **vendʤare* > Old French *vengier*
- Rom. **véndɪkat* > **vendʧat* > Old French ***venchet*

This allomorphy would then have been levelled through analogy: In the case of Old French *vengier,* the stem **vendʒ-* of the proparoxytone was generalized at the expense of the paroxytone stem ***ventʃ-.* In the case of Old French *prechier,* the opposite analogy happened with the voiceless affricate of the paroxytone stem **prɛʧ-* being generalized at the expense of regular Old French ***prɛʤ-.*

- Rom. * *prɛdɪkáre* > **preddʒare* > Old French ***pregier*
- Rom. **prédɪkat* > **prɛdʧat* > Old French *prechiet*

The problem with this solution is that the directionality of the analogy, that is, whether the consonant of the infinitive or the finite word form is generalized, seems to be completely random.

Another problem is that the distinction between the syncope in proparoxytone words and paroxytone words does not account for the fact that paroxytone words in Romance *-*ɪkʊ* also yield a palatalized /ʧ/ (cf. Latin *porticus* > Old French *porche* 'porch'), although here the velar is not followed by /a/. In order to account for this discrepancy, Neumann (1890), followed by later generations of historical linguists (cf. Richter, Straka), argued that formations in Romance *-*ɪkʊ* underwent a different development from formations in Romance *-*ɪka.* This solution is sometimes called Neumann's Law (cf. Morin 2003: Mazzola 2013).

Neumann's Law states that formations in *-*ɪkʊ* would not have been affected by the first pre-lenition syncope, but by a second post-lenition syncope, i.e. Latin *porticus* > **pɔrtɪkʊ* > **pɔrtɪgʊ.* Then, this lenited /g/ would have been palatalized to /j/, yielding a sequence /ij/ which was fortified to /ʤ/, i.e. Rom. **pɔrtɪgʊ* > **pɔrtijɔ* > **pɔrtʤɔ.* Finally, this /ʤ/ was assimilated in voice to the preceding consonant, i.e. **pɔrtʤɔ* > **pɔrʧə.* It is clear that these *ɪku*-formations were syncopated relatively late, because they undergo OSL and spontaneous diphthongization before the loss of the medial syllable. The syncope did however block the conditions for the secondary diphthongization. This places its operation between the two sound changes, ca. 400 – 650 CE.

- Latin *medicus* > [mɛdɪkʊ] > *mjɛðʤə > OFR. *miege* 'docter'
- Latin *sedicum* > [sɛdɪkʊ] > *sjɛðʤə > OFr. *siege* 'chair'
- Latin *haerēticus* > [ɛretɪkʊ] > * ɛreðʤʊ > OFr. *erege* 'heretic'

This same development is invoked for the puzzling evolution of the Romance suffix *-*atɪkʊ* (Latin -*aticum*) to Old French -*age,* i.e. Rom. *-*atɪkʊ* > *-*adɪgʊ* > *-*adijʊ* > *-*adʤə.* Curiously, also some formations in *-*ɪka* seem to have undergone this Neumann's Law development, as shown by the following Old French words:

- Old French *forge* < **faβrɪka* < Latin *fabrica* 'smithy'
- Old French *tenerge* < **tɛnɛβrɪka* < Latin *tenebrica* 'dark'
- Old French *serge* < **sɛrɪka* << Latin *sērica* 'armour'
- Old French *mange* < **manɪka* < Latin *manica* 'sleeve'
- Old French *grange* < **granɪka* < Latin *granica* 'barn'

In the case of Latin *manica* and *granica,* the issue is further complicated by the fact that dialect variants exist which display the regular early syncope development, i.e. Old French *manche* and Old French *granche.* Despite the fact that many historical linguists have subscribed to the operation of Neumann's Law (see Straka 1970: 298-99; Mazzola 2013: 156), it may be clear that

the traditional account with its early syncope of paroxytone *ɪka*-formations and Neumann's Law still leaves the evolution of the above listed words unexplained.

