# Palatalization

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## 39.1 Introduction

The term 'palatalization' refers to many different phonological processes, including a change in place of articulation of a consonant to a more palatal position (e.g. /t/ > /ʧ/) and the acquisition of a secondary palatal articulation (such as /t/ > /tʲ/). In the Romance tradition this term also includes dental affrication. Dental affricates (/ts/ and /dz/) are found (or posited to have arisen) in the same contexts in which we find palatal consonants resulting from palatalization. Despite the fact that palatalization refers to a change in place of articulation, and affrication to a change in manner, I follow the Romance tradition and use the term 'palatalization' for both since they take place in the same environment. In this chapter I will take a historical perspective, although productive palatalization processes will also be addressed. For a comprehensive, cross-linguistic study of palatalization, see Bhat (1978), Bateman (2007), Kochetov (2010); and for a recent account of palatalization within a generative framework, see Calabrese (2005).

Romance languages have a rich series of palatal consonants, including (but not limited to) [ʃ, ʒ, ʧ, ʤ, ʎ, ɲ] (see §25.2.3); however, Latin had only the palatal glide [j] (Kent 1932:60). One of the striking phonological changes that Latin underwent in its evolution over the centuries is the introduction of a new series of palatal(ized) consonants. Where did the palatal consonants come from? What did they evolve into? These are some of the questions that will be addressed below. While most studies of palatalization are organized by 'targets' and 'triggers', I will follow the Romance tradition and focus on the sequences of segments that participate in the palatalization process. These segments/clusters are sometimes identified by the target ('palatalization of velars') and sometimes by the trigger ('palatalization by yod').

This chapter is organized as follows. I begin by examining cases of palatalization involving Latin yod, a pan-Romance process resulting in myriad changes in the phonological system of all Romance varieties and affecting the morphological system as well (§39.2). In §39.3, the palatalization of consonants—including velar stops (§39.3.1) and non-dorsal consonants (§39.3.2)—before a front vowel is addressed, and the morphological consequences discussed (§39.3.3). The widespread palatalization processes involving consonant clusters will be addressed in §39.4, where I begin with a discussion of consonant + /l/ clusters (§39.4.1), and move on to palatalization involving velar stops + coronal consonants (§39.4.2), and palatalization of geminates /ll/ and /nn/ (§39.4.3). All Romance data come from Rohlfs (1966), Maiden (1995; 2011b), Chitoran (2002), Bateman (2007), and Loporcaro (2011b), unless otherwise noted.

## 39.2 Latin yod

Latin unstressed, prevocalic front vowels ɪ and ɛ were asyllabic in classical poetry and were regularly pronounced as a palatal approximant [j] (yod) in late Latin (Kent 1932:108; Elcock 1960:37; Allen 1965:51). In word-initial position, Latin prevocalic ɪ could also be syllabic, while in intervocalic position it was a geminate (Allen 1965:37-40; Väänänen 1974:115; Posner 1996:111). This yod is the only palatal segment in the Latin inventory, but it was involved in the introduction of a new series of palatal segments in all Romance languages. As early as the second century AD, Latin yod was participating in various palatalization processes (Tekavčić 1974:151; Väänänen 1974:116).

Consonant + yod clusters evolved into new palatal segments [ʃ, ʒ, ʧ, ʤ, ʎ, ɲ], as well as dental affricates [ts, dz]. Other novel fricatives such as [θ, ð, x] later developed in some places from these palatal fricatives and (palatal and dental) affricates. In Table 39.1 we see a sample of the new segments introduced through palatalization of consonant + yod clusters, often with intermediate stages, described in more detail below.

In the following subsections, I address the treatment of the various Latin consonant + yod clusters, as well as the morphological consequences of palatalization by yod.

Table 39.1 New Romance segments

| | | | |
|---|---|---|---|
| [ʧ] | Sic. [ˈsatʧu] | < SAPIO | 'know.1sg' |
| [ʤ] | OIt. [ˈfuʤa] | < FUGIAT | 'flee.3sg.sbjv' |
| [ts] | Ro. [puts] | < PUTEUM | 'shaft; well (n)' |
| [dz] | It. [ˈmɛddzo] | < MEDIUM | 'half' |
| [ʃ] | Tsc. [ˈbaʃo] | < BASIUM | 'kiss' |
| [ʒ] | Fr. [ʁaʒ] | < RABIEM | 'rage' |
| [ɲ] | Pt. [ˈviɲɐ] | < UINEAM | 'vineyard' |
| [ʎ] | Cat. [ˈpaʎə] | < PALEAM | 'straw' |
| [θ] | Cst. [ˈbraθo] | < BRACHIUM | 'arm' |
| [ð] | Ven. [ˈmɛðo] | < MEDIUM | 'half' |
| [x] | Sp. [ˈxweɣo] | < IOCUM | 'game' |

## 39.2.1 /tj, kj/

In terms of the chronology of the palatalization of the consonant + yod sequences, the cluster /tj/ was affected first, followed by /kj/, as evidenced by the fact that misspellings of /tj/ occur earlier than those of /kj/, and by cases of voicing of intervocalic /tj/ but not of /kj/ (Tuttle 1986:319; Loporcaro 2011b:144). The two sequences were regularly confused by the third century AD (Elcock 1960:66; Posner 1996:111); however, they have remained distinct in many Alpine Romance varieties (Tuttle 1986). Palatalization of these clusters is attested in all Romance languages. Both clusters first evolved into an affricate (/ʧ/ or /ts/), which either remains to this day or changed into various fricatives illustrated below (1).[1]

(1) a. /tj/ > [ʧ] It. [ˈgotʧa] < *ˈgottja 'drop'
    [ts] It. [ˈpottso] 'well (n)', Ro. [puts] 'shaft' < PUTEUM
    [dz] Cal. [ˈgraddzja] < GRATIAM 'grace'
    [s] Mil. [pos] < PUTEUM 'well (n)'
    [z] Pt. [rɐˈzə̃w̃] < RATIONEM 'reason'
    [ʒ] Rmg. [staˈʒoŋ] < STATIONEM 'season'
    [θ] Cst. [ˈpoθo] < PUTEUM 'well (n)'
 b. /kj/ [ʧ] It. [ˈbratʧo] < BRACHIUM 'arm'
    [ts] Ro. [brats] < BRACHIUM 'arm'
    [ʃ] Busto Arsizio (WLmb.) [ˈbraʃu] < BRACHIUM 'arm'
    [s] Lmb. [bras] < BRACHIUM 'arm'
    [θ] Ven. [ˈjaθo] < GLACIEM 'ice' (Zamboni 1974:37)

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[1] A unique affricate, [tθ], is posited for medieval Sardinian, since many words with original /kj/ and /tj/ are represented in medieval documents with <th>: FACIO > fatho 'do.1sg', PLATEAM > platha 'square'. Words derived from these forms are pronounced today with an interdental fricative in Nuorese ([ˈfaθo], [ˈpraθθa]), with a geminate /tt/ in Logudorese ([ˈfatto], [ˈpratta]), and with a dental affricate in Campidanese ([ˈfattsu], [ˈprattsa]) (Blasco Ferrer 1984a:78f., 272; Loporcaro 2011b:148).

