The Structure of the Italian Declension System

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1. The basic facts[1]

Italian nominal morphology constitutes a comparatively simple and well-explored system. Nouns and adjectives, and to some extent pronouns and articles, have vowel endings that correlate with gender and number (both binary features), except for some forms that don't inflect at all. There is no case inflection; case oppositions reduce to pronominal stem alternations like subject *io* ~ non-subject *me*, as in the English *I* ~ *me*. The six classes in (1) illustrate the traditional partition into declensional classes, each defined by a pairing of singular and plural endings, plus the invariables with the same ending for both. As can be seen, classes vary in their relation with grammatical gender, understood as a syntactically relevant agreement class, while class is a morphological notion corresponding to a set of realizations (Corbett 1991, Aronoff 1994).

(1) Traditional description

Class I (all fem.)		Class II (all masc. except one)		Class III (masc. and fem.)	
sg.	pl.	sg.	pl.	sg.	pl.
-a	**-e**	**-o**	**-i**	**-e**	**-i**
donna	*donne*	*libro*	*libri*	*fiore*	*fiori*

Class IV (almost all masc.)		Class V (all masc. → fem.)		Class VI (masc. and fem.)
sg.	pl.	sg.	pl.	sg. and pl.
-a	**-i**	**-o**	**-a**	[invariable]
poeta	*poeti*	*uovo*	*uova*	*bar, blu, koala, ...*

In this pre-theoretical formulation, each class is on a par with the others. The descriptive goal of this paper is to uncover the systematic asymmetries concealed by such a list (section 2). In the interpretation I will propose, these asymmetries arise because class, a morphological diacritic, is rule-assigned in some cases, while in other cases it is a property of one of two different entities: stems or nominal lexemes. The analysis in sections 3-7 derives the attested restrictions from the way syntactic words become morphological words, assuming a realizational model where morphology spells out the output of syntax according to language-particular well-formedness requirements. A crucial aspect of the proposal is that the vowel endings do not spell out gender-number features, but class; gender and number may *condition* this realization, through an abstract fused morpheme added to the

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morphosyntactic word. This allows a sharper understanding of invariables (sections 8-9), analyzed as either lacking this morpheme (but not necessarily class), or as being assigned a second one through gender re-assignment, as in *la ministro* 'the [woman] minister'. It is this latter hypothesis that predicts that such gender-recategorized nouns must be invariable.

A few comments on the description in (1) are in order. Firstly, only Classes I and II are productive. Secondly, invariables (Class VI) are an increasingly important open class, enriched by non-assimilated loanwords like *sport*, clipped forms like *foto* (from *foto-grafia*) and by formations like *la Topolino* 'the Topolino [car]', *la ministro* 'the [woman] minister' (D'Achille & Thornton 2003, 2008). Thirdly and lastly, I will assume that there is no Class V (Acquaviva 2002, 2008). Pairs like *braccio ~ braccia* 'arm ~ arms' have different gender values in singular and plural because they are technically distinct lexemes, each with its own gender value. In particular, the feminine (idiosyncratic in form and often meaning) is a plural-only lexeme. Nouns like *braccio* form a class because speakers know they have a special plural (often beside a regular one), but their plurals are the product of lexeme formation, not inflection; hence, they are not an *inflectional* class, and they must be ignored in an account of Italian nominal inflection as a coherent system.

2. *Explananda*
2.1. *Classes are not evenly distributed across lexical / grammatical categories*

That the traditional declension classes of Italian differ greatly in productivity and lexical distribution is well known (cf. Dressler & Thornton 1996). Here, I would like to emphasize their uneven distribution across nouns, adjectives, articles / determiners and pronouns, which suggests a fundamental asymmetry between lexical and grammatical categories. Ignoring invariables for the moment, (2) schematically represents the different categorial restrictions associated with classes I-IV.

(2)

N ← Class IV

Adj ← Class III

Det, prons ← Class I, II
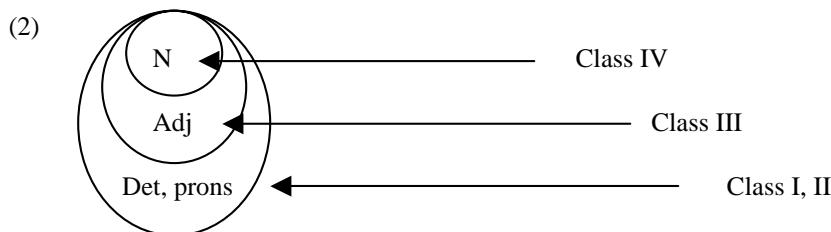
The crucial distinction here opposes grammatical and lexical words. Determiners and pronouns (exemplified below) are grammatical in the sense that their form and meaning are entirely determined by their grammatical content. Nouns and adjectives, instead, are open-class words whose meaning does not reduce to grammatically regimented categories. In this sense, I will refer to adjectives as the corresponding lexical class, not including agreeing determiners like *tutti* in *tutti i ragazzi* 'all the boys'. Having clarified terminology, we may note that only the fully productive classes I-II encompass all categories, including grammatical ones:

(3)   Classes I and II (*-a/-e* and *-o/-i*): N, Adj (participles), Det, pronouns (including clitics)

Det: definite/indefinite article (*lo, uno*), demonstratives (*questo, quello*), inflected
universal quantifiers (*tutto*, *parecchi*), possessives (*mio*, *suo* ...) inflected indefinite
quantifiers and modifiers (*alcuni*, *certi*, *molto*, *poco*); direct object clitics *lo / la / le / li*.

Classes III and IV are limited to lexical adjectives and nouns. An apparent exception is *quale / quali* 'which [sg. / pl.]'; however, this grammatical formative (syntactically a determiner / pronoun) combines the root *qu-* with the same lexeme-forming suffix *-ale* of, for instance, *nav-ale* 'naval' or *manu-ale* 'manual'. For this reason I will view it as a lexical adjective for morphological purposes.

(4)   Class III (*-e/-i*): N, Adj (participles) — only lexical categories, no grammatical words

   fiore 'flower' (masc.), *chiave* 'key' (fem.)
   -ante (*cantante* 'singer', *pesante* 'heavy'), *-ente* (*presidente* 'president', *ardente* 'burning')
   -tore (*autore* 'author', *attore* 'actor'), *-trice* (*attrice* 'actress')

Class IV is even more restricted, not only in size; it is almost entirely confined to nouns. The only adjectives in this pattern are *belga* 'Belgian' and forms constructed with the suffixes *-ista* and *-ita*, as in *un atteggiamento fascista* 'a fascist attitude' or *un piatto vietnamita* 'a vietnamese dish', as well as isolated borrowed ethnics in *-ota* like *cipriota* 'from Cyprus' (thanks to A. Thornton and to a reviewer for suggesting these endings). But are these really adjectives? They can always have the syntax of nouns, with the meaning of a human having the corresponding property (unlike nominalized adjectives, which do not necessarily denote humans). This applies not just to relational nationality predicates like *belga*, but also to cases like *arrivista* 'careerist, arriviste', where *-ista* does not modify a nominal base. All forms in *-ista* may be nouns, but not all may be used as adjectives: **un'obiezione linguista* 'a linguistic objection'. It seems to me that these are more revealingly analyzed as morphological nouns, some of which can act as modifiers, with the syntax of adjectives.

 For *belga* there is an additional reason for thinking that the distributional criterion does not match the morphological criterion for distinguishing between nouns and adjectives. The masculine plural of this word is *belgi*: what orthographically appears as the same stem displays in fact a morphophonological alternation /bɛlg-/ ~ /bɛldʒ-/. This is common for nouns, but exceptional for adjectives. Many nouns palatalise the stem-final velar stop in front of the front ending *-i*, like *amico* or *nemico* ('friend', 'enemy'; notice that both may also be employed with adjectival function as noun modifiers); but among adjectives, this alternation only happens (and then regularly) with the unaccented endings *-ico* and *-fago*: /ˈtipiko/ ~ /ˈtipitʃi/ 'typical' [sg./pl.], /eˈzɔtiko/ ~ /eˈzɔtitʃi/ 'exotic' [sg./pl.]; /antroˈpɔfago/ ~ /antroˈpɔfadʒi/ 'man-eating' [sg./pl.]. (Again, it is debatable whether the last case is really an adjective, even when used as a modifier). As adjectives, *belga* and *X-ista* would then be morphologically exceptional. It is much more plausible to view them as nouns, which like many nouns admit of adjective-like syntax, especially when denoting humans. If so, class IV is restricted to nouns.

 This ties in with the observation that class IV is a declensional pattern for the relevant stems if they are masculines. When feminines, *belga* and any *X-ista* (e.g. *artista* 'artist / artiste') always follow the pattern of class I, with no exception.[2] So it cannot be a stem or suffix that requires class IV, but a stem or suffix plus gender. But adjectives have no fixed gender. So class IV is a property of nouns.

 Finally, invariables are mostly nouns or adjectives, but some are unambiguously grammatical words, like the determiners *ogni* 'every' or *qualche* 'some'.