Richter (1934), attempting to solve the discrepancy between the two treatments, suggested we are dealing with two kinds of syncope in proparoxytone *ɪka*-formations. Normal *ɪka*-formations underwent early syncope, which predated lenition and yielded the affricate through Gallo-Romance palatalization before /a/, e.g. Latin *pertica* > Old French *perche* (Richter 1934: 146). Other *ɪka*-formations would have withstood the early syncope, perhaps because they belonged to a different sociolect, and were syncopated after lenition had affected the medial /k/. These *ɪka*-formations acquired their affricate through the fortition of /ij/ to /ʤ/, e.g. Latin *fabrica* > **faβrija* > **fɔrʤə* = Old French *forge* (Richter 1934: 171-73). Richter's chronology solves the problem, but gives an even more complicated account of the evolution of the *ɪka*-formations.

A different solution was given by Mazzola (2013), who proposed to generalize Richter's second chronology of post-lenition syncope. He argued that all *ɪka*-formations, both paroxytone and proparoxytone, were syncopated after lenition had been phonologized and acquired their affricate through the fortition of [ij]. A fortitified [ij] preceded by a voiceless consonant would have yielded a voiceless affricate [ʧ] and a fortified [ij] preceded by a voiced consonant would have yielded a voiced affricate [ʤ]. This can be illustrated by the the following examples:

- Latin *masticare* > **mastɪgare* > **mastʤare* > Old French *mascher* 'to chew'
- Latin *masticat* > **mastigat* > **mastʧat* > Old French *maschet* 'he chews'
- Latin *vindicare* > **vendɪgare* > **vendʤare* > Old French *vengier* 'to avenge'
- Latin *vindicate* > **vendɪgat* > **vendʧat* > Old French *vengiet* 'he avenges'

This scenario seems very attractive and places the two types of syncope after the operation of phonetic lenition. This solution seems to be confirmed by the post-lenition syncope in Old Provençal (cf. OProv. *cargar* 'to load a freight' < Latini *carricāre*) and by the documentary evidence of Merovingian Latin where we find <pertega> for Latin *pertica* and <cabaligaverit> for Latin *cavalicaverit.* Now only two problems remain:

1. How to explain the vacillation in **-ɪka*-formations between voiceless affricate and voiced affricate?
    - Old French *grange* ~ *granche* 'barn', *basoge* ~ *basoche* 'church', *mange* ~ *manche* 'sleeve'
2. How to explain the **-ɪkare*-verbs that have a voiceless affricate where the final stem consonant predicts a voiced affricate?
    - Old French *chevaucher* 'to ride' instead of ***chevaugier*

Mazzola (2013), following Pope (1934) and Bourciez (1958), argues that the vacillation could be attributed to a dialectal preference for the voiceless affricate at the expense of the voiced

affricate. Since the cases of the lexical doublets show that the voiceless affricate is predominantly limited to the northern dialects of French, this preference might be attributed to the Germanic superstrate. It is not inconceivable that Germanic speakers may have possessed a tendency to impose a devoicing on the voiced affricate [ʤ] of Gallo-Romance.[140]

This brings us to a final piece of evidence from the *Pactus Legis Salicae*. There we find that Latin *collocāre* 'to place, put down' (cf. OFr. *colcher, coucher*) is in some places reflected by *culcare/colcare* and in other places as *colligare* (also *colligat, colligaverit,* e.g. *Pactus Legis Salicae*, c. LXI; MGH LL Nat.Germ.IV: 219). The spelling *colligare* is probably provoked by Latin *colligāre* 'to collect', but in the text *colligare* clearly means 'to put down' so that the connection to *collocare* is beyond doubt.[141] In my opinion, it is very well possible that these forms reflect the vacillation between the voiceless and voiced outcome of the fortified /ʤ/:

MerLat. *culcare* = [koltʃare] (cf. Old French *colcher*)

MerLat. *colligare* = [koldʒare]

Since the Salic Law was issued in the early sixth century and its major redactions belong to the sixth and seventh century as well, a possible reflection of the above described development in the text of the law code would correspond well with a relative dating between the spontaneous and the secondary diphthongization. This evidence from the Salic Law would then significantly predate the next earliest attestation of syncope; the spelling *solnacum* for the Gallo-Roman place-name *solonācum* (cf. ModFr. *Saunay*), found in the Passion of saint Leudegar from the late seventh century CE (Meyer-Lübke 1913: 108).