While some claim that /ts/ derives from /ʧ/ through depalatalization, Calabrese (2005:337f.) shows that this is not necessarily the case.

Spanish provides an interesting case study: the /tj/ and /kj/ clusters first developed into the affricates /ts/ and /ʧ/, which then merged to /ts/ (or /dz/ after intervocalic voicing) (Penny 1991:54). This affricate later evolved into the dental sibilant [s̪], which is now realized as [θ] or [s] in different varieties of Spanish (Penny 1991:86-90). Spanish dialects are often identified on the basis of their pronunciation of the coronal fricative(s): seseo dialects (parts of Spain, most of Latin America) are those which have only [s], ceceo dialects (parts of Andalusia and Central America) pronounce coronal fricatives with an apical articulation, while distinción (central and northern parts of Spain) refers to a situation in which both [s] and [θ] are present, the former being the descendant of Latin /(s)s/ and the latter the result of palatalization (Lapesa 1959; Harris 1969; Lloyd 1987; Penny 1991; Hualde 2005).

In many Romance varieties, the new segments were realized as long in intervocalic position. In fact, consonant lengthening is attested with all consonant + /j/ clusters (except /sj/). Evidence comes from modern Romance varieties which retain the geminate (2a),[2] stressed vowel evolution (2b), and the lack of intervocalic voicing (with /kj/, but not with /tj/) (2c) (Loporcaro 2011b:144).

(2) a. PLATEAM > It. [ˈpjattsa] 'square', GLACIEM > It. [ˈgjatʧo] 'ice';
  b. Frignanese (northern Italy): ŭ/ō > [uː] in an open syllable (SŌLEM > [suːl] 'sun'), and [ɔ] in a closed syllable (*ˈkuppa > [kɔp] 'tile'); crucially ŭ/ō before the segments in (1) evolve as if in a closed syllable: PUTEUM > [pos] 'well (n)' (Uguzzoni 1975; 1976);
  c. FACIO > Pt. [ˈfasu] (**[ˈfazu]) 'make.1sg'.

Within the same language we sometimes find two different evolutions of the same cluster (e.g. in Italian both pejorative suffixes -[ˈatʧo] and -[ˈattso] derive from Latin -ACEUM) due to the influence of neighbouring dialects (Maiden 1995:51-5).[3]

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[2] Some consonants in Italian are always realized as geminates in intervocalic position: /ts, dz, ʃ, ɲ, ʎ/ (Chierchia 1986).

[3] See Thornton (1995) for a discussion of the /(t)t/ ~ /(t)ts/ alternation in Italian today.

### 39.2.2 /gj, dj, j/

Word-initial and intervocalic yod generally merged with Latin /gj/ and /dj/ (as well as /g/ + front vowels; see §39.3.1.1). Evidence for the early merger of /gj, dj, j/ comes from ancient (mis)spellings in which the three are confused, and modern varieties in which the heirs of the three are identical (Väänänen 1974:116; Loporcaro 2011b:144f.). The first step of the merger resulted in /j/, attested in modern Romance varieties such as Sicilian (3).[4]

(3)   Latin > Sicilian
      FUGIO > ['fuju] 'flee.1sG'
      HODIE > ['ɔji] 'today'
      IOCUM > ['jɔku] 'game' / PEIUS > ['pɛju] 'worse'

The next step was that /j/ became an affricate, either [dʒ] (4) or [dz] (5).[5]

(4)   Latin > Italian
      FUGIAT > OIt. ['fuddʒa] 'flee.3sG.SBJV'
      HODIE > ['ɔddʒi] 'today'
      IOCUM > ['dʒɔko] 'game' / PEIUS > ['pɛddʒo] 'worse'

(5)   Latin > Logudorese Sardinian (Blasco Ferrer 1986:38)[6]
      DEORSUM > ['dzɔsso] 'down'
      IANUARIUS > [dzan'nardzu] 'January'

Numerous changes affected these affricates, which deaffricated to [ʒ] (6a) and [z] (6b), eventually giving rise to [x] (6c), [ð] (6d), and [j] (6e).

(6)   /gj, dj, j/ >   a.   [ʒ]   Cat., Ro. [ʒɔk], Pt. ['ʒogu] < IOCUM 'game'
                     b.   [z]   Gen. ['mɛzo] 'half', Ro. [mjez] 'core' < MEDIUM
                     c.   [x]   Sp. ['xweɣo] < IOCUM 'game'
                     d.   [ð]   Ven. ['mɛðo] < MEDIUM 'half' (Zamboni 1974:39)
                     e.   [j]   Sp. [ja'θer] < IACERE 'to lie'

The Spanish glide [j] in (6e) derives from the fricative /ʃ/ < /ʒ/ (Lloyd 1987), and across the Spanish-speaking world,

different sounds correspond to the [j] in (6e), including the fricatives [ʃ] (in Buenos Aires) and [ʒ] (in parts of Andalusia, Extremadura, and Latin America) (Hualde 2005).

Various outcomes of the same cluster are often found within an individual language. In Italian, we find both [dʒ]/[dz] (['raddʒo] 'ray'/['raddzo] 'rocket' < RADIUM), the former being the native form and the latter either a Latinized pronunciation or a borrowing from northern dialects (Rohlfs 1966:391). In Romanian, /gj, dj, j/ evolve into [z] (< /dz/) ([mjez] 'core' < MEDIUM), and [ʒ] before a back vowel (['ʒɔk] 'game' < IOCUM). The different outcomes in Spanish (for example, [ja'θer] < IACERE 'to lie', ['xweɣo] < IOCUM 'game', [pe'or] < PEIOREM 'worse') may be due to the influence of the following vowel, to the position of the segment relative to word stress, and/or to dialect borrowing (Menéndez Pidal 1962:124; Loporcaro 2011b:146).

### 39.2.3 /sj/

Latin /sj/ evolved into a palatal fricative [ʃ] (Ro. ['roʃu] <ROSEUM 'red.MSG'), which was voiced intervocalically in some Romance varieties (Lig. ['baʒu] < BASIUM 'kiss'). In Tuscan and some other central Italo-Romance varieties we find short /ʃ/ (['baʃo] < BASIUM 'kiss'), along with a handful of examples of intervocalic voicing of the palatal ([fa'ʒano] < PHASIANUM 'pheasant'). The voiceless/voiced outcomes might be due to the influence of nearby northern dialects which regularly voiced intervocalic voiceless consonants, or to a Tuscan trend towards sporadic (not generalized) intervocalic voicing (Rohlfs 1966:403-6; Castellani 1980d; Maiden 1995:51, 61-3; Aski 2001). The Tuscan outcomes (short /ʃ/ and /ʒ/) are adapted into Italian as short affricates (/tʃ/ and /dʒ/): Tsc. ['baʃo] ~ It. ['batʃo] 'kiss'; Tsc. [fa'ʒano] ~ It. [fa'dʒano] 'pheasant'. This Tuscan ~ Italian difference is due to the mapping of Tuscan short palatal fricatives in intervocalic position to Italian affricates, but Tuscan long palatal fricatives were faithfully maintained: Tsc. = It. ['peʃʃe] 'fish' ([ʒʒ] does not exist in Tuscan) (Rohlfs 1966:403-7; Maiden 1995:50f.).

