The French i-Conjugation from a Diachronic Perspective

Christoph Schwarze
University of Konstanz

Topic and scope of the paper

This paper proposes a sketch of how /sk/, a Latin suffix of word formation, developed into an inflectional stem-extension in the French i-conjugation. I will try to show how an understanding of inflectional classes as sets of properties and implications in the line of Wurzel (1984) and Dressler *et al.* (2003) can be used to reconstruct this process. Moreover, a hypothesis will be proposed regarding the role of lexical storage in morphological change.

The paper is organized as follows: In section 1, I shortly address the general assumptions I am making about inflectional morphology. The topics are: morphological vs. phonological variation of word-forms, the concept of inflectional class as applied to the French i-conjugation, the relative lexical weight of inflectional classes, multiple class membership, the assignment of inflectional class membership, and inflectional classes as features. In section 2, I will give an outline of the evolution of /sk/ during the Latin period. In section 3, I will first discuss the question of why /sk/ could survive after the loss of its meaning and then propose a sketch of the lexical evolution of i-verbs from Old to Modern French.

1. General assumptions
1.1. Morphological vs. phonological variation of word-forms

Studies in inflectional morphology, e.g. Bonami & Boyé (2003), Dressler *et al.* (2003), typically use IPA transcriptions of surface forms as morphological representations, e.g. Fr.

(1)   [səme] or [səm-e] *semer* 'sow$_{INF}$'

(2)   [sɛm] or [səm-ø] *sème* 'sow$_{PRES, SG.}$'

Morphology, however, has an interface with phonology, and the way of representing word-forms as in (1) and (2) does not make it clear whether an observable variation is morphological or phonological in nature. Actually, the root [səm] cannot occur as a closed syllable; cf.

 (3)   [sə.me] vs. *[səm]

Obviously, this is a phonological constraint. Now, if one assumes, as I do, a model of phonology that makes a distinction between underlying ("lexical") and derived ("surface") representations, it may well be that the relationship between [səm] and [sɛm] is a phonological one. One may in fact assume the following: there is a unique lexical representation /səm/ and a post-lexical rule that lowers /ə/ to /ɛ/

in closed syllables, cf. Schwarze & Lahiri (1998). Only the Future&Conditional stem /sɛm/ is morphologically determined, since the vowel of the root, /ə/, is in an open syllable.
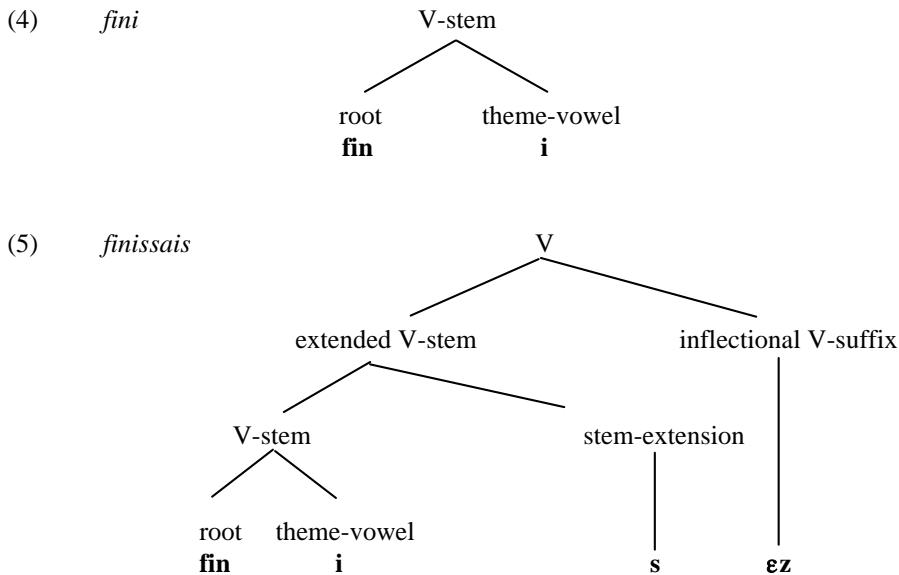
Bonami *et al.* (2008: 1505-1506) criticize recourse to abstract phonological representations and propose an analysis of the French verb that exclusively refers to surface representations. They argue that recourse to abstract phonological representations requires additional assumptions and is less elegant than an analysis that exclusively refers to surface forms. However, there is more at stake than elegance and feasibility. Phonology is a domain of the mental grammar as well as morphology. If it is correct that phonology has an abstract level of representations, why should morphology be modelled without taking this into account?

The distinction between lexical and surface representations will play a role in the synchronical analysis of the s-augment in the French verb: it will be assumed that its distribution is wider than shown by the surface forms.

1.2. The concept of inflectional class

The notion of inflectional class refers to systematic variation of morphological exponence. It is defined as a set of properties and of implications that accounts for the distribution of exponential variants within a given lexical category. The variants to be considered here are affixal exponents in the sense of Corbett & Baerman (2006: 235f). Thus the French class exemplified by *finir* 'finish' is defined by two properties: 1) There is a theme-vowel /i/, which is adjoined to the roots and turns them into stems. 2) There is a stem-extension /s/, which is adjoined to the stem in the Present tense, the *imparfait*, the *participe présent* and derived nouns.[1]

These properties are illustrated by (4) and (5)[2]:

(4)   *fini*

```
              V-stem
             /      \
          root      theme-vowel
          fin            i
```

(5)   *finissais*

```
                          V
                   /             \
          extended V-stem      inflectional V-suffix
            /         \
        V-stem      stem-extension
        /    \
     root   theme-vowel
     fin        i              s         ɛz
```

The two properties are not equal regarding their occurrence. Property 1 also appears in paradigms where property 2 does not hold, e.g. *dormir*. Inversely, property 2 never occurs when property 1 is not present.

As a consequence, the class to which *finir* belongs is characterized by the following implication:

---

[1] Except nouns derived from the Past participle (e.g. *raccourci* 'shortcut').

[2] I am not making a case in the present paper for using this kind of tree-graph in morphology. Adherers of theories that reject them may translate (4) and (5) into their preferred format. The only thing I intend to express here is that the theme-vowel and the /s/ are objects (in the broadest sense) that are parts of verb stems, as opposed to inflectional endings.

(6)   Whenever stem-extension /s/ is present in the paradigm, then the theme-vowel is /i/.

To complete the definition, we state the distribution of each property:

(7)   Theme-vowel /i/ is present in all forms of the verb, including the non-finite forms, and in the stems of derived nouns.

(8)   Stem-extension /s/ is present in all forms of the Present tense, the *imparfait*, the *participe présent* and the stems of derived nouns.