3.42 Overview of the reconstructed phonemes

We can now take stock of the reconstructed consonant systems for Early Gallo-Romance and Pre-French. The overview table that is given below shows that the consonant system of Gallo-Romance was not that different from the consonant system of Old Frankish; both Germanic and Gallo-Romance possessed the dental fricatives /ð/ and /θ/, and both Germanic and Romance possessed the velar fricative /χ/. Still, we should realize that the two languages did not allow these phonemes in the same positions. In the transfers from Germanic to Romance, incompatibilities between the distribution patterns were remedied by sound substitutions, e.g. Gm. /hl-/ > Gallo-Rom. /fl-/. We may also note that Gallo-Romance and its Pre-French successor contained several palatal consonants that had no equivalent in continental West Germanic.

[140] In this regard, we may note that, in the transfer of foreign lexis, devoicing voiced palato-alveolar fricatives and post-alveolar affricates is common in both Dutch and German (e.g. ModE *badge* → Dutch *bètsj*).

[141] In this regard, it should be noted that ModIt. *coricare* "to put to bed, to lay down" is a relatively young development from Tuscan *corcare* (Dante), which developed from syncopated Romance **kolkare* (cf. Rohlfs 1966: 342).

Gallo-Romance consonants

Early Gallo-Romance					Pre-French					
p	t		k	k^w	p	t		k		k^w
b	d		g	g^w						g^w
β	ð		ɣ	χ	v	ð	θ		(h-)	
	s/z				(f)	s/z		ç		
	ʦ	ʧ				ʦ		ʧ		
		ʤ						ʤ		
		ʃ						ʃ		
m	n	ñ			m	n		ñ		
	r	r^j				r				
	l	ʎ				l		ʎ		
w		j			w		j			

We can also take a look at the reconstructed vowel systems of Early Gallo-Romance and Pre-French. Many scholars have argued that the vowel systems of Gallo-Romance and continental West Germanic have influenced each other (e.g. Frings 1939; Rauch 1967; Schrijver 2014). In my opinion, what has become very clear from the preceding analyses, is that the vowel system was on the move in the prehistory of French. We have, for example, seen that the amount of diphthongs greatly increased between the Proto-Romance period and the Pre-French period. We may therefore raise the question whether a more fine-grained understanding of the developments in the diachrony of Gallo-Romance still allows for the connection to continental Germanic that other scholars have argued is evident. A new point of interest, in my opinion, is the Gallo-Romance vowel /æ/ and its Pre-French continuation. We have already established that the evolution of this vowel shows a remarkable similarity to the evolution of the Anglo-Frisian vowel /æ/. Perhaps future in-depth investigations might provide us with a better understanding of how the West Germanic and Gallo-Romance vowel systems might have influenced each other.

Gallo-Romance vowels

Early Gallo-Romance	Pre-French
i u	i y u
e o	e
ɛ ɔ	ɛ ɔ
æ	æ a
iɛ uɔ	iɛ uɔ ui
	iɛi uɔi
	ei ou
	ɔu
au	ai

3.43 Conclusions

We may conclude this chapter by summarizing the outcomes and considerations of relative chronology that have been elaborated in the paragraphs above. This will be done by ascribing the discussed sound changes to one of six chronological stages: the early sound changes that date back to the Roman period have traditionally been considered as Vulgar Latin developments. In the following, we will divide this period into three different stages:

Roman Era developments

1. Early Colloquial Latin = third century to first century BCE
2. Colloquial Latin = first to third century CE
3. West Romance = fourth to fifth century CE

The prehistoric sound changes that date back to the Early Medieval period, have also been divided in three different stages.

Early Medieval developments

4. Early Gallo-Romance = sixth century CE
5. Late Gallo-Romance = seventh century CE
6. Pre-French = eighth century CE

Although many sound shifts cannot be dated relative to one another, the ordering aims to reflect, as far as possible, the chronological considerations that were discussed in the paragraphs above. As such, it can be regarded as a rudimentary attempt at a relative chronology. The overview will be concluded by a survey of the phonological systems at the dawn of the Early Gallo-Romance period in the early sixth century CE and at the dawn of the Pre-French period in the early eighth century CE.