In some Ibero- and Gallo-Romance languages, metathesis of the /sj/ cluster gave rise to /js/ (MA(N)SIONEM > OFr. maison 'house'). The glide often assimilated to the vowel, as in ModFr. [mɛ'zɔ̃] 'house', Sp. [me'son] 'inn'. In Portuguese, the metathesized glide and a palatal fricative are present (['kejʒu] < CASEUM 'cheese') although the chronology of changes is still hotly debated (Rini 1991; Torreblanca 1992).

In some languages (the south of Italy and Sardinia, with lexical remnants in central Italo-Romance varieties), palatalization of /sj/ is absent; instead the glide was deleted: ['kasu] < CASEUM 'cheese' (Rohlfs 1966:406-9).

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[4] The /j/ found in modern Romance varieties might have had an uninterrupted history from Latin, or it might have evolved from an intermediate affricate (Loporcaro 2011b:144f.).

[5] Loporcaro (2011b:146) posits an intermediate stage in which /j/ became [ɟ] in some dialects (attested today in the dialect of Soglio, Val Bregaglia, Switzerland: IUNIUM 'June' > [ɟyɲ]), which subsequently evolved into [dʒ].

[6] The affricate [dz] is also found in some Logudorese dialects in initial position, and it is generalized intervocalically (Blasco Ferrer 1988a:89).

### 39.2.4 /pj, bj, vj/

Palatalization of labials is relatively rare cross-linguistically. Bateman (2007) surveys over 100 languages and establishes an implicational hierarchy of palatalization whereby palatalization of labials depends on coronal and dorsal palatalization. Hock (2006) argues for a constraint against palatalized labials, and he catalogues strategies used to avoid palatalized labials, including no change (or gemination of the consonant preceding yod)[7] (7a, 8a), glide metathesis (with optional assimilation of the metathesized glide to the preceding vowel) (7b, 8b), and change to a (non-palatalized) labial + palatal consonant (7c, 8c).[8] These strategies are all found in Romance.

(7) /pj/ a. [pj] Sp. ['apjo] < APIUM 'celery', It. ['sappja] < SAPIAT 'know.3sg.sbjv'
    b. [jp] Pt. ['sajbɐ] < SAPIAT 'know.3sg.sbjv'
    c. [ptʃ] OPrv. ['saptʃa] < SAPIAT 'know.3sg.sbjv' (Lausberg 1965:§473; Paden 1998:158)

(8) /bj, vj/ a. [bj] Sp. ['raβja], It. ['rabbja] < RABIAM 'anger'
    b. [jb]/[jv] Pt. ['rajvɐ] < RABIAM 'anger', Vnz. ['geba] < CAUEAM 'cage'
    c. [bdʒ] Borno (Brescia) [bdʒulk] < *bjulk 'yokel', Egd. ['rabdʒa] < RABIEM 'anger', OPrv. [robdʒe] < RUBEUM 'red' (Paden 1998:157)

Latin labial plus yod clusters correspond to palatal consonants in some Romance languages: [tʃ, ʃ] (9) and [dʒ, ʒ] (10). While this may appear to be a case of labial palatalization, there is evidence (medieval spellings, vowel evolution, cognate forms in nearby varieties) that the modern palatal consonants arose from intermediate structures such as those in (7c) and (8c) (Bateman 2007).

(9) /pj/ a. [tʃ] Sic. ['sattʃu] < SAPIO 'know.1sg'
    b. [ʃ] Fr. [saʃ] < SAPIAT 'know.3sg.sbjv'

(10) /bj, vj/ a. [dʒ] Sic. ['gaddʒa] < CAUEAM 'cage'
    b. [ʒ] Fr. [ʁaʒ] < RABIEM 'anger'

As with other clusters, some languages have more than one outcome. For example, in French we find the usual /ʃ/ ([saʃ] < SAPIAT 'know.3sg.sbjv') alongside the less frequent /ʒ/ ([saʒ] < *'sapju 'wise') which both derive from /pj/.

### 39.2.5 Sonorant consonant + /j/

The sonorant consonants were also affected by a following yod. /nj/ and /lj/ clusters were palatalized to [ɲ] (UINEAM > Fr. ['viɲə], Sp. ['biɲa], Cat. ['viɲə], Pt. ['viɲɐ], It. ['viɲɲa] 'vineyard') and [ʎ] (PALEAM > Cat. ['paʎə], Pt. ['paʎɐ], It. ['paʎʎa] 'straw'), respectively. These palatal sonorants may have undergone further changes to become an affricate, a fricative, a nasalized glide, or /j/, which was deleted in some cases (11).

(11) /nj/ > [ɲ] > [dʒ] > [ʒ] Fr. [lɛ̃ʒ] < LINEUM 'linen'
    [j] Pt. ['vĩjɐ] < UINEAM 'vineyard' (Shosted and Hualde 2010; Perini 2002:13)
    [j] > [ø] Ro. ['vie] < UINEAM 'vineyard'
    /lj/ > [ʎ] > [ʒ] [ʃ] > [x] Sp. ['paxa] < PALEAM 'straw'
    [j] Fr., Ro. [paj] < PALEAM 'straw'

The fate of /rj/ is slightly less complicated. In most Romance varieties the cluster underwent metathesis, with occasional coalescence of the glide and the preceding vowel (12a), while in Italo-Romance varieties we find loss of the rhotic element (12b), or loss of the /j/ (12c), with cases of gemination of the /r/ (12d) (Maiden 1995:55f.).

(12) /rj/ a. [jr] AREAM > Pie. ['ajra] 'threshing floor', FERRARIU > Sp. [er'rero] 'blacksmith'
    b. [j] MORIO(R) > Tsc. ['mwojo] 'die.1sg'
    c. [r] MORIO(R) > Laz. ['moro] 'die.1sg'
    d. [rr] MORIO(R) > NCal. ['morra] 'die.1sg'

The different evolution of /rj/ vs the other coronal sonorant consonants is not surprising, since rhotic palatalization is cross-linguistically uncommon (Hall 2000; Hock 2006:438; Bateman 2007).

As is often the case, Sardinian exhibits unique changes. Yod following a coronal sonorant was affricated in Sardinian varieties, often leaving the sonorant consonant intact (except in /lj/ clusters), as illustrated in the following Sardinian data (Martelli 1989).

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[7] /v/ became a stop when lengthened: /vj/ > [bbj] (Rohlfs 1966:386).
[8] The process exemplified in (7c, 8c) is also found in cases of a labial consonant plus the /j/ that resulted from diphthongization: Mdv. ['ptʃeli] < PELLEM 'skin', ['bdʒini] < BENE 'well (ADV)' (cf. §8.2.2).

(13) /nj/    UINEAM > Log. ['bindza], Cpd. ['bindʒa]
'vineyard'

    /lj/    MULIEREM > Log.-Nuo. [mu'dzɛre] 'wife'

    /rj/    FEBRUARIUM > Log. [fre'ardzu], Cpd. [fri'ardʒu]
'February'

Finally, palatalization of /m/ is rare for a number of reasons: sonorant palatalization is less common than obstruent palatalization, labial palatalization is rare, and /mj/ is an uncommon cluster. In most Romance varieties, the cluster was unchanged (or underwent gemination) (14a), metathesized (14b), or lost the palatal element (14c). Interesting are the cases in which the modern reflexes have a palatal segment: [mɲ] (14d), [ɲ] (14e), [mdʒ] (14f), [ṽʒ] (< [ndʒ]) (14g) (Lausberg 1965:§478; Bateman 2007).[9] The forms in (14d,f) are similar to the cases of the labial + /j/ clusters illustrated in (7c) and (8c), in which the yod undergoes palatalization, leaving the labial contact intact.