The assertion given under (8) needs an explication: stem-extension /s/ is not directly observable in the Singular of the Present Indicative. However, in a two-level phonological model it can be assumed that the lexical representations contain /s/ also in the Singular, and that /s/ is post-lexically suppressed by final consonant deletion, a rule that recursively deletes coda consonants. Final vowel deletion also cancels the inflectional endings /z/ and /t/ if they are not in a *liaison* situation. The following table illustrates this analysis:

(9)   ***Lexical vs. surface representations***

	Lexical representation	Syllable structure	Surface representations No liaison	Liaison	Spelling
1SG	fini s z[3]	fi.nisz	fi.ni	**fi.ni.zV**	*finis*
2SG	fini s z	fi.nisz	fi.ni	fi.ni.zV	*finis*
3SG	fini s t	fi.nist	fi.ni	fi.ni.tV	*finit*
1PL	fini s onz	fi.ni.sonz	fi.ni.sõ	fi.ni.sõ.zV	*finissons*
2PL	fini s ez	fi.ni.sez	fi.ni.se	fi.ni.se.zV	*finissez*
3PL	fini s ət	fi.ni.sət	fi.nis	fi.nis.tV	*finissent*

With reference to the implication formulated as (6), we call the conjugation exemplified by *finir* "i-conjugation1".

The conjugation exemplified by *dormir* is defined by the following properties: 1) There is a theme-vowel /i/, which is adjoined to roots and turns them into stems. 2) There is no stem-extension /s/. Theme-vowel /i/ is present in the *passé simple*, the infinitive, and the past participle. We name this class "i-conjugation2".

The numbering refers to the hierarchical relationship between both classes, as shown by Dressler *et al.* (2003). However, we do not use the concept of macro-class (Dressler *et al.* 2003), because we do not aim at analyzing the full inflectional system of the French verb. What matters in the present study is the strong association of theme-vowel /i/ and stem-extension /s/ in i-conjugation1 as well as the difference in "lexical weight" (see 1.3) between i-conjugation1 and i-conjugation2.

1.3. The relative lexical weight of inflectional classes

Since a given inflectional class is a property of a set of lexical words or roots, inflectional classes are lexical structures and need to be represented as such. This means that inflectional morphology needs to know which verbs belong to which conjugation. Since it can safely be assumed that inflectional class membership cannot be derived from other properties of the root, it must be retrieved

---

[3] It is not obvious that the underlying form of the 1st person singular has an inflectional ending /z/, since this /z/ is virtually never heard in normal speech. It may however be realized as a liaison consonant in a solemn register, in particular when traditional verse is pronounced. In normal speech the 1st person singular just has no liaison contexts.

from arbitrary information contained in the lexicon. The formal status of this kind of information depends on the relative lexical weight of the various conjugations.

By relative lexical weight we understand the following: The sets of lexical items contained in an inflectional class *C* may vary along size and productivity. Size refers to the number of lexically stored items contained in *C*, productivity refers to the ability of *C* to accept new items. Relative lexical weight ranks the inflectional classes of a given languages in a continuum, whose poles are the dominant class on one hand, with the highest size and productivity, and the smallest class on the other, with the lowest size and no productivity.

The dominant class of the French verb is the one exemplified by *parler* 'speak'. We call it the "e-conjugation", because it has theme-vowel /e/ in the Infinitive and the Past Participle.

The class we named i-conjugation1 (exemplified by *finir*) is located immediately below that dominant class; cf. Bonami & Boyé (2003: 120). In our database there are 398 verbs that belong to this class.

Interestingly, 119 among these verbs have an ingressive meaning and are derived from primary, monosyllabic adjectives, such as *grand - grandir*, *rouge - rougir*, *plat - aplatir*, *rond - arrondir, noir - noircir, court - raccourcir*. The number of deadjectival verbs that are derived without a suffix and belong to the dominant class is quite small: I counted 25 verbs (10), 9 of which show irregular root alternation (10b). For each item I give the orthographic form and the lexical representation of the (regular) adjectival root[4]:

(10)   a. *affiner* /fin/, *aggraver* /gʁav/, *ajuster* /ʒyst/, *amocher* /mɔʃ/, *attrister* /tʁist/, *bistrer* /bistʁ/, *calmer* /kalm/, *condenser* /dɑ̃s/, *empirer* /piʁ/, *enivrer* /ivʁ/, *ensauvager* /sovaʒ/, *fausser* /fos/, *griser* /gʁiz/, / *renouveler* /nuvel/, *sécher* /seʃ/, *vider* /vid/.
       b. *abréger* /bʁɛv/, *allonger* /lɔ̃g/, *améliorer* /mɛjœʁ/, *baisser* /bas/, *chauffer* /ʃod/, *égayer* /gɛ/, *enjoliver* /ʒoli/, *hausser* /ot/, *renforcer* /fɔʁt/.

The verbs under a. are the marked regular alternative; their class-membership must be lexically encoded. The verbs under b. have roots that show unpredictable allomorphy. In both cases class-membership is a lexical property. It follows that i-conjugation1 is the default class for deadjectival verbs. It is not easy to decide whether this derivation is still productive, since the number of primary adjectives is limited. But Boyé (2000: 23) gives evidence in favour of the productivity. He reports that speakers not only accepted non-lexicalized verbs such as *orangir* 'become orange', cf. *orange* 'orange', or *siennir* 'become amber', cf. *sienne* 'amber', but also produced all their forms without hesitation.

1.4. Multiple class membership

A given word, or stem, may belong to more than one inflectional class (see, for instance, Aronoff 1993: 49). More precisely, its paradigm may be composed of sub-paradigms, each of which belongs to a different class. Thus Fr. *ouvrir* has the theme-vowel /i/ in the Infinitive, the Future, the Conditional and the forms built on the Perfect stem, whereas all other forms, except the irregular Past Participle, belong to the dominating default class. This way of capturing a specific kind of descriptive irregularity has the advantage of narrowing down the number of inflectional classes. They should be less than the 15 classes counted by Bonami & Boyé (2003: 121), who use that number as an argument against analyzing the French verb in terms of inflectional classes. Assuming multiple class membership also makes "stem indexing features" (Corbett & Baerman 2006: 240) unnecessary. Technically, that approach treats verbs of the *ouvrir* type as if they were suppletive, i.e. verbs with extreme root variation such as Fr. *aller* or *être*. Useful as this treatment may be for computational applications, it does not capture an interesting lexical fact.

---

[4] All IPA transcriptions, here and in the following, are to be read as abstract lexical representations, from which the observable surface forms are post-lexically derived.

1.5. The assignment of inflectional class membership

The assignment of inflectional class membership depends on the relative lexical weight of the class. The dominant class is assigned by default once the lexical category of the root is known, whereas membership in the non-dominant classes is encoded in the lexicon. (Hence the lexicon of languages with inflectional classes cannot contain just roots.)