Early Colloquial Latin

1. Latin short vowels develop lax pronunciation
2. Monopthongization of Latin /ae/ > [ɛ:]
3. Monopthongization of Latin /oe/ > [e:]
4. Loss of final /m/ in polysyllabic words
5. Loss of Latin /h/

Colloquial Latin

1. Romance prosthesis of initial /sC/ clusters
2. Fortition of Latin /w/ > /β/
3. /e/ and /i/ in syllable onset become /j/ before non-front vowels
4. Late Latin assimilation of stops across word boundaries (syntactic doubling)
5. Affrication of Latin /tj/> /ʧ/
6. Onset of phonetic voicing of Latin /p/, /t/, /k/ > /b/, /d/, g// in voiced environments
7. Onset of phonetic spirantization of Latin /b/, /d/, /g/ > /β/, /ð/, /ɣ/ in voiced environments
8. Merger of Latin /w/ and /b/ as /β/in medial position
9. Merger of Latin /dj/ and /j/ into /ʤ/
10. Latin high mid vowel /i/ and /ē/ merge into /e/
11. Dialectal substitution or shift of /kt/, /ks/ and /pt/, /ps/ > /χt/, /χs/
12. Conditioned syncope of post-tonic vowels I

West Romance

1. Palatalization of Latin /g/ > /ʤ/ before front vowels
2. Latin high mid vowels /u/ and /ō/ merge into /o/
3. Palatalization of Latin /nj/, /lj/, /rj/ and /sj/ > /ñ/, /ʎ/, /r^{j}/, /ʃ/

4. West Romance degemination of /pp/, /tt/, /kk/, /bb/, /dd/, /gg/
    - Phonologization of West Romance voicing and spirantization
5. Conclusion of OSL and Ten Brink's Law
    - Redistribution of vowel length
    - Phonologization of West Romance vowel system
6. West Romance spontaneous diphthongization of the low mid vowel /ɛ/ > /iɛ/
7. Conditioned syncope of post-tonic vowels II
8. West Romance spontaneous diphthongization of the low mid vowel /ɔ/ > /uɔ/
9. Conditioned syncope of post-tonic vowels III
10. Affrication of Latin /kj/ > /ʧ/
11. Palatalization of Latin /k/ > /ʧ/ before front vowels
12. Reduction of vowel distinctions in final position to four vowels /i/, /e/, /a/, /o/ and /u/
13. Early loss of West Romance /ɣ/ between front vowels and between /a/ and /o/
14. Dialectal shift of Romance /β/ > /v/
15. Palatalization of /gn/ > /ñ/

Early Gallo-Romance

1. Assibilation of West Romance /ʧ/ > /ʦ/
2. Northern Gallo-Romance fronting of [a] > [æ] in open syllables
3. Dialectal fronting of [u] > [y]
4. Gallo-Romance palatalization of /k/ and /g/ > /ʧ/ and /ʤ/ before /æ/
5. Dialectal diphthongization of the low mid vowels /ɛ/ and /ɔ/ > /iɛ/ and /uɔ/ conditioned by following palatal
6. Reduction of mid vowels /e/ and /o/ > /ə/
7. Early Gallo-Romance /ɣ/ (= Latin /g/) > /j/ and /w/
8. Conditioned syncope of pretonic vowels in paroxytone formations
9. Gallo-Romance umlaut of /e/ > /i/ before palatal or /i/ following in next syllable

Late Gallo-Romance

1. Gallo-Romance fortition of yod preceded by labials > /Pʤ/
2. Spirantization of /b/, /d/, /g/ > /v/, /ð/, /ɣ/
3. Late Gallo-Romance /ɣ/ (= Latin /k/) > /j/ and /w/
4. Gallo-Romance yod infection of /rʲ/ and /ʃ/
5. Reduction of Late Gallo-Romance high vowels /i/ and /u/ > /ə/ in word-final position
6. Late Gallo-Romance backing of [æ] > [a] in closed syllables and before /w/
7. Early Gallo-Romance /aw/ > /ɔw/

8. Gallo-Romance secondary diphthongization of the high mid vowels /e/ and /o/ > /ei/ and /ou/
9. Raising of /ei/ and /æ/ > /i/ and /ɛ/ following palatal consonants

Pre-French

1. Diphthongization of /ɛ/ > /iɛ/ following palatal consonants (Bartsch's Law)
2. Apocope of Late Gallo-Romance schwa
    - Phonologization of /æ/ in open syllables
3. Reduction of /æ/ > /ə/ in word-final position
4. Late Gallo-Romance /ɔw/ > / ɔ/
5. Pre-French loss of /w/ < /ɣ/
6. Raising of /o/ > /u/
7. Simplification of triphthong /iɛj/ and /uɔj/ > /i/and /uj/