(5)   Class VI (invar.): N, Adj: N in consonant (*bar*, *sport*), clipped (*moto*, *foto*)

   determiners: *ogni* 'every', *qualche* 'some'; possessive *loro* 'their(s)'; pronoun: *ciò* 'this thing'

Invariables, then, are scattered across categories. However, invariable adjectives systematically differ from other adjectives in certain respects. Colour terms like *rosa* 'pink', *viola* 'violet' or *lillà* 'lilac', in particular, illustrate the common pattern of nouns in adjectival use (*rosa* 'rose'), which are nearly always invariable: cf. *albicocca* 'apricot', *crema* 'cream', *indaco* 'indigo'; *marrone* 'brown' is usually inflected, but may also be invariable, in conformity with its original meaning 'chestnut'. Beside being invariable, they cannot appear in manner adverbials of the form ADJ-*mente* 'ADJ-ly', nor do they accept the superlative suffix *-issimo*: **blu-mente, *rosa-mente* (contrast *bianca-mente* 'whitely', which shows that semantics is not the decisive factor), **?blu-issimo, *ros-issimo* (contrast *bianch-issimo* 'very

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[2] Interestingly, the two feminine nouns in class IV (*ala* 'wing' and *arma* 'weapon') have no masculine counterpart. So they respect the generalization that this class is a property of a stem with a specified gender (cf. section 2); only, their gender is feminine. This does not contravene the generalization that, if *X-a* is masculine and has class IV, its feminine homophonous alternant *X-a[fem]* has class I.

white'). Interestingly, the same properties characterize *blu*, which is invariable but does not exist as a non-colour denoting noun (**blu-mente*, **blu-issimo*).[3] While being monosyllabic may well contribute to the irregularity of *blu*, it seems plausible that invariables, while not correlating with the lexical / grammatical category divide, are only secondarily adjectives. In sum, invariables too are sensitive to category, although they do not correlate with one or more categories and so cannot figure in (2) above.

2.2. *Non-random class for masc.-fem. pairs of the same stem*

As summarized in table (1), classes I, II and IV correlate exclusively or almost exclusively with one gender value each, while class III is equally compatible with both values. This traditional formulation, however, conceals the fact that, when one and the same stem occurs both in masculine and feminine (for adjectives and for nouns), the choice of class is far from random. Two generalizations stand out:

(6) a.   no stem has III (*-e/-i*) in the fem. but another class in the masc.
    b.   only derivational suffixes may have masc. III - fem I; nouns, not adjectives

The admissible masculine / feminine pairings are illustrated in (9):

(7) a.   Det, Adj: Class II-I   *rosso - rossa* 'red' masc./fem.
                    Class III   *verde* 'green' masc./fem.

    b.   Nouns: Class II - I   *il ragazzo - la ragazza* 'boy – girl'
                    Class III   *il testimone - la testimone* 'witness' masc./fem.
                    Class IV - I   *il collega - la collega* 'colleague' masc./fem.

Classes I and II derive from the Latin first and second declensions, and like them are associated with feminines and masculines respectively for a large class of adjectives and for paired nouns like *zio / zia* 'uncle / aunt'. Note that the Latin first and second declension were not exclusively feminine and masculine for unpaired nouns, unlike the corresponding Italian classes, so the status of class-gender pairing cannot be the same in the two languages. More generally, the patterns in (7) reveal regularities that do not admit a simple historical explanation. First, as stated in (6a), no noun or adjective attributes class III to its feminine form and another class to the masculine:

(8)   always excluded: masc II - fem III (**il testimono - la testimone*)
                                    masc IV - fem III (*il poeta - *la poete*)

If class III is open to both genders alike (as it is), and a masculine can belong to class II or IV beside III (as it can), then the distributional gap described in (8) is synchronically fortuitous. Likewise, as mentioned in (6b), in gender-paired nouns class III never appears on the masculine unless it also appears on the feminine, although this restriction only holds for underived nouns and not for suffixes:[4]

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[3] A reviewer notes that forms like *bluissimo* are attested, along with *trendissimo* from the invariable loanword *trendy*. It seems, then, that what inhibits (rather than excludes) *-issimo* is being primarily a noun and only secondarily an adjective, rather than being invariable. In the text I focus on cases where the latter property descends from the former, leaving out unassimilated loanwords that entered the lexicon as adjectives, like *trendy* or *chic*.

[4] A reviewer notes that proper names too may pair classes III and I, but only with the fixed ending *-ele / -ela*: *Michele / -ela*, *Daniele / -ela*, but *Davide / *Davida*. In my opinion, this suggests that *–ele* is a suffix in the relevant sense; *Daniele* is bimorphemic, *Davide* is not. As will emerge elsewhere, it is crucial for my analysis to recognize as suffixes elements identifiable as distinct components in the make-up of a word, even though they might have no synchronic function. In this sense *padrone* is bimorphemic (cf. (11)), like the name *Cicerone*.