Inflectional class membership may also be assigned in word formation. If derivational affixes are considered as a particular kind of lexical items, they are assigned an inflectional class, which is then projected to the words derived by it. Clear examples can be found in Italian: suffix *-bil-*, as in *preferibile* 'preferable', belongs to the e/i-conjugation, and projects this property to the adjective stem. Inflectional class membership agreement is required between the stem and its ending; cf. (11):

(11)
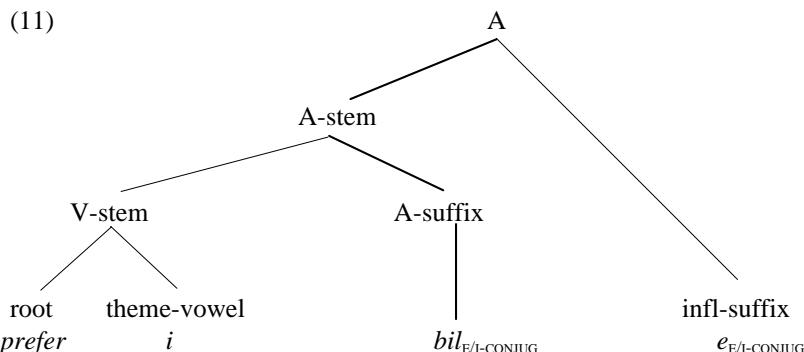
Regarding the French verbs, derived forms normally belong to the dominating e-conjugation. If, however, it should be the case that French deadjectival verbs of i-conjugations1 are derived by a rule of word formation (see 1.3 above), then that class is assigned by that rule.

1.6. Inflectional classes as features

In the literature, an inflectional class is generally regarded as being a feature, it is even said to be "the best known type of morphological feature" (Kibort 2008). However, according to the definition proposed above, representing inflectional classes as features is just a notational device, efficient especially in a unification-based framework as the one we are using here. We write features as pairs of attributes and values. For example, the lexical representations of verb root *fin-* and stem-extension /s/ both contain the feature [↑INFL_CLASS = i_1]; cf.

(12)   *fin*, V
        ↑INFL_CLASS = i_1

(13)   *s*, Stem-extension
        ↑INFL_CLASS = i_1

The arrow is an notation for a function that projects the features to the dominating node, where they are subject to unification. This is the mechanism that accounts for inflectional class agreement.
Inflectional class features are "purely morphological features" (Corbett & Baerman 2006: 235). Unlike morphosyntactic features, which are involved in syntactic constraints and/or semantic interpretation, they are not projected beyond the word level.
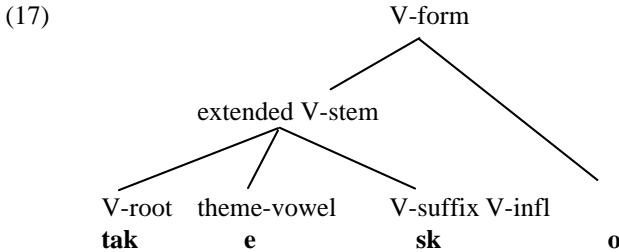
2. Latin /sk/

It is well established that the French stem-extension /s/ goes back to a meaningful Latin suffix, /sk/. This suffix turned adjectival and verbal roots into verbs and triggered a semantic change, turning state predicates into predicates that denote changes of state or the initial stage of such changes. If de-

composed, these predicates contain the basis predicate become (x, p), i.e., they denote ingressive or inchoative events.

2.1. Constituency and distribution

To give an example: Latin *tacesco* 'become silent' is derived from *taceo* 'be silent'. The root of both forms is /tak/, the /e/ that follows is the theme-vowel of the 2nd Latin conjugation, and the /o/ at the right-hand edge is the ending of the 1st Person Singular Present Indicative Active, the conventional quotation form. So the (simplified) constituency of *tacesco* is the following:

(17)

```
                          V-form
                         /      \
                        /        \
            extended V-stem       \
              /    |    \          \
             /     |     \          \
        V-root  theme-vowel   V-suffix V-infl
         tak       e            sk        o
```

Notice that, although the theme-vowel of *tacesco* is the theme-vowel of the 2nd conjugation (and *taceo* actually belongs to that conjugation), *tacesco* is 3^{d} conjugation. The strong link between stem-vowel and inflectional class, which is pervasive in the system, is dissolved in the case of the sk-verbs. They inherit their theme-vowel from their derivational base, but the inflectional class of the derived verb is determined in the process of derivation. This is not very surprising, given that /sk/ is a suffix of word formation. In fact, when verbs are turned into nouns, they keep their theme-vowel, but swap their verbal inflectional class with a nominal one, which is dependent on the derivational suffix. Thus Lat. *imito* 'imitate' has theme-vowel /a/ (Infinitive *imit-a-re*) and is 1st conjugation, and its theme-vowel is present also in the noun *imit-a-t-io* 'imitation', which belongs to the nominal 3rd conjugation. However, in verb-to-noun derivation, the theme-vowel is so to speak encapsulated, whereas in the verb-to-verb derivation, a clash is apparently possible between the theme-vowel and inflectional class membership[5]. Interestingly, the number of Latin verbs like *dur-a-sk-o* 'become hard', where such a clash occurs, decreases in the course of time, in favor of verbs with /e/, which is the theme-vowel of the 3rd conjugation, and at the stage of Italo- and Gallo-Romance, where /sk/ is no longer a suffix of word formation, the possibility of such clashes has entirely disappeared.

It is noteworthy that Latin /sk/ had a restricted distribution: it could not appear in the Perfect tense and all other forms built on the Perfect stem. *Taceo* and *tacesco* had the same Perfect, *tacui*, which means 'I fell silent'. This fact may be explained as an effect of the interplay of the meaning of the Perfect and the meaning of /sk/ on one hand, and the avoidance of redundancy on the other. The Perfect had an inchoative reading, so the suffix, whose meaning also was inchoative–cf. (19) below– would have made the forms of the Perfect redundant.

2.2. Semantics

Semantically, /sk/ is a function that applies to one-place as well as to two-place predicates. I show its effect only for the case of one-place predicates. (18) is the general form of the input, and (19) the general form of the output.

(18) $\lambda x \ p1(x)$

(19) $\lambda x \ \exists e \ p2(e,x)$ where [$p2$ = BECOME$(e, x, p1(x))$]

---

[5] In this formulation, the term clash is merely descriptive. In our LFG-based framework, projection of the theme-vowel's class feature can be prevented; in such a way that unification with the derived verb's class feature does not fail.