(14)   /mj/   a. [mj] Sp. [ben'dimja], It. [ven'demmja] < UIN-
DEMIAM 'grape harvest'

           b. [jm] Pt. [vĩ'dimɐ] < UINDEMIAM 'grape harvest'

           c. [m] Vnz. [ven'dema] < UINDEMIAM 'grape
harvest'

           d. [mɲ] Occ. [ven'demɲa] < UINDEMIAM 'grape
harvest' (Jensen 1999:284)

           e. [ɲ] Lig. [ven'deɲa] < UINDEMIAM 'grape har-
vest', Sic. ['siɲɲa] < SIMIAM 'monkey'

           f. [mdʒ] Egd. [vin'demdʒa] < UINDEMIAM 'grape
harvest'

           g. [ṽʒ] Fr. [sɛ̃ʒ] < SIMIUM 'monkey'

### 39.2.6 Morphological consequences of palatalization by yod

Some morphological consequences of palatalization by yod can be found in the Romance verb system (see §27.8). Since many Latin verbs contained a root-final yod in the first person singular form or in the first person singular and third plural forms of the present indicative, it is not surprising to find Romance roots which underwent palatalization in these forms only. For example, OIt. ['seddʒo] < SEDEO 'sit.1SG' with a palatal consonant in the root vs ['sjɛdi] < SEDES 'sit.2SG' without one (Maiden 1995:133). What is surprising is that verbs with a different etymology develop root allomorphs distributed in a way that mirror these paradigms. For example, the Latin verb FUGIO, FUGERE 'flee' had a yod or

front vowel (see §39.3.1) after the root /fug/ in all forms of the present indicative; therefore, we expect the corresponding Italian forms to contain a palatalized consonant [dʒ]. However, a non-etymological [g] was introduced into the paradigm, creating a [dʒ]/[g] alternation that mirrors the pattern described above. Namely, the first singular and third plural forms have a palatal consonant [dʒ] in the root, while the other forms have a non-palatal (non-etymological) root consonant [g] (Maiden 2011b:219; also §43.2.3).

## 39.3 Consonant + front vowel palatalization

In this section I discuss palatalization of consonants before a front vowel. I begin with velar stops before a front vowel (§39.3.1), followed by non-dorsal consonants + front vowel (§39.3.2), and I review the morphological effects of this process in §39.3.3.

### 39.3.1 Velar stop + front vowel

The velar stops /k, g/ immediately followed by a front vowel underwent palatalization in about the fifth century AD in nearly all of Romance (Väänänen 1974:118f.). I discuss /gi, ge, gɛ/ and /ki, ke, kɛ/ sequences in §39.3.1.1 and §39.3.1.2, respectively, followed by /kw, gw/ + front vowel (§39.3.1.3), and velar stops before Latin A (§39.3.1.4).

#### 39.3.1.1 /gi, ge, gɛ/

A chronology of the changes undergone by /gi, ge, gɛ/ is similar to that described in §39.2.2 for /gj, dj, j/. In fact, in most Romance varieties the outcomes of /g/ + front vowels merged with those of /gj, dj, j/ (although the latter series palatalized first; Väänänen 1974:117). For example, in French all of these clusters resulted in [ʒ] (15), and in Neapolitan [j] (except in strengthening contexts, where we find [ggj]) (16).

(15)   Latin > French
     GENTEM > [ʒã] 'people'      DIURNUM > [ʒuʁ] 'day'
     GENESTAM > [ʒə'nɛ] 'broom'      IOCUM > [ʒø] 'game'

(16)   Latin > Neapolitan
     GENERUM > ['jɛnnərə] 'son-in-law'      HODIE > ['ɔjə] 'today'
     GENESTAM > [jə'nɛstə] 'broom'      FUGIO > ['fujə] 'flee.1SG'

In some varieties such a merger did not take place. In Romanian, /gi, ge, gɛ/ sequences resulted in an affricate

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[9] The palatalized bilabial nasal in northern Transylvania and part of northern Moldova is [mɲ] (Bateman 2007:109f.).

[ʤ], while /gj, dj, j/ generally evolved into a fricative [z] or [ʒ] (see §39.2.2) (17). It should be noted that the eastern Romance palatalizations are thought by some to be historically independent of and subsequent to the western Romance palatalizations (see e.g. Skok 1926). In Raeto-Romance varieties, the former are now pronounced with a fricative [ʒ], and the latter with a glide [j] (18) (Loporcaro 2011b:147).

(17)  Latin > Romanian
      GENERUM > [ˈʤinere] 'son-in-law'   MEDIUM > [mjez] 'core'
      LEGEM > [ˈleʤe] 'law'   IOCUM > [ʒɔk] 'game'

(18)  Latin > Raeto-Romance (lower Engadine variety of Sent)
      GENERUM > [ˈʒɛndɐr] 'son-in-law'   DEORSUM > [jo] 'down'
      GELARE > [ʒɛˈlar] 'to freeze'   IACET > [ˈjaʒɐ] 'lie.3SG'

Palatalization of velar stops before a front vowel is attested in all Romance languages except some varieties of Sardinian (19) and Dalmatian (see §§9.2, 39.3.1.2) (Elcock 1960:67; Väänänen 1974:118; Loporcaro 2011b:147). It follows that Sardinian /gj, dj, j/ sequences did not evolve in the same way as /g/ + front vowels.

(19)  Latin > Logudorese-Nuorese Sardinian
      GENERUM > [ˈgɛnneru] 'son-in-law'   IUGUM > [ˈjuvu] 'yoke'
      GELARE > [geˈlare] 'to freeze'   DEORSUM > [ˈjɔʃʃɔ] 'down'

The forms in (19) suggest that palatalization of /gj, dj, j/ sequences preceded palatalization of /g/ plus front vowel; however, the Raeto-Romance data (18) might suggest the opposite order (Loporcaro 2011b:147). (Consonant + /gi, ge, gɛ/ sequences are discussed in the next section.)

### 39.3.1.2  /ki, ke, kɛ/

There is an interesting asymmetry in the evolution of voiced vs voiceless velar stops before front vowels. The voiceless velars resisted palatalization longer than the voiced ones. Evidence comes from Latin borrowings into Germanic and Celtic in which the voiced velar is palatalized but the voiceless one is not, and from medieval spellings (Loporcaro 2011b:147f.).
The /ki, ke, kɛ/ sequences initially evolved in Romance languages in one of two ways: through the formation either of a palatal affricate [ʧ] (CERUUM > It. [ˈʧɛrvo] 'deer') or of a dental affricate [ts] (CERUUM > OFr. /tsɛrf/ > ModFr. [sɛʁ] 'deer'). The issue of whether one affricate changed into the other is still unresolved (Posner 1996:113).

In most of Romance, the outcomes of /ki, ke, kɛ/ sequences merged with the outcomes of /kj, tj/, although the latter had undergone palatalization earlier than the former (Väänänen 1974:119). For example, we find [θ] in European Spanish and [ʧ] in Italian in both contexts (see §39.2.1).