(9)   excluded with underived Ns: masc III - fem I   (*il testimone - *la testimona*)
                                                                       (*il giudice - *la giudicia*)

There is one exception: *cane / cagna* 'dog / bitch'. Precisely this pair, however, displays an arbitrary stem allomorphy, which entails that the two are not strictly speaking alternant forms of the same stem:

(10)   *cane - cagna* 'dog – bitch': distinct stems /kan-/ ~ /kaɲ-/
             (stem *cagn-* in *cagn-ara* 'loud disturbance', *cagn-etto*, *cagn-olino* 'small dog')

The pairing III - I is instead possible with derivational suffixes (cf. Thornton 2004):

(11)   *padr-one - pad-rona,* 'master –mistress', *camer-iere - camer-iera* 'waiter- waitress'

More marginal examples involve the suffixes *-ore* and *-ale*: *past-ore - past-ora* 'shepherd/pastor - female pastor', *mai-ale - mai-ala,* 'pig - female pig' (Thornton 2004).
        As far as I can tell, the regularities summarized in (6) are absolute. My hypothesis is that they are synchronically not accidental, but reflect the logic of the system on a par with the systematic relations between class and grammatical category illustrated in section 2.1.

3. Outline of the approach

        Class assignment is obviously lexical in some sense; but it is not totally arbitrary. There is some systematicity in the way class is distributed across Italian nominally inflecting words, but this cannot be captured without a sharper understanding of exactly what gets assigned class, and how this assignment works in the morphology of the language. Class diacritics, I claim, are not an arbitrary property of noun / adjective stems as an undifferentiated group (Alexiadou 2004; Noyer 2005), or a syntactic feature which is arbitrarily assigned to roots / nouns, and agrees with a higher head (Josefsson 2001; Picallo 2005; Alexiadou & Müller 2008).
        Some cases make it plain that a stem alone is not enough to determine class; gender must also be known. Belonging to the non-productive classes III and IV, for example, is clearly a property of specific choices of stems, not a grammar-driven process. Yet, even stem-dependent classes III and IV are not always stem-inherent. Many nouns like *collega* 'colleague' are class IV if masculine, class I if feminine; knowing the stem alone is not enough. On the other hand, there are many cases where the choice of class seems to be a default, specifically for classes I (fem.) and II (masc.); and other cases, involving class III, where gender doesn't play any role. Finally, there are even cases where a choice of stem and gender still fails to uniquely determine class. These involve the alternation between class III and I for the feminine of some derived words (cf. (11) above), like *superiore / superiora*:

(12) *scuola superiore* 'high school' (class III, fem.) - *madre superiora* 'mother superior' (class I, fem.)

In the context of the class-category relations and of the distributional gaps mentioned in section 2, these observations highlight the need for a principled explanation of why class is distributed the way it is in Italian nominal morphology.
        In a nutshell, I will attempt to tease apart the role of class, gender, and stem in the declension system as a whole (paradigmatically) by appealing to the internal structure of nominally inflected words in Italian (syntagmatically). Assuming a realizational architecture where syntax feeds morphology, I will propose a structural interpretation of what it means to be a nominally inflected word in this language, followed by an account of how this input, manipulated in a morphological component, gets spelled out according to language-particular well formedness constraints on the shape of words. The envisaged stages in morphological derivation and realization are summarized in (13):

(13) a. [[[X]Y]Z]   output of syntax (morphosyntactic word)
   ↓

 b. [[[X]Y]Z] Φ   addition of pronominal ending Φ: copy of gender + number
   ↓

 c. [[X]Y] ↔ STEM   spellout of <u>stem marked for class</u> (inherently or by rule)
    [Class:]
   ↓

 d. STEM → STEM-V]   stem extension by Word Marker (conditioned by stem's class
  [Class:X]   and by number value on Φ)

Syntax assembles the abstract information corresponding to a morphosyntactic word. When this involves gender, it is nominally inflected. This involves first suffixation by a morpheme fusing gender and number. Then, morphological realization begins, starting with the insertion of a stem corresponding to the morphosyntactic word. Crucially, I take this to be an abstract representation encoding class diacritics. As indicated, the actual class may be inherently determined by the choice of stem, or may be filled in by grammatical rule (as specified below), on the basis of the features in the abstract suffix. Finally, the stem with specified class is phonologically realized, as a form that ends in one of a set of canonical vowels, conditioned by the stem's class and by the features on the abstract agreement. Importantly, the end vowels don't directly spell out such features, but are there because Italian words must end in a vowel. This is a language-particular morphological constraint on the shape of words, which defines as "canonical" those words ending in an unaccented vowel other than / u /. It is not absolute, given that Italian tolerates words ending in a consonant, in unaccented / u /, or in a stressed vowel (a reviewer points out that some verbal endings in fact require a stressed end-vowel); but it is general enough to define a canonical word shape. What is crucial is that the endings of nominally inflected words are not specifically nominal morphemes, but are the same elements that appear on verbally inflected or non-inflected words; only, their choice is partly conditioned by gender and number. Otherwise, it would be accidental that nominally inflected words end exactly like all other words in the language (minus marked cases like words ending in stressed vowels and unassimilated loanwords).