As an instantiation, I show the representations of *taceo* and *tacesco*, see (20) and (21):

(20) *taceo* λx be_silent(x)

(21) *tacesco* $\lambda x \exists e$ BECOME_silent(e, x)

So far, I have given an incomplete and highly idealized picture of Latin /sk/. In reality, there was an evolution, which involved semantic variation and bleaching and ended up with total loss of meaning. This evolution has been explored and documented in great detail by Haverling (2000). On this basis, Schwarze (in press) distinguishes three crucial intermediate stages of the semantic evolution, a "dynamic", an "ingressive" and a "void" reading of /sk/, and proposes representations for each of them. For the purpose of the present paper, it may suffice to mention only the last of these readings, the void one. It differs from the other two readings in two points: first, /sk/ does not bring about any noticeable change of meaning, and, second, the verbs to which it is affixed must denote an event, i.e., their meaning must be of the general form represented in (22):

(22) $\lambda x \exists e$ p(e,x)

So, the event variable that is introduced in (20)-(21) by /sk/, must already be there for /sk/ to be affixed. This is the point of reversal: there still is a semantic constraint on the input, but there is no semantic effect any longer.

3. French /s/
3.1. The function of /s/ and its persistence

The semantic change from Latin /sk/ at its last stage to French /s/ is a small one. It just completes the process of bleaching: at the French stage, not only the semantic effect has disappeared, but also the semantic input condition. This loss was not compensated by the emergence of some new morpho-syntactic feature. The only feature associated with /s/ concerns class membership, supporting just a morphological well-formedness condition. One may wonder why it should be that such a meaningless, morphology-internal constituent survived. An answer to this question has been proposed by Maiden (2004). He claims the following: /sk/ survived in Romance because it does have some kind of meaning. It is a sign of a particular kind: its *signatum* is class-membership.

Let us examine this claim with respect to French. Applied to that language, it means that stem-extension /s/ is a sign, whose *signatum* is that any verb in whose paradigm it occurs is a member of i-conjugation1. The question now is whether this formulation is equivalent to the implication mentioned under (6) above, which I repeat for convenience:

(6) Whenever stem-extension /s/ is present in the paradigm, the theme-vowel is /i/.

If Maiden's claim about /sk/ being a sign should amount to nothing else than (6), there would just be a question of wording, which I would not care to discuss. But in this interpretation it would be hard to understand how /sk/ being a sign could preserve it from disappearance.

So, let us take the word "sign" in its fuller, referential sense: a sign's purpose is to be used for reference in communication. Its chances to survive in a process of structural change depend on whether it is actually useful for the speakers. Now, for whom may it be useful to know that a given verb-form, whose segmentation may highlight the presence of stem-extension /s/, is an instantiation of a verb that belongs to i-conjugation1? The answer is that only the learner benefits from such information. In the process of acquiring the morphology of the French verb and, in particular, the lexical distribution of its inflectional classes, learners may discover implication (6) and use it for building up lexical representations of words that are new to them. This procedure may be described in the following way:

    a.   The learner knows that whenever stem-extension /s/ is present in the paradigm, then the theme-vowel is /i/.

    b.   He[6] hears a verb-form yet unknown to him, e.g. [ʁyʒis] *rugissent* in *les lions rugissent* 'the lions roar'. He knows that the final /s/ may be either the stem-extension of i-conjugation1 or the right-hand edge of a root, as in [tabas] *tabassent* '(they) beat up'.

    c.   So he tentatively segments [ʁyʒis] into /ʁyʒ i s/ and identifies /s/ as the stem-extension. But he does not exclude, at this stage, a different morphological parsing, where [ʁyʒis] is not segmented. In this alternative, the form might be an instantiation of a hypothetical verb *rugisser*, which would belong to the e-conjugation.[7]

    d.   He leaves the alternative open until he encounters some form that resembles [ʁyʒis], but has no final /s/, as e.g. [ʁyʒis] in *le lion rugit* 'the lion roars'.

    e.   He concludes that there is a verb, whose root is /ʁyʒ/, and which belongs to i-conjugation1.

    f.   He stores this information in his mental lexicon.

The stem-extension may well be called a sign in such a process, although its identification depends on comparison.

The question, however, is whether being a sign in this sense can be an explication for the survival of /sk/. Is there any evidence for the assumption that having some kind of "meaning" has the force of preserving morphological constituents from disappearance? The complexity of Latin morphology was reduced in the transition to Romance. In some cases, the feature stayed and its realizations switched from morphology to syntax. One example is the Passive, morphologically realized in Latin and syntactically in Romance. A feature may also be lost together with its realizations; the Latin Neuter is an example. Changes of this kind are apt to raise scepticism about the preserving power of /sk/ being a morphology-internal sign.

To explain the persistence of /sk/, one may rather think of a fundamental difference between formal and semantic variation: form seems to be more stable than meaning. Synchronically, polysemy is a pervasive property of language, that is, variation of meaning does not determine variation of forms. Likewise, diachronic meaning change does not imply formal change, even if the semantic change ends in a total loss of meaning. If a meaningless form is supported by some context, it may well survive. There are obvious examples in the lexicon. Germ. *Fug* and Fr. *fur* have no lexical meaning in the present day language, but they survive in idioms; see (14) and (15):

    (14)   Germ. *Das kann man mit Fug und Recht behaupten* 'this may justifiably be affirmed'

    (15)   Fr. *Au fur et à mesure que la soirée avançait, ...* 'as the evening went on, ...'

There also are obvious such cases in lexical morphology. Thus in German, the Genitive marker /s/, which is reserved to Masculine and Neuter nouns, appears as a totally meaningless and arbitrary "gap-filler" (Germ. *Fugen-S*) in compounds; cf. (16):

    (16)   Germ. *im Krankheitsfall* 'in case of illness,' but *im Notfall* 'in case of emergency'

So we should not be surprised to encounter meaningless constituents in inflection.

---

[6] I am using "he" as shorthand for "he or she".

[7] One of my anonymous reviewers drew my attention to the fact that there actually are cases of homonymy, where one phonological string realizes two verbs, belonging to the e-conjugation andi-conjugation1 respectively; *tapissons*, which is the 1rst pl. of *tapisser* 'wallpaper' and *(se) tapir* 'crouch'. The same reviewer reports that "adult native speakers tend to hesitate when presented with forms like *je grudis* (*grudir/grudier*) ou *vous grudissez* (*grudir/grudisser*)".

3.2. Is there an alternative explanation?

One of my anonymous reviewers suggested the following analysis: In transparent deadjectival verbs whose root is followed by {/i/, /is/}, that string, instead of being the sequence of a theme-vowel and a consonantal stem-extension, is a meaningful derivational suffix. As such it had a diachronic persistence strong enough to also support the survival of the string in those verbs where it did not have a meaning. This actually is an appealing idea. We would simply have to assume that the Latin suffix -sk-, after having lost its meaning, became meaningful again and that the theme-vowel /i/ was reanalyzed as a part of the suffix.