(20)  Latin > European Spanish
      PACEM > [paθ] 'peace'   BRACHIUM > [ˈbraθo] 'arm'
      CAELUM > [ˈθjelo] 'sky'   PUTEUM > [ˈpoθo] 'well (N)'

(21)  Latin > Italian
      PACEM > [ˈpaʧe] 'peace'   BRACHIUM > [ˈbratʧo] 'arm'
      CAELUM > [ˈʧɛlo] 'sky'   *ˈguttja > [ˈgotʧa] 'drop'

However, in Romanian they did not merge. We find /kj/ > [ts] (FACIEM > [ˈfatsə] 'face'), but /ki/ > [ʧ] (CIUITATEM > [ʧeˈtate] 'castle'), supporting the proposal that /kj/ palatalized earlier than /ki, ke, kɛ/, if we assume that [ts] evolved from [ʧ] (Posner 1996:113; see also Skok 1926).
As with /gi, ge, gɛ/, palatalization of /k/ + front vowel sequences is attested in all Romance languages except some varieties of Sardinian (22) and Dalmatian (see below). In Sardinian the heirs of /ki, ke, kɛ/ did not merge with those of /kj, tj/ (see n. 1).

(22)  Latin > Logudorese-Nuorese Sardinian
      CENAM > [ˈkɛna] 'dinner'
      CENTUM > [ˈkɛntu] 'hundred'
      CIMICEM > [ˈkimige] 'bed bug'

Dalmatian (in particular the dialect of Veglia) appears to confirm Bateman's (2007:62-7) claim that high front vowels are the best palatalization triggers. Palatalization of velar stops is attested before [i] ([ˈʧiŋko] < *ˈkinkwe < QUINQUE 'five'; [ˈspiraʧ] < ASPARAGI 'asparagus') and [y] ([ʧol] < *kyl < CULUM 'buttocks'), but not before other front vowels ([ˈkajna] < CENAM 'dinner', [karˈvjale] < CEREBELLA 'brains') (Ive 1886; Väänänen 1974:118; Bartoli 2000:429–31),[10]
Consonant + velar stop + front vowel sequences often show a unique set of changes. In Italian, for example, velar stop + front vowel sequences result in a palatal affricate (LEGEM > [ˈleddʒe] 'law', PACEM > [ˈpaʧe] 'peace'), and this is what we generally find when these sequences are preceded by a consonant (23a); however, there are some deviations from this pattern (23b) (Rohlfs 1966: 362f., 377-9; Maiden 1995:58f.).

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[10] In other Romance varieties, rounded front mid vowels are also involved in palatalization: Bagolino (Brescia) *kore > *kœr > [ʧœr] 'heart'; cf. CULUM > *kyl > [ʧyl] 'buttocks' (Tuttle 1997a:30).

(23)

| | | (a) velar stop > palatal affricate | (b) velar stop > other outcomes |
|---|---|---|---|
| /rg/ + front vowel | ARGENTUM > | [ar'dʒɛnto] 'silver' | – |
| /rk/ + front vowel | CARCEREM > | ['kartʃere] 'prison' | – |
| /lg/ + front vowel | INDULGERE > | [in'duldʒere] 'to indulge' | COLL(I)GERE > ['koʎʎere] 'to gather' |
| /lk/ + front vowel | DULCEM > ['doltʃe] 'sweet'[11] | | – |
| /ng/ + front vowel | EXPINGERE > | ['spindʒere] 'to push' | EXPINGERE > ['speɲɲere] 'to turn off' |
| /nk/ + front vowel | CANCELLUM > | [kan'tʃello] 'gate' | – |

The unexpected forms in (23b) all involve a sonorant consonant plus a voiced velar: /lg, ng/ + front vowel (note that /rg/ + front vowel sequences evolve as expected). Clusters involving /lg/ + front vowel that underwent the expected palatalization, such as INDULGERE > [in'duldʒere] 'to indulge', are not considered to be part of the native lexicon (Rohlfs 1966:377), while those that resulted in a palatal lateral, such as COLL(I)GERE > ['koʎʎere] 'to gather', are indigenous forms. I have found no explanation for this anomalous pattern. /ng/ + front vowel sequences usually follow the expected evolution, resulting in [ndʒ]; however, there is one exceptional form in Italian, ['speɲɲere] 'to turn off' < EXPINGERE, possibly due to the influence of related varieties in which the palatal nasal is the usual outcome (old Florentine, eastern Tuscan, and most of southern Italo-Romance), as in OFlo. ['pjaɲɲere] 'to cry' < PLANGERE (cf. It. ['pjandʒere]) (Maiden 1995:58).

Latin words with /sk/ + front vowel sequences underwent the usual palatalization process, but the palatal feature of the affricate spread to the preceding /s/: CRESCERE > *'kre-stʃere > *'kreʃtʃere. The cluster then underwent assimilation: ['kreʃʃere] 'to grow' (Maiden 1995:59). Latin words of learnèd origin retain the velar stop (SCHEDAM > ['skɛda] 'card'), as do Longobard loan words (['zgɛrro] < Lgb. skarrjo 'captain', [sker'tsare] < Lgb. skerzon 'to joke'; note that the /s/ has the same voicing as the following consonant).

Palatalization of velars is productive in varieties of spoken French, such as Acadian, where we find palatalization of voiceless and voiced velars before front vowels, with varying degrees of regularity: qui [tʃi] 'who', anguille [ã'dʒij] 'eel' (Lucci 1972:95-101).[12]

### 39.3.1.3 /kw, gw/ + front vowel

Sequences involving a velar stop plus labiovelar glide (/kw, gw/) followed by a front vowel also underwent palatalization in some Romance varieties. This is often referred to as a 'secondary palatalization' since it occurred after the loss of the labiovelar element (/kwi/ > /ki/ > /tʃi/). These sequences did not undergo palatalization in most Romance languages: witness the various reflexes of the Latin relative/interrogative paradigm QUI- [kwi]- (e.g. Fr. qui/que [ki/kə] 'who/that, what', It. chi/che [ki/ke] 'who/that, what', Sp. quién/que, qué [kjen/ke] 'who/that, what'). However, we do find some lexical items in which the /kw/ sequence was reduced very early and therefore did participate in widespread Romance palatalization (It. ['tʃiŋkwe], Sp. ['θiŋko/ 'siŋko], Pt. ['siŋku], Fr. [sɛ̃k]< *'kinkwe < QUINQUE 'five'). More generalized palatalization of these sequences is attested in Romanian, Dalmatian, southeastern varieties of Italo-Romance, Sicilian, Sardinian, Friulian, and Romansh (e.g. QUI- > Dal., Pug., Lad., Srd. [tʃi] 'who', Ro. [tʃe] 'what'; Wolf 2012).