(14) Italian Word Markers: unaccented *-a*, *-e*, *-i*, *-o* (not *-u*), inflected <u>and uninflected</u>

- nominally inflected: *gatt-o*, *gatt-a*, *verd-i*, *quest-e*, *lett-in-o*, ...
- verbally inflected: *cant-o*, *veng-a*, *potess-i*, *andar-e*, ...
- uninflected: *prim-a* 'before', *doman-i* 'tomorrow', *quand-o* 'when', ...
  (nominal, invariable: *lam-a* 'llama', *fot-o* 'photo', ...)
- no word marker: *città*, *-ità*, *sport*, *per* ...

The concept of vocalic endings come directly from what Harris (1996: 104), in his analysis of Spanish, called Class or Word Markers: 'Stems require a class marker (CM) constituent in order to be morphologically well-formed free-standing words' (cf. also Harris 1991, 1992, 1996). Following Harris' insight, these endings are there for morphological well-formedness and not as exponents of some syntactic features; but what for Harris is an abstract constituent in the morphological structure of the word, is here understood as a component of the realized stem form. This reflects a basic morphological difference between Spanish, analyzed by Harris, and Italian. In Spanish, class markers may be further suffixed by the *-s* of plural, whereas Italian expresses gender and plural by the choice of the end vowel alone, without a discrete morpheme for number. My interpretation of this difference is that Italian word markers demarcate a morphologically complete word, and their selection is conditioned not only by the choice of the stem, but also by gender and number. In turn, this is made possible by the hypothesis of an abstract agreement morpheme, attached to all and only the morphosyntactic words that inflect nominally. The reification of nominal inflection through this

formant is what allows us to follow Harris' insight (word markers are there to adjust the shape of words, not to spell out features) while at the same time capture the fact that Italian word markers vary with gender and number.

4. Class diacritics: by rule, inherent in stems, inherent in nouns

The first step in the analysis consists in relating class and gender in a principled and revealing way. To achieve that, a key assumption is that lexical insertion involves vocabulary items marked for class (Noyer 2005), possibly with underspecified value. Schematically, this means that the morphological component does not (always) immediately translate abstract morphosyntactic information into phonological matrices. Realization rules specify contexts for the insertion of vocabulary items; these are morphological entities corresponding to roots, stems, and affixes, categorized according to the morphological system of the language. Class diacritics express this categorization internal to the morphological system. They drive spellout, and are potentially sensitive to context.

(15)   X ↔ VOCABULARY ITEM [Class:]

Unlike lexical words, grammatical words spell out an input consisting entirely of grammatical features; for example, the base of the Italian definite article, abstracting away from gender and number (which determine the ending), is spelled out as [+definite] ↔ *l-* (cf. Cardinaletti & Repetti 2006). Importantly, grammatical as well as lexical words may be specified for class. However, only some vocabulary items are intrinsically specified for it, and I will assume that they are only lexical stems (which do not express grammatical features alone); in many other cases, including all grammatical words, class is assigned by rule. I envisage two such rules, corresponding to the 'gender-to-class redundancy rules' of Noyer (2005):

(16)   Class assignment by rule
        [Class:] → I / ____ [gender: +fem]
        [Class:] → II / ____ [gender:]

Through the mention of gender in their context of application, these rules may in principle apply to all grammatical and to some lexical words that inflect nominally, including verbal participles (unless of course class is already specified). They represent the default classes for masculine and feminine.

Class III is very different. Instead of being assigned by rule, it is an intrinsic property of certain (listed) lexical stems and stem-forming suffixes.

(17)   [{STEM/SUFFIX}, III]   {STEM/SUFFIX} = list

The class is very large, but non-productive (Dressler & Thornton 1996). The twin assumptions that the class value for grammatical words is filled in by rule, and that no rule gives the value of class III, straightforwardly derive the fact that no determiner, quantifier, or pronoun belongs to class III (recall that *quale* 'which' is formed by the derivational suffix *-ale*).