In order to test this assumption, let us see how it fits into the morphology of the French verb and, more specifically, its system of inflectional classes. One of its implications is that, since there is no stem-extension, there is no need to distinguish two subclasses of i-verbs. Verbs like *rougir* (i-conjugation1) and *sentir* (i-conjugation2), would have identical endings in all forms except in those where the theme-vowel is expected, i.e. the Past participle and the Infinitive. These forms are /sant-i/, /sant-i-ʁ/ for *sentir*, as opposed to /ʁuʒ-i-i/ and /ʁuʒ-i-i-ʁ/ for *rougir*. In these latter forms, the first /i/ is a reduced variant of the suffix /is/, and the second is the theme-vowel. In post-lexical phonology then, word-internal hiatuses of the same vowel are converted into one syllable by deletion. Thus all endings of *rougir* and *sentir* are identical on the surface.

However, there are two other points that put this analysis into question. First, all other French verbs derived via a suffix belong to the e-conjugation; so, if /is/ is a derivational suffix, one would expect [ʁuʒ+is+e] *rougisser*, just like, e.g., [solid+ifi+e] *solidifier*. Second, that hypothetical suffix varies between /is/ and /i/. This variation is allomorphy, it is not controlled by any rule of post-lexical phonology. On the contrary, its distribution is defined with respect to the inflectional paradigm of the verb. No other derivational suffix of French has this property.

Thus, the proposed hypothesis of /is/ being a derivational suffix does not fit well into the overall picture of French morphology. Although we did not really falsify it – it makes no false predictions –, we maintain our initial analysis, according to which /is/ is a sequence of a theme-vowel and a consonantal stem-extension. This does not exclude, of course, that there is a strong association between deadjectival verbs and i-conjugation1 and that this association has a clear semantic aspect; cf. Schwarze (1999), Boyé (2000: 23).

3.3. Decomposing the change

The change that leads from this point to the French stem-extension /s/ can be decomposed into the following steps:

a. The loss of -sk- as a derivational suffix
b. The emergence of -sk- as an inflectional suffix
c. The merger of /i/-verbs and -sk-verbs
d. The distribution of -sk- within the new paradigms
e. Lexical spreading and the survival of -i-verbs without -sk-

The motivation of this decomposition is methodological: it is meant to make the overall process more transparent. Hence, it is neither chronological, nor are the partial processes entirely independent from each other. Processes a. and b. are intertwined and precede the others, logically and in time. Likewise, process e. logically presupposes process d., and chronologically is coextensive with it.

Step a., the loss of /sk/ as a derivational suffix, is a small one and just completes the process of bleaching that had been going on for centuries: after /sk/ no longer produced a change of lexical meaning, it also lost its semantic constraint on possible bases.

Step b., the emergence of /sk/ as an inflectional suffix, is more surprising. Schwarze (in press) assumes that there was a stage when it was present in lexically stored word-forms. It is assumed that word-forms, like their meaningful constituents, are configurations of layered information: there is

• A phonological shape, i.e. a string of phonological segments,

- A constituency structure, where categorial, viz. distributional information is encoded,
- A functional structure, where grammatical features of all kinds are localized, and
- A semantic representation.

As long as /sk/ was a meaningful suffix, it had the same kind of layered representation. When a verb-form containing that suffix was stored in the lexicon, it was accessed as a whole, and the suffix was not processed when the form was used. However, it still was accessible, and supported by morphology. When /sk/ lost its status as a suffix of word formation, only its phonological shape stayed present in the lexicalized word-forms, which became partially opaque. As a consequence, the string that preceded the ending was too long to be a root. In this situation there was pressure for reanalysis, and the domain in which reanalysis could take place was inflection. In fact, this kind of reanalysis was completely consistent with the general morphological structure of the Latin and Proto-Romance verb. In Latin, /sk/ was the only verbal suffix of word formation; all other constituents that followed the root were inflectional. After the loss of /sk/ as a suffix of word formation, it was completely natural for its lexicalized vestiges to be reanalyzed within inflectional morphology.

Step c., the merger of /i/-verbs and -sk-verbs, is an aspect of the general reorganization of the inflectional system that took place in the transition from Latin to Proto-Romance. As has been said above, all sk-verbs belonged to the third conjugation. In Proto-Romance the second and third Latin conjugations partially merged; cf. Tekavčić (1980: 255). In addition, due to the presence of an /i/ in a subclass of the third conjugation (examples *fugere – fugio* 'flee') and to the sound change that turned short prevocalic /e/ into /i/ (example *florĕo > florio* 'blossom'), numerous forms of the second and third conjugation resembled forms of the fourth conjugation. Thus *fugio* (third conjugation) and *florio* (second conjugation) resembled *audio* 'hear' (fourth conjugation) and were "attracted" to that inflectional class. *Fugĕre* became *fugire > Fr. fuir*, and *florēre* became *florire > Fr. fleurir* (Tekavčić 1980: 256); cf. (23):

(23)

1 sg ind pres	Lat. conjug.	Lat. Infinitive	Proto-Rom. Infinitive
fugio	3rd	*fugĕre*	*fugire*
florĕo > florio	2nd	*florēre*	*florire*
audio	4th	*audire*	*audire*

But this lexical enlargement of the Latin fourth class is not a fully satisfactory explanation of the fortune which /sk/ had in this class. Since words, not suffixes, undergo changes of inflectional class, one would like to see Latin sk-verbs of the third class that moved to the fourth class. Such verbs, however, are hard to find.[8] A bridge may be seen in the fact that there are Latin deponents of the third class that had the sequence long /i/ plus /sk/ at the right-hand edge of their stem.[9] The long /i/ of these verbs belonged to their root, but could easily be reanalyzed as the theme-vowel /i/ of the fourth conjugation.[10] However, there remains a doubt, because we do not know whether the deponents were still present when the massive switch of -sk-verbs to the fourth conjugation took place.

---

[8] The only Italian cases I know of are *capere* 'seize' > *capire* 'understand' and *tradere* 'betray' > *tradire*. In French, a few verbs of the Latin third conjugation kept their class in the beginning, but then adopted theme-vowel -i- in the infinitive, without becoming true fourth conjugation verbs: Lat. *currere* 'run' > OFr. *courre* > Modern Fr. *courir*; Lat. *quaerere* 'search' > OFr. *querre* > Mod. Fr. *-quérir* as in *conquérir* 'conquer'. A few verbs of the Latin second conjugation belong to the fourth in French: *gaudere* 'enjoy' > *jouir*, *implere* 'fill' > *emplir*, and one Old French verb of the first conjugation now belongs the fourth: *finer > finir*.