### 39.3.1.4 Velar stop + A

In some Gallo-Romance varieties we find palatalization of velar stops before Latin A. This process is evident in northern Gallo-Romance (although not Picard and Norman dialects), Raeto-Romance, and formerly in northern Italo-Romance (OVnz. chian < CANEM 'dog') although today only remnants survive in place names (Vic. Chiampo ['tʃãᵐpo] < CAMPUM 'field') and individual lexical items (Valfurva, upper Valtellina ['caura] < CAPRAM 'goat'; Tuttle 1997a:29; Loporcaro 2011b:149). We can assume that the low vowel had an anterior articulation in those varieties which exhibit palatalization in this context. Furthermore, this process must be more recent than palatalization of velar stops before high and mid front vowels, given its limited distribution and Bateman's (2007:64) implicational hierarchy of palatalization triggers: 'if lower front vowels trigger palatalization, then so will higher front vowels.'

In this context, the velar stop affricated to [tʃ]/[dʒ] and then de-affricated to [ʃ]/[ʒ] in both stressed and unstressed position. The affricate is attested today in some varieties of Friulian (24) (but not in central and northern Friulian, where we find [c]; Francescato 1966), and the old French affricate is fossilized in some borrowings into English (e.g. chant, jamb), while modern French exhibits a fricative (25).

(24)　Latin > Friulian

CANTAS > ['tʃantis] 'sing.2SG'　　CABALLUM > [tʃa'val] 'horse'
GAMBAM > ['dʒambe] 'leg'　　GALLINAM > [dʒa'line] 'hen'

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[11] Literary forms such as ['doltse] are due to the early influence of French and Provençal literature (Rohlfs 1966:378).

[12] See Krämer (2009:56-68) for a report on the productivity of velar palatalization in modern Italian.

(25)  Latin > French

CANTAS > [ʃɑ̃t] 'sing.2sg'  CABALLUM > [ʃəˈval] 'horse'

GAMBAM > [ʒɑ̃b] 'leg'  LARGAM > [laʁʒ] 'wide.FSG'

## 39.3.2  Non-dorsal consonant + front vowel

Coronal consonants followed by a front vowel, in some cases, resulted in a palatal consonant. There is a handful of examples of Latin /si/ which palatalized to Italian [ʃ], as in SIMIAM > [ˈʃimmja] 'monkey', UESSICAM > [veʃˈʃika] 'bladder' (but there are numerous non-palatalized forms: [si] < SIC 'yes', [siˈnistra] < SINISTRAM 'left'). We also find palatalization of /lli/ (and /li/) sequences (see §39.4.3 for more on palatalization of geminate /ll/) in old and modern Tuscan varieties (CABALLI > OSen. *cavagli* 'horses', CAPILLI > ModCrt. *capeglie* 'hair'), as well as in other central and southern varieties of Italo-Romance (Rohlfs 1966:326-8). In Italian, the palatal lateral resulting from /lli/ is found in isolated forms, such as [ˈeʎʎi] 'he' and [ˈbeʎʎi] 'beautiful.MPL' (used prevocalically and in certain other phonological contexts), while in other forms the palatal lateral (from /li/) may have developed into a glide and been deleted (*ˈvwoʎʎi > [vwɔj] 'want.2sg'; 1995:59), as it did throughout northern Italy (CAPILLI > [kaˈvej] 'hair', GALLINAM > [gaˈina] 'hen'; Rohlfs 1966:327). (Note also Romanian [kaj] < CABALLI 'horses', [gəˈina] < GALLINAM 'hen'.)

Despite its limited productivity in the past, palatalization of coronal consonants followed by a front vowel is productive in many Romance languages today. For example, in regional varieties of spoken French, such as Acadian French (Lucci 1972), we find palatalization of /t, d/ before yod (*canadien* [kanaˈdʒɛ̃] 'Canadian', *amitié* [amiˈtʃe] 'friendship'; Lucci 1972:34), and in Brazilian Portuguese /t/ and /d/ regularly affricate to [tʃ] and [dʒ] before /i/: *tia* [ˈtʃiɐ] 'aunt', *dia* [ˈdʒiɐ] 'day' (Perini 2002:16f.).

## 39.3.3  Morphological consequences of front vowel palatalization

Just as with palatalization by yod (see §39.2.6), there are morphological consequences of front vowel palatalization in the Romance morphological system (see §27.8). It is seen most clearly in verbal and nominal inflection. Within verb paradigms, Latin 2sg, 3sg, 1pl, 2pl suffixes /is, it, imus, itis/, respectively, often triggered palatalization of the preceding velar consonant, so that in Romanian, for example, the second person singular form of the present indicative of the verb 'say' has a palatalized consonant ([zitʃ] < DICIS

'say.2sg') while the first person singular form does not ([zik] < DICO 'say.1sg'), a common pattern in Romance languages (Maiden 2011b).

Front vowel palatalization also plays a morphological role in the nominal system of most of Romance. Languages with velar palatalization before A display alternations in masculine/feminine pairs, in which the final /o/ of the masculine form did not trigger palatalization of the preceding root consonant, while the feminine suffix /a/ did: Fr. [sɛk]/[sɛʃ] < SICCUM/SICCAM 'dry.M/FSG'. In Romance morphological systems that mark number in the nominal paradigms with a vowel (/i/ MPL and /e/ FPL, as opposed to /s/ PL), velar palatalization is rare (see §42.3; Maiden 2011b:220f.). For example, in Italian we generally find non-palatalized singular/plural alternations like [ˈbaŋko]/[ˈbaŋki] 'desk/desks', with a handful of pairs like [aˈmiko]/[aˈmitʃi] 'friend.M/friends.M', and no cases of palatalization with feminine plural /e/: [aˈmika]/[aˈmike] (**[aˈmitʃe]) 'friend.F/friends.F' (although in old Italian we find very rare palatalized feminine plural forms like *amice*, where <ce> generally represents [tʃe]; Rohlfs 1968:45).

Only in Romanian is velar palatalization in noun paradigms regular, triggered by inflectional suffixes /i/ MPL and /e/ FPL. These vowels palatalize the preceding velar consonant resulting in a palatal affricate; the /i/ is desyllabified leaving a secondary palatal articulation on the affricate, while /e/ is retained: [koˈledʒ]/[koˈledʒe] 'colleagues.M/colleagues.F' (cf. [koˈleg]/[koˈlega] 'colleague.M/colleague.F') (Bateman 2007; Chiţoran 2002; Maiden 2011b:220). Palatalization by inflectional /i/ (but not /e/) is also found with root-final coronal consonants, resulting in an affricate or fricative with a secondary palatal articulation ([bəˈjat]/[bəˈjetsʲ] 'boy/boys', [jed]/[jezʲ] 'kid/kids') or in a palatal sonorant ([an]/[aɲ] 'year/years'). Labials receive a secondary palatal articulation only: [lup]/[lupʲ] 'wolf/wolves', [rob]/[robʲ] 'slave/slaves' (Bateman 1997:90-94; Chiţoran 2002; Maiden 2011b:220; Spinu et al. 2012). Labial consonants in the Moldovan dialect become palatal fricatives with a secondary palatal articulation ([karˈtof]/[karˈtoʃʲ] 'potato/potatoes') or a non-labial stop with a secondary palatal articulation ([plop]/[plokʲ] 'poplar/poplars') (Bateman 2007:90-94). In Romanian, palatalization of a consonant spreads to the preceding /s/ in a cluster, as in [prost]/[proʃtʲ] 'stupid.MSG/stupid.MPL' (note that final /t/ preceded by a vowel palatalizes to [tsʲ]) (Bateman 2007:80).