Most importantly, viewing class III as an intrinsic property of some stems and affixes ensures that it is independent of gender. Consider lexical stems first. We have seen in 2.2 that there are no same-stem gender pairs where class III is exclusively assigned to one gender. Now we can see why: class III, as a property of a stem, is never specifically assigned to masculine or feminine because it is never linked to gender.

Things are less straightforward for complex words derived by suffixation. Unlike lexical stems, suffixes may either have class III for both genders (present participle formations like *cant-ante* 'singing / singer', or the adjectival *-ale* of *comun-ale* 'communal'), or class III for masculine and I for feminine (*camer-iere - camer-iera*, *sign-ore*, *sign-ora*). What must be noticed in this connection is that,

systematically, the pairing III - I only appears on nouns, never adjectives.[5] The cited case of *superiore* 'superior' (masc. / fem.) - *superiora* ('[mother] superior', fem.) strikingly shows that even when the suffix appears on the same lexical stem, feminine gender has a different class only for the reading as a noun. This can hardly be accidental. My hypothesis is that the relevant suffixes of words like *cameriera* 'waitress', *marchesa* 'marquise', *pastora* 'female pastor', *superiora* '[mother] superior', are not fully parallel to the corresponding masculine ones. They are feminine nominalizing affixes, denoting female humans or animates. Their form is the same (*-ier-*, *-es-*, *-or-*), but their content differs, not only in gender but also in class. In this capacity, the suffixes in question are not class III but rather have no class; the value of class I is automatically filled in by rule (16), triggered by feminine. The case of *superiore* / *superiora* is particularly striking, as it involves two variants of the same suffix even keeping feminine fixed. The adjectival suffix may be notated simply as OR [Class III]. The nominal suffix differs in features, being obligatorily feminine; and it differs in meaning, not only because it denotes humans but also in so far as 'mother superior' is a much more specific concept than 'superior'. This second suffix is better notated as OR [FEM] [Class], where the value I is filled in by rule.

Finally, the even more restricted distribution of class IV (masculines like *poeta*) follows from the fact that this class is a property of stem-gender pairs, not just stems:

(18)   [{STEM}/ -IST- / -IT-, IV, [–fem]]

Like class III, this too is a diacritic that applies to a list. But the gender specification makes this a substantially different list from that in (17). In effect, this means that class IV is a property of masculine nominal lexemes (including those derived by the suffixes *-ista* or *-ita*, and possibly *-eta* and *-ota* as a reviewer suggests). The same *stem* may appear in a feminine noun, but then the noun cannot be class IV (feminines *collega* or *artista*, homophonous to class IV masculines in the singular, are invariably class I). Not only feminine nouns, but also adjectives are necessarily excluded, because they are never *intrinsically* masculine. Recall that (17) and (18) are shorthand for lists of 'lexical items', in the sense of stem- affix-dependent pairings of vocabulary items, class, and gender (for (18)). The different information contained in them reflects the structured nature of lexical competence: what is listed as class III are stems / affixes, what is listed as class IV are categorized lexemes (nouns). Within a given syntactic context, the gender value of an adjective node is filled by agreement, before morphology; but its realization depends on the properties of the 'lexical item' that spells out that adjective. And no such 'lexical item' can belong to class IV, because that requires a fixed gender independently of syntactic context.

5. Addition of pronominal ending [Φ]

Let us now turn to the derivation of nominally inflected words. As sketched out in (3) above, there are two stages: first, immediately after syntax, the morphological component manipulates certain morphosyntactic words by adding an abstract morpheme [Φ]; second, the whole morphosyntactic word is spelled out. This latter operation in turn involves two stages: insertion of lexical stems and derivational affixes, and then selection of stem-final word markers that close off the word with a vowel. Crucially, these word-final vowels are not exponents for gender and number; they are there to ensure that the word is well formed, and are chosen depending on the class of the stem / affix. However, I take them to be conditioned by certain values of gender / number, represented on the morpheme [Φ].

This abstract morpheme copies the gender and number of the morphosyntactic word into a fused morpheme at its edge. As stated in (19), this is restricted to inputs marked for gender:

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[5] Originally I had claimed that the fem. class I version of a class III masc. is not only a noun, but also [+human]. A reviewer correctly objected, citing cases like *petroliere* 'oil industrialist' - *petroliera* 'tanker' ('oil-ship', as it were), or *corriere* 'courier' - *corriera* 'bus'. The same reviewer also cast doubt on the claim that the fem. in such pairs must be a noun, citing the adjectival use of the fem. *pasticcera* in *crema pasticcera*. The objection would be valid if *pasticcere* / *-a* was a relational adjective systematically meaning 'relative to confectionery' in both genders; but it is not. *Pasticcera* is only an adjective in *crema pasticcera*, and *pasticcere* 'confectioner' is a noun only.