[9] Cf. the following list, which is compiled from Haverling (2000:399ff), Gildersleeve & Gonzalez Lodge (1997: 112f), and Lewis & Short (1879): *apīscor* 'get', with prefixed verbs *adipīscor, indipīscor* 'get', *redipīscor* 'get back'), *comminīscor* 'think up' and *reminīscor* 'remember', *ercīscor* 'divide', *expergīscor* 'awake', *fatīscor* 'grow tired', *frunīscor* 'enjoy', *nancīscor* 'try to get', *oblivīscor* 'forget', *pacīscor* "drive (a bargain)', *proficīscor* 'set out', *ulcīscor* 'avenge'.

[10] It is interesting in this context that *nancīscor* 'try to get' has a -sk-less variant of the 4th conjugation, *nancio* and deponent *nancior* (short /i/), Infinitives *nancīre* and *nancīri*).

In order to discuss step d., the distribution of /sk/ within the new paradigms, it will be useful to have a look at Italian. In that language, /sk/ only appears in the Present tense, and even there, it does not appear in all cells: the first and second Person Plural have no /sk/. The absence of /sk/ from a number of cells already was a fact in Latin; as we have seen, all forms built on the Perfect stem did not have it. But the Italian distribution is restricted to the Present. We can explain this if we remember the assumption that /sk/ survived in lexicalized inflected forms: only frequently used forms get lexicalized, and it is reasonable to assume that the forms of the Present were more frequent than those of the other tenses. But this does not explain why the 1st and 2nd Persons of the Plural should not have it. The solution of this puzzle is due to Martin Maiden, see e.g. Maiden (2004). He showed that sound change brought about a pattern for root vowel alternation, which then became a model for other kinds of variation, including the distribution of /sk/ in Italian; cf. (24):

(24)

	It. root vowel	Fr. root vowel	It. /sk/
1 sg	*mu**o**io*	*m**eu**rs*	*fini**sc**o*
2 sg	*mu**o**ri*	*m**eu**rs*	*fini**sc**i*
3 sg	*mu**o**re*	*m**eu**rt*	*fini**sc**e*
1 pl	*m**o**riamo*	*m**ou**rons*	*fin**i**amo*
2 pl	*m**o**rite*	*m**ou**rez*	*fin**i**te*
3 pl	*mu**o**iono*	*m**eu**rent*	*fini**sc**ono*

The question now is, whether French /s/, the successor of /sk/, passed through this stage. Maiden's answer is yes, there was a stage where the distribution was exactly the same; the larger distribution of /s/ in French is do to paradigmatic spreading.

On the other hand, the larger distribution of /s/ in Modern French is more similar to the distribution of /sk/ in Latin; so one might think that French directly continues Latin, without passing through the Italian stage. However, I tend to follow Maiden's analysis, for two reasons: first, leveling, i.e. paradigmatic spreading, was a permanent factor in the evolution of the French verb, and second, the continuity hypothesis would not be consistent with our explanation of /sk/'s survival: according to the assumption that it survived in lexicalized word-forms, and that word-forms are lexicalized only if they are frequently used, all French forms that show /s/ should have had high frequency, which is quite improbable.

So I tend to assume that the distribution of stem-extension /s/ in Modern French came about by paradigmatic spreading: it reached all cells except those of the Perfect (the *passé simple*) and its Subjunctive (the *imparfait du subjonctif*), the Future and Conditional, the Infinitive and the *participe passé*. The question then is why did these parts of the paradigm resist the spreading? The kind of answer I am thinking of and which needs further exploration, is the following: There seem to be paths of spreading with varying distances within the overall paradigmatic structure. Spreading happens gradually along these paths, and remote regions are reached later, or, if the spreading process stops for some reason, are not reached at all. So the paradigmatic regions of resistance may be considered too remote to be reached before standardization interrupted the process of paradigmatic spreading. There is some independent evidence for this assumption: the forms based upon the Perfect and Future stems have their own Person-and-Number endings, their stems are grouped into separate, homogeneous partitions, and their stems have been levelled at a late stage or have not been levelled at all. In (25) I give some examples from the Future:

(25) 1sg Fut. of *donner* 'give', *laisser* 'let', *mener* 'lead', *envoyer* 'send', *valoir* 'be worth'

Basic root	OFr.	Middle Fr.	Mod. French
don/dun	durrai	dunerai	donnerai
men	merrai	menerai	menerai
les	lerrai	lesserai	laisserai
anvoj	anverrai	anverrai	enverrai
val	valdrai	vaudrai	vaudrai

Step e., lexical spreading and the survival of i-verbs without -sk-, concerns verbs like *dormir* or *sentir*. These verbs belonged to the plain i-conjugation in Latin, and it is surprising that they did not participate in the process that made /sk/ a prominent characteristic of the Romance i-verbs. And not only did they resist the lexical spreading of /sk/; they also lost theme-vowel /i/ in some cells of the paradigm; cf. (26):

(26)

	Latin	French
1sg ind pres	sentio	sens
2sg ind pres	sentis	sens
3sg ind pres	sentit	sent
1pl ind pres	sentimus	sentons
2pl ind pres	sentitis	sentez
3pl ind pres	sentiunt	sentent
1sg ind perf	sentivi	sentis
part perf	sentitum	senti

The reason why /i/ disappeared from the forms above the bold line has nothing to do with the morphology of the stem. The theme-vowel in the Singular and in the 3rd Person Plural was deleted by sound change. In the 1st and 2nd Plural, where it could have survived sound change, the Person-and-Number endings where leveled across all inflectional classes during the Old French period. The result was a mixed conjugation.

But why, in the first place, did these forms not accept /sk/? The answer I propose again involves the lexicon. It may be assumed that some inflected forms of these verbs were lexicalized strongly enough to be immune against the intrusion of /sk/. In fact, lexicalization is relative, its strength depending on the frequency of use. It may well be assumed that several forms of verbs such as *dormire*, *sentire* and similar were quite solidly stored in the speakers' lexicon. As a consequence, the i-verbs split into a rather large subdominant class, i-conjugation1, and a very small, more archaic subclass, i-conjugation2.

Let us now go on to look at the evolution of /sk/, turned into /s/, in Northern Gallo-Romance and French.

3.4. The lexical evolution

In this section I will address more in detail the lexical evolution of i-conjugation1 from Old to Modern French.

The data for Old French have been retrieved from the following sources:

The Modern French database contains, for each verb, the date of its first attestation. All verbs attested before the year 1400 have been copied into the Old French database.

This list has been completed "manually", i.e. on the basis of a Romanist's experience with Old French texts. Each of the added items has been checked by searching the *Nouveaux Corpus d'Amsterdam* (Stein *et al.* 2008) and by looking up the glossary and the paradigms contained in Bartsch (1908). The *Nouveaux Corpus d'Amsterdam* contains 3.3 million words (tokens), which are

lemmatized and morphologically annotated. The list thus made up contains 379 i-verbs, i.e. verbs that have /i/ in their Infinitive ending.