Palatalization caused by /i/ plays a morphological role in noun and adjective paradigms in other Romance languages as well: Lmb. [an]/[aɲ] < ANNUM/ANNI 'year/years', Lad. [nes]/[neʃ] < NASUM/NASI 'nose/noses' (Rohlfs 1968:47; see also §42.6.1).

## 39.4 Consonant + consonant palatalization

In this section I review other palatalization processes involving consonants as both trigger and target.

### 39.4.1 Consonant + /l/

Another source of palatal consonants comes from changes to consonant plus /l/ clusters (including original Latin consonant + /l/ clusters, as well as those derived through syncope).[13] Repetti and Tuttle (1987) propose that the lateral consonant of these clusters originally palatalized to [ʎ], beginning with /kl/ and /gl/ clusters, and this change then spread to other clusters. Evidence for this chronology comes from medieval documents as well as modern varieties, such as Romanian, where /kl/ and /gl/ clusters underwent changes, while /pl, bl, fl/ clusters did not.

(26)  Latin > Romanian

| /kl/ | CLAMARE > [kʲeˈma] 'to call' | /pl/ | PLENUM > [plin] 'full' |
|---|---|---|---|
| | AUNC(U)LUM > [ˈuŋkju] 'uncle' | | TEMPLAM > [ˈtɨmplə] 'temple' |
| /gl/ | GLACIEM > [ˈgʲe̯atsə] 'ice' | /bl/ | BLANDUM > [blɨnd] 'mild' |
| | UNG(U)LAM > [ˈuŋgje] 'nail' | | AMB(U)LARE > [umˈbla] 'to walk' |
| | | /fl/ | FLOREM > [ˈflo̯are] 'flower' |
| | | | SUFFLARE > [suˈfla] 'to blow' |

Palatalization of the lateral in velar stop + /l/ clusters was extended to the labial clusters in parts of Italo-Romance, Daco-Romance (Aromanian and sporadically in Megleno- and Istro-Romanian), and Ibero-Romance (where the palatal lateral is still found after voiceless obstruents in upper Aragon; Lloyd 1987:225), as well as in Francoprovençal (27) (Loporcaro 2011b:150).

(27)  Ruffieu-en-Valromey (Rhône-Alpes; Repetti and Tuttle 1987:83f.)

| CLAUEM > [kʎa] 'key' | PLUMBUM > [pʎõ] 'lead' |
|---|---|
| GLANDEM > [(a)ˈgʎã] 'acorn' | *ˈblanku > [bʎã] 'white' |
| | FLATUM > [fʎa] 'breath' |

These clusters then underwent other changes: the lateral developed into yod (Italo-Romance) (28a), the yod palatalized to an affricate (Gallo-Romance) (28b), the cluster became an affricate or fricative (Italo-Romance, Ibero-Romance, in particular Leonese, Galician, and Portuguese) (28c), the obstruent was eliminated (Italo-Romance, Ibero-Romance) (28d), or, surprisingly, the cluster evolved into a palatal nasal (southern Italo-Romance) (28e).

(28)  a. Italian

| CLAMARE > [kjaˈmare] 'to call' | PLENUM > [ˈpjɛno] 'full' |
|---|---|
| GLACIEM > [ˈgjattʃo] 'ice' | *ˈblondu > [ˈbjondo] 'blond' |
| | FLOREM > [ˈfjore] 'flower' |

b. Chevroux variety of Francoprovençal (Repetti and Tuttle 1987:85f.)

| CLAUEM > [kʎaf] 'key' | PLANTAM > [ˈptʃãnta] 'plant' |
|---|---|
| GLACIEM > [ˈjase] 'ice' | *ˈblanku > [bjã] 'white' |
| | FLAMMAM > [ˈftʃamna] 'flame' |

c. Ligurian

| CLAMARE > [tʃaˈma] 'to call' | PLENUM > [tʃin] 'full' |
|---|---|
| GLACIEM > [ˈdʒasa] 'ice' | *ˈblanku > [ˈdʒaŋku] 'white' |
| | FLOREM > [ˈʃura] 'flower' |

d. European Spanish

| CLAUEM > [ˈʎaβe] 'key' | PLORARE > [ʎoˈrar] 'to cry' |
|---|---|
| GLANDEM > [ˈʎandre] 'acorn' | *ˈblanku > [ˈblaŋko] 'white' |
| | FLAMMAM > [ˈʎama] 'flame' |

e. Salentino (Rohlfs 1966:241-55)

| GLANDEM > [ˈɲanna] 'acorn' | BETULAM > *ˈbleta > [ˈɲɛta] 'birch' |
|---|---|
| | FLECTAM > [ˈɲɛtta] 'braid' |

The European Spanish data in (28d) deserve more discussion. Penny (1991:60-64) points out that in Spanish, clusters with voiceless obstruents (*muta cum liquida*) generally assimilated to the palatal lateral;[14] however, many words retain the cluster (PLATEAM > [ˈplaθa] 'square'; FLAMMAM > [ˈflama], alongside [ˈʎama] 'flame'), others developed an affricate (*ˈplattu > [ˈtʃato] 'snub-nosed'), and the /f/ of an /fl/ cluster was sometimes lost (FLACCIDUM > [ˈlaθjo] 'limp'; Menéndez Pidal 1962:126). Furthermore, in different

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[13] In some areas, postconsonantal /l/ is maintained (Frl. [klaːf] < CLAUEM 'key', [glant] < GLANDEM 'acorn', [plan] < PLANUM 'flat', [blaŋk] < *ˈblanku 'white', [flaːt] < FLATUM 'breath') or becomes /r/ (Abr. CLIMAM > [ˈkrima] 'inclination', GLACIEM > [ˈgrattʃa] 'ice', PLATTUM > [ˈpratta] 'flat', *blanku > [ˈbraŋgə] 'white', FLUMEN > [ˈfruma] 'river'; Rohlfs 1966:241-55).

[14] We also find the merger of voiceless stop + /l/ clusters (but not FL), resulting in [kj] (Neapolitan and other southern Italian varieties), [c] (Pugliese and Salentino), and [tʃ] (Ligurian (28c) and southern Sicilian).

positions these clusters evolved in unique ways. Post-consonantally, /pl/ > [tʃ] (AMPLUM > ['antʃo] 'broad'), and intervocalically, /kl, gl/ merged with the outcome of /lj/ (OC(U)LUM > ['oxo] 'eye', TEG(U)LAM > ['texa] 'tile'; cf. FILIUM > ['ixo] 'son'). This merger occurred in many Romance languages: OC(U)LUM/PALEAM > Fr. [œj]/[paj], Cat. [uʎ]/['paʎə], Pt. ['oʎu]/['paʎɐ], Ast. ['wetʃu]/['patʃa] 'eye/straw'. As for the voiced series, we find the /bl/ cluster generally maintained (BLITUM > Sp. ['bleðo] 'amaranth', BLANDUM > Sp. ['blando] 'gentle'), and the /gl/ cluster simplified to /l/ (*gli'rone > Sp. [li'ron] 'dormouse'; Menéndez Pidal 1962:126f.).