(19)   suffixation of fused gender-number [Φ]:

      [X] Y] Z]]]   →   [X] Y] Z]]] Φ
      [gender: W]   [gender: W]

The restriction to syntactic complexes already marked for gender ensures that [Φ] attaches only to those morphosyntactic words that can inflect nominally. This follows the insight of Picallo (2005) that nominal inflection *is* the structural representation of gender in word structure. However, [Φ] is not a syntactic head, and so does not correspond to [Class] (Bernstein 1993), [n] (Marantz 2001; Embick & Noyer 2007), [Class] (Picallo 2005), or [Pl] (Stark 2007). It is a morphological formative added after syntax, which encodes nominal inflection in morphological terms. The distinction is necessary, because not all that triggers gender agreement also inflects: not invariable nouns and adjectives, nor pronouns like *ciò* 'that thing' or *loro* 'they', which obviously enter into syntactic agreement but lack morphological inflection; and not exocentric compounds like *poggia-testa* 'head rest', to which I will compare nouns that become invariable under gender-reassignment, like *la ministro*. (Besides, nominal inflection cannot depend on the presence of a head like [n], if this marks nouns but not other nominally inflecting categories like adjectives and some pronouns). Notice that, since [Φ] is just a copy, gender and number remain part of the syntactic base even in its absence: so *casa* 'house' is feminine as a whole inflected word, but it remains feminine in the evaluative *cas-etta* 'little house': the gender of the suffix *-ett-* is determined by *cas-*, which is not a complete word and does not inflect.[6]

As we will see directly, no rule spells out [Φ], which is then neither a syntactic formative nor the content of a segmentable suffix. My justification for such a costly, purely morphology-internal entity is twofold. First, it makes precise in formal terms the morphological (not syntactic) difference between inflecting and invariable nouns / adjectives / pronouns. Second, it captures the fact that Italian word-final vowels are not direct exponents for gender and number, but are *sensitive* to these features. The same hypothesis may achieve both results, if [Φ] is a post-syntactic copy that conditions the realization rules spelling out the vocalic endings of stems.

To see how, consider (20). As stated in (20a), stems are extended by a word-final vowel to be well-formed free-standing words, as in Harris' (1992) analysis of Spanish. For words that are morphologically nominal, class and [Φ]-suffixation must be factored in; the general format of (20a) then falls into the three subcases in (20b):

(20) a.   STEM → STEM+V]   stem extension by Word Marker

    b.   i   STEM + [Φ] → STEM+V]   canonical case; V] sensitive to [Φ] and [Class]
        [Class]

       ii   STEM → STEM+V]   invariables with V]: no [Φ] (*quand-o, koal-a, ogn-i*)
        [Class]

       iii STEM]   invariables without V] (*bar, sport, guru*)

The requirement that words end in an unstressed vowel does not have to do with inflection, nominal or otherwise; it is an overarching well-formedness constraint on Italian words. Only some listed stems, as well as those ending in stressed vowel (like *città*), violate this constraint; they are all invariable, but not all invariables lack a word-final vowel. That's why it's important to distinguish [Φ]-suffixation, which marks nominally inflecting words, from the vocalic stem ending indicated as V]. The two overlap in the canonical case (20bi); [Φ] alone is lacking in invariables that are morphologically canonical words

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[6] A reviewer raises the question of evaluatives that change the gender of the base, like *calzino* 'sock' (masc.) from *calza* 'stocking' (fem.). It would seem that the suffix has intrinsic gender here. A more informative response would have to compare the relation between fixed gender and semantic transparency across different evaluative suffixes.

(20bii); and both are lacking in invariables that are non-canonical words (20biii), like *guru* (which ends in the non-canonical end vowel). The fourth case, where there is [Φ] (so, abstract inflection) but no vocalic ending, will be argued to be that of re-categorized completed words like *la ministro* 'the [fem] minister'.

The rules in (21) flesh out the general scheme STEM → STEM+V]. Taking X as an arbitrary vocabulary item, they add a word-final vowel to its right edge. Which rule applies depends on the class of X; in addition, the first two rules require a special context, namely one with the feature [+pl]:

(21)   realization rules for stem extension

   a.   X   → X-e / ____ [+pl]
        [I]

   b.   X   → X-i / ____ [+pl]   (*-i* elsewhere for plural)

   c.   X   → X-a
        [I]

   d.   X   → X-o
        [II]

   e.   X   → X-e
        [III]

   f.   X   → X-a
        [IV]

   g.   X   → X-i   (new class V for invariables in *-i*)
        [V]