In order to retrieve the attested word-forms, all words of the list have been searched for in the *Nouveaux Corpus d'Amsterdam (NCA)*. Only 138 from the 379 items of the list, that is 36%, have been found in the Corpus. The forms to be entered into the database were the Infinitive, the 3rd Person Singular Subjunctive, the Future, the Perfect Indicative or *passé simple*, and the Past Participle. If a given form could not be found, another similar form was entered. For instance, the 1st Person Singular Future of *revertir* 'come back' was not found, but the 3rd Person, *revertira*, was found, and was taken as a valid attestation of the Future of that verb. A verb could redundantly be shown to belong to i-conjugation1 if it had theme-vowel /i/ in all of these cells and stem-extension /s/ in the 3rd Present Subjunctive. The evidence was regarded as sufficient if the 3rd Person Present Subjunctive ended with the string written *-isse* and /i/ was present in the ending of one of the other forms. Only 15 verbs could be found to belong to i-conjugation1. Here is the list; the verbs are given in the NCA orthography:

(27)   convertir, dessaisir, finir, frémir, garantir, guerpir, honir, issir, jouir, languir, norrir, obeir, perir, ravir, saisir.

For those i-verbs whose membership of i-conjugation1 could not be attested it was inferred that they belonged to that class in Old French already whenever no information of the contrary was available. Table (28) shows the results thus obtained and contrasts them with the figures for Modern French:

(28)   Figures for i-verbs (types)

	all i-verbs	verbs belonging to i-conjugation1	percentage of verbs belonging to i-conjugation1
OFr. total	379	216	56.5
OFr. NCA	138	15	11.0
ModFr.	398	313	90.0

Since the figures given in row "OFr. total" contain a high number of verbs whose class membership is only inferred, they are not fully reliable: the percentage ascertained for i-conjugation1 may be too high. On the other hand, the percentage ascertained for attested verbs belonging to i-conjugation1 may be too low, because one might get higher values in other corpora. However that may be, the table shows that there is a sharp increase, from Old to Modern French, of the verbs belonging to i-conjugation1.

Interestingly, this strong quantitative increase of i-conjugation1 is rather due to lexical renewal than to switches to a different inflectional class.[11] 77 Old French i-verbs are no longer present in Modern French, and only three of them survived as members of the dominant e-conjugation, whereas 16 of the lost i-verbs had not belonged to i-conjugation1. Moreover, from the 103 i-verbs that first appeared since 1400, only 6 do not belong to that class. [12]

---

[11] Bonami *et al.* (2008: 1500) claim that switches of inflectional class "almost always go from group 2 (= our i-conjugation1) and 3 (a kind of residue class) to group 1 (the dominating class) ["les changements de classe en diachronie … vont presque toujours des groupes 2 et 3 vers le groupe 1"]. This may be true, but the cases seem to be very few. One reviewer adds the following: "In modern French this very limited phenomenon touches *bruire* and *revêtir* moving toward C_i and for *bruire* maybe going on to C_e *bruyer* or towards the split-paradigm of *fuir*", he also mentions *assortir*/*ressortir,* with a question mark.

[12] The Modern French i-verbs of our database that are not attested before the year 1400 are the following: *abasourdir, abêtir, abrutir, agir, agonir, aguerrir, alanguir, alunir, amerrir, amuïr (s'), anordir, assainir, assombrir, assujettir, atterrir, aveulir, barrir, bleuir, blottir (se), calmir, candir (se), chancir, clapir, clapir (se), compatir, concourir, décatir, décrépir, définir, défraîchir, défranchir, dégauchir, dégrossir, démaigrir, démunir, dépolir, déraidir, désassortir, désengourdir, désinvestir, désunir, dévernir, disconvenir, divertir, doucir, écrouir, effleurir, empuantir, estourbir, forcir, infléchir, interagir, intervertir, maigrir, mégir, mincir, mollir, nordir, parcourir, pâtir, pervertir, préétablir, pressentir, prévenir, rabougrir (se), ragaillardir, ralentir, ramollir, rancir, rappointir, rassir, réagir, réassortir, rechampir, réchampir, reconvertir, recrépir, redécouvrir, redéfinir, regrossir,*

There is another interesting fact about the status of i-conjugation1 in Northern Gallo-Romance. During the phase of Romance-Germanic contact, which was anterior to the beginning of writing in the vernacular, a number of Germanic verbs had been borrowed; cf. the following list:

(29) *accroupir[13] (s')* 'squat down', *blondir* 'become blond', *brandir* 'brandish', *brunir* 'become dark', *debastir* 'take off the pack-saddle', *deguerpir* 'leave', *esbaudir* 'cheer up', *esblouir* 'dazzle', *enlaidir* 'become or make ugly', *enrichir* 'make rich', *forbir* 'exhaust', *fournir* 'supply', *franchir* 'cross', *garantir* 'guarantee', *garnir* 'fill, stock, garnish', *garir* 'heal', *honnir* 'execrate', *meurtrir* 'hurt, bruise', *ravir* 'rob', *regarnir* 'fill again'.

All these verbs belong to i-conjugation1, i.e. they have theme-vowel /i/ and stem-extension /s/. The Germanic verbs to which these French verbs go back had complex stems, which consisted of a root plus /j/, a suffix of word formation, which derived causative verbs from nouns; cf. (30) and (31):

(30)   Fr. *brandir* < Old Frankish *brandjan*

(31)
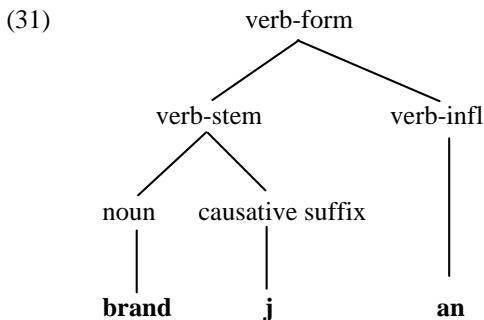
We may assume that the speakers of Gallo-Romance who borrowed verbs of this kind, identified the Germanic /j/ with their own theme-vowel /i/. Stem-extension /s/, however, had no counterpart in the Germanic verb. Obviously, for the speakers of Gallo-Romance of the 4th century, theme-vowel /i/ already implied stem-extension /s/; the /s/-less subclass of i-verbs was not an option. So they behaved very much like the learner of Modern French, whose hypothetical strategy I have described above, and we may conclude that i-conjugation1 was well established in the language of Northern Gaul centuries before we have written records.