The situation described for Spanish is similar to most Romance varieties: a uniform evolution for a particular cluster in a particular dialect is rarely attested. Many evolutionary paths are attested for each cluster in any single variety, depending in part on the position of the cluster in the word (word-initial vs intervocalic, as in Fr. CLAUEM > [kle] 'key' vs OC(U)LUM > [œj] 'eye'), whether the word had a learnèd or popular transmission (as in It. ['klima] < CLIMAM 'climate' vs ['kjave] < CLAUEM 'key'; Pt. ['klaru] < CLARUM 'clear' vs ['ʃamu] < CLAMO 'call.1SG'), and doublets attributed to regional influences (as in Tsc. ['veggja]/['veʎʎa] < UIG(I)LIAM 'vigil') or dialect borrowing (as in Sp. ['tʃopo] < *'ploppu < POPULUM 'black poplar' vs [ʎo'rar] < PLORARE 'to weep'; Lloyd 1987:225f.).

## 39.4.2 Velar stop + coronal consonant

Another context in which palatalization occurs involves a Latin velar stop followed by a coronal consonant, primarily /gn/, /kt/, /ks/ sequences (although other sequences derived through syncope undergo similar processes: FRIG(I)DUM > *'frigdu 'cold').[15] The first step in the process appears to be a change of the velar stop to a palatal glide: FACTUM > Fr. fait 'fact', LAXARE > Fr. laisser 'to leave', perhaps due to restrictions on coda consonants (Elcock 1960:376; Maiden 1995:56). The glide often affected the quality of the preceding vowel (29a), and may have been absorbed by it (29b).

(29)   FACTUM > *'fajto >   a. Pt. ['fejtu] 'fact'
                            b. Sp. ['etʃo]

The velar stop + coronal obstruent clusters often developed into a palatal obstruent (30a)-(31a), which evolved into other fricatives (31b), or was deleted (30b).

(30)   FACTUM >   a. Lmb. [fatʃ], Sp. ['etʃo] 'fact'
                  b. Fr. fait [fɛ] 'fact'

(31)   COXAM >   a. Lig. ['køʃa], Pt. ['koʃɐ] 'thigh'
                 b. Fr. [kɥis] 'thigh', Sp. ['koxo] 'lame'

Sequences involving a postvelar nasal evolved into /jn/ (attested in central and southern Italo-Romance) (32a), and then /ɲ/ (32b) (Rohlfs 1966:23-5; Loporcaro 2011b:149).

(32)   /gn/ >
       a. [jn]   LIGNAM > Isc. ['lejnə] 'wood'
       b. [ɲ]    PUGNUM > Sp. ['puɲo], Pt. ['puɲu], Cat. [puɲ], It. ['puɲɲo] 'fist'

Up to this point, we have mainly investigated palatalization processes in which the trigger comes after the target (e.g. consonant + yod results in palatalization of the consonant). The cases illustrated here show that the trigger can also be before the target (e.g. yod + consonant results in palatalization of the consonant).[16]

Palatalization of velar stop + coronal consonant clusters was not universal, and in some languages the cluster underwent assimilation (33a), the velar stop was deleted (33b), or the velar stop was labialized to a glide (33c) or another consonant (33d) (Rohlfs 1966:368f.).

(33)   a. LIGNUM > Srd. ['linnu] 'wood'; FACTUM > It. ['fatto] 'fact'; AXEM > It. ['asse] 'plank'
       b. LIGNUM > Sora ['lena] 'firewood'
       c. LIGNUM > SItR. ['liwna] 'firewood'
       d. LIGNUM > Ro. [lemn] 'wood'; FACTUM > Ro. [fapt] 'fact'; COXAM > Ro. ['kwapsə] 'thigh'

As in other contexts, there may be more than one outcome within the same language: Ro. ['kwapsə]/['frasen] < COXAM/FRAXINUM 'hip/ash tree', It. ['asse]/[aʃʃella] < AXEM/AXILLAM 'plank/armpit' (Baglioni 2001).

## 39.4.3 /ll, nn/

Latin intervocalic geminate /ll/ and /nn/ underwent palatalization to [ʎ, ɲ] in parts of Ibero-Romance and Italo-Romance (Rohlfs 1966:326-8, 334-6; Baker 2004).[17]

[15] Palatalization did not take place with labial stop + coronal consonant clusters. Instead, we find assimilation (SUBTU > It. ['sotto] 'under'), with subsequent degemination (SEPTEM > Pt. ['seti] 'seven'), or gliding of the labial (CAPTIUUM > Sp. [kaw'tiβo] 'captive').

[16] Another example of the trigger preceding the target can be found scattered throughout northern Italy: /i, y, j/ preceding a nasal results in [ɲ]: LINUM > [liɲ] 'linen', UNUM > *yŋ > [vøɲ] 'one', BENE > *beʲŋ > [beɲ] 'well' (Tuttle 1997: 31; see §39.3.2.)

[17] The Venetian elle evanescente, i.e. the pronunciation of /l/ as a lax dorso-palatal approximant [e̝], or the deletion of /l/ (['gondoe̝a]/['gondoa] 'gondola'), may be an extension of the palatalized outcome of /ll/ to singleton /l/ (Pellegrini 1977:77; Tomasin 2010).

(34)  CABALLUM > Cat. [kə'βaʎ], Cst. [ka'βaʎo] 'horse'
      ANNUM > Cat. [aɲ], Sp. ['aɲo] 'year'

The pronunciation of the modern reflex of Latin /ll/ is a defining characteristic of Spanish varieties. In much of Latin America and parts of Spain, the /ʎ/ phoneme no longer exists, having been replaced by a non-lateral segment, thereby merging with the reflexes of Latin /gj, dj, j/ (see §39.2.2.). These so-called *yeísta* dialects contrast with those which maintain the palatal lateral and, therefore, a distinction between forms such as *calló* [ka'ʎo] 'became. silent.3sg' vs *cayó* [ka'jo] 'fell.3sg' exist (Lloyd 1987:344f.; Penny 1991:93). The palatal nasal is much more resistant to change, although there are Romance varieties, such as Portuguese, in which this segment loses its coronal articulation to become a nasalized glide /j̃/ (Perini 2002:13).

In other Romance languages, these geminates did not palatalize; instead, they remained unchanged (PELLEM > It. ['pɛlle] 'skin', ANNUM > ['anno] 'year'), degeminated (PELLEM/ANNUM > Ro. ['pjele]/[an], Pt. ['pɛłi]/['anu]), or changed in other ways (PELLEM > Sic. ['peɖɖi] 'skin', SPATULAM > *'spalla > Veru (Corsica) ['spada] 'shoulder', UITELLUM > Bergiola Maggiore, Garfagnana [vi'tæðo] 'calf'; Cravens 2002:100).

In Catalan and in some Asturian-Leonese dialects, we find palatalization of word-initial /l/, and in the latter we also find palatalization of word-initial /n/ (Cat. ['ʎunə] < LUNAM 'moon'; Ast.-Leo. ['ɲwestro] < NOSTRUM 'our'; Lloyd 1987:246f; Cravens 2002). This palatalization may be taken to reflect an early strengthened articulation of word-initial sonorants, as shown also by the general Ibero-Romance articulation of initial /r/ as a trill (Lloyd 1987:244-7), a proposal supported by evidence from northern and southern varieties of Italo-Romance (Rohlfs 1966:216, 219; Cravens 2002).

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