Conclusion and outlook

As a conclusion, I would like to address a few points of method. Regarding the study of grammatical change, I hope to have shown that assumptions about the speaker, and in particular about the mental lexicon and its acquisition, may help to understand change, provided that such hypotheses meet explicit representations of form and content. As far as the theory of inflectional classes is

réinvestir, rejaillir, rembrunir, renforcir, renformir, resalir, rétroagir, réunir, réussir, revernir, rosir, roussir, roustir, sévir, subir, surenchérir, surgir, surinvestir, surir, tartir, travestir, vagir. And here is a list of OFr. i-verbs that have not survived: *aatir, abelir, acorcir, acornardir, aemplir, alentir, amaladir, amoitir, assentir, atenebrir, baillir. blandir, cabir, chevir, condormir, conjöir, covir, croissir, defenir, defüir, delir, despir, discernir, enhaïr, entelgir, entreferir, entroïr, envenir, esbäir, esbaubir, esbaudir, escharnir, escremir, esdevenir, esjöir, esmarir, espartir, espasmir, estormir, estoussir, ferir, fervestir, flatir, gandir, gehir, gésir, guenchir, guerpir, issir, laidir, malbaillir, merir, mesavenir, mesoffrir, orgueillir, panir, pentir, plevir, püir, purgesir, purofrir, quatir, rasouffir, rassaisir, rejehir, rejesir, rensüir, replenir, revertir, secchir, seignourir, senglotir, sevelir, sorussir, sougesir, taisir, tolir.*

[13] Notice that those verbs that have a Romance prefix have undergone a process of Romance word formation after having been borrowed. Moreover, we do not know, in some cases, whether the word originally borrowed actually was a verb-stem in the donor language.

concerned, I have treated theme-vowels and stem-extensions as morphological constituents, and described them very much like lexical items. This made it possible to use them for defining morphological properties, their implications, and their change. I do not claim, of course, that all morphological properties can reasonably be defined in terms of constituency. But I hope to have shown that this can be useful in a specific case. Whether there is a clear borderline between such exponents that are constituents and those that are not, and, in the positive case, where such a line runs, are questions for further research.

References

Aronoff, Mark. 1993. *Morphology by Itself*. Cambridge, Ma.: MIT Press.

Bartsch, Karl. 1908. *Chrestomathie de l'ancien français. VIIIe – XVe siècles. Accompagnée d'une grammaire et d'un glossaire*. Leipzig: Vogel.

Bonami, Olivier, Gilles Boyé, Hélène Giraudo, et Madeleine Voga. 2008. Quels verbes sont réguliers en français? In J. Durand, B. Habert, B. Laks, eds. *Congrès mondial de linguistique française. Paris, 9-12 juillet 2008.* Paris : EDP Sciences. 1499-1511.

Bonami, Olivier et Gilles Boyé. 2003. Supplétion et classes flexionnelles en français. *Langages* 152: 102-126.

Boyé, Gilles. 2000. *Problèmes de morpho-phonologie verbale en français, en espagnol et en italien.* http://w3.erss.univ-tlse2.fr/textes/pagespersos/boye/Bo00-Thesis-MorphophonologieVerbale.pdf.

Corbett, Greville G. and Matthew Baerman. 2006. Prolegomena to a typology of morphological features. *Morphology* 16: 231-246.

Dressler, Wolfgang U., Marianne Kilani-Schoch, Rossella Spina, and Anna M. Thornton. 2003. Le classi di coniugazione in italiano e francese. In: M. Giacomo-Marcellesi and A. Rocchetti, eds. *Il verbo italiano. Studi diacronici, sincronici, contrastivi, didattici. Atti del XXXV Congresso internazionale di studi. Parigi, 20-22 settembre 2001*. Roma: Bulzoni. 397-416.

Gildersleeve, B.L. and Gonzalez Lodge 1997. *Latin Grammar*. Bristol: Bristol Classical Press.

Haverling, Gerd. 2000. *On sco-Verbs, Prefixes and Semantic Functions. A Study in the Development of Prefixed and Unprefixed Verbs from Early to Late Latin*. Göteborg: Acta Universitatis Gothoburgensis.

Kibort, Anna. 2008. Inflectional class. *Grammatical Features*. http://www.grammaticalfeatures.net/features/inflclass.html.

Le Nouveau Corpus d'Amsterdam, ed. by Pierre Kunstmann and Achim Stein. http://www.uni-stuttgart.de/lingrom/stein/corpus/

Lewis, Charlton T. and Charles Short, LL.D. 1879. *A Latin Dictionary*. Oxford: Clarendon Press.

Maiden, Martin. 2004. Verb augments and meaninglessness in early Romance morphology. *Studi di grammatica italiana* 2003.22: 1-61.

Schwarze, Christoph. 1999. Inflectional classes in Lexical-Functional Morphology: Latin -sk- and its Evolution. In: M. Butt and T. Holloway King, eds. *The Proceedings of the LFG '99 Conference.* Manchester: CSLI Publications, http://csli-publications.stanford. edu/LFG/4/lfg99-toc.html.

Schwarze, Christoph. In press. Reconstructing and Explaining Change - On the evolution of -sk-suffixation from Latin to French and Italian. *Italian Journal of Linguistics*.

Schwarze, Christoph and Aditi Lahiri. 1998. *Einführung in die französische Phonologie*. Fachgruppe Sprachwissenschaft der Universität Konstanz. Arbeitspapier Nr. 88.

Stein, Achim, Pierre Kunstmann and Martin-D. Gleßgen, eds. 2008. *Nouveau Corpus d'Amsterdam. Corpus informatique de textes littéraires d'ancien français (ca 1150-1350). Établi par Anthonij Dees (Amsterdam 1987), remanié par Achim Stein, Pierre Kunstmann et Martin-D. Gleßgen. Version 2*. Stuttgart: Institut für Linguistik/Romanistik.

Tekavčić, Pavao. 1980. *Grammatica storica dell'italiano. II. Morfosintassi*. Bologna: Il Mulino.

Selected Proceedings of the 6th Décembrettes: Morphology in Bordeaux

edited by Fabio Montermini,
Gilles Boyé, and Jesse Tseng

Cascadilla Proceedings Project   Somerville, MA   2009

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Schwarze, Christoph. 2009. The French i-Conjugation from a Diachronic Perspective. In *Selected Proceedings of the 6th Décembrettes*, ed. Fabio Montermini, Gilles Boyé, and Jesse Tseng, 35-49. Somerville, MA: Cascadilla Proceedings Project.

or:

Schwarze, Christoph. 2009. The French i-Conjugation from a Diachronic Perspective. In *Selected Proceedings of the 6th Décembrettes*, ed. Fabio Montermini, Gilles Boyé, and Jesse Tseng, 35-49. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #2234.