Assuming that morphological spellout proceeds cyclically from the most embedded part of the morphosyntactic word, a stem is substituted for a syntactic input schematized in (19) as [X [Y [Z]]]. This includes all of the syntactic information that concurs to make up a noun (or an adjective, or an adjectivally inflecting pronoun) as a morphosyntactic word. Number, in particular, must be part of this information. (In most syntactic accounts, N must have raised to Number.) After vocabulary insertion, this input is replaced by a stem; further realization rules cannot refer to the syntactic number in [X [Y [Z]]]. This is where [Φ]-suffixation comes in. Crucially, this provides a representation of gender and number *external* to [X [Y [Z]]]; once the latter has been replaced by a stem, it is still possible for rules (21a-b) to extend the stem by reference to number, because this is in [Φ]. As a result, the most specific rule (21a) adds final *-e* to a class I stem inflecting for plural. As shown in (21b), stems of all other classes end in *-i* in the same context, where [Φ] contains the feature [+pl]. If instead [Φ] does not contain [+pl], no reference to the context is required once class is known. In this way, singulars that have distinctive plurals receive the same exponents in the singular as invariables. Morphology has no feature [invariable]; inflecting and non-inflecting forms differ instead in the presence or absence of the [Φ] suffix, which has a morphological reflex only in the choice of a specific plural form. This corresponds to the fact that, in Italian nominal morphology, to inflect means to distinguish singular and plural.

The function of [Φ]-suffixation is not just to enable the realization of number opposition, however. Recall that the productive classes I and II can be assigned by grammatical default to stems not inherently marked for class (cf. (16)). Again, this is only possible if an already inserted stem can 'see' information about gender; and this is what [Φ] expresses, along with number. Forms assigned class by default are then *necessarily* inflecting, because the two properties both require [Φ].

In sum, [Φ]-suffixation provides a unified structural interpretation for default class assignment and for the realization of distinct plural forms; it allows us to view inflecting nominals as a natural class,

distinct from other nominals that have gender and number for syntax only; and in so doing helps us keep separate inflectional class from the choice of vocalic ending, which cuts across inflecting and non-inflecting nominals. We will see in the next section that it is also instrumental in deriving certain properties of invariables. Before that, I will briefly comment on two minor issues. One is the new class V as described in (21g). Although nothing hinges on this, I have included *-i* among the canonical word-endings of Italian, even though all such words are outside nominal inflection, simply because there are so many words endings in *-i*: many invariable nouns, not all loanwords from Greek (*metropoli*, *crisi*; *alibi*, *bikini*), at least one adjective (*pari* 'even'), several pronouns (*questi* 'this person', *costui* 'yonder person', *egli* 'he'), adverbials (*ieri* 'yesterday', *altrimenti* 'otherwise', *poi* 'then', *carponi* 'on all fours'), and of course many verbal forms. The second issue concerns the exceptional nouns *mano* 'hand', which is feminine but class II (*mano - mani*); and *arma* 'weapon' and *ala* 'wing', which are feminine but class IV (*arma - armi*, *ala - ali*). On these I have nothing revealing to say: they are true lexical exceptions, contradicting the regular alignment of gender and class. Assuming a lexeme (and stem-) specific class assignment as in (22) is one way to represent (not explain) their exceptionality:

(22)   [Class:] → II / MAN ____
        [Class:] → IV / AL, ARM ____

6. 'Primary' and 'secondary' invariables

The three-way division in (20) distinguishes between invariables that do and do not end in a canonical word-final vowel. Both, being invariable, lack [Φ]; but only the latter also lack a Word Marker V]:

(23)   invariables with V] (*lama*, *koala*, *ogni*, *qualche*, *loro*, *parodo*, *bici*, *foto* ...)

        invariables without V] (*sport*, *città*, *mail*, *guru*, *blu* ...)

The first group of stems are marked as having no [Φ], perhaps by a feature [– Φ] (cf. [– thematic] in Noyer 2005); or by a deleting rule [Φ] → ∅ /{LIST} _____ . They are specified for class, however, spelled out regularly as in (21). Stems in the second group, instead, are marked as already word-sized.

Beside these lexically marked invariables, which may be termed 'primary', there are nominals which are only invariable in a specific interpretation or syntactic structure. Such 'secondary' invariables include family names, often inflecting when used as descriptions (*il / la / i / le Garbo / De Filippo*; contrast *i Filippi che conosco* 'the Filippo's I know'); elliptical expressions involving inflecting nouns, like *la [sedia a] sdraio* 'deck chair'; several nouns used in adjectival function (cf. 2.1); and numerous cases of secondary gender assignment: *la Topolino* (normally masculine 'little mouse', feminine from *macchina* 'car'), *la sindaco* 'mayor' (normally masculine, possibly feminine when applied to females). These latter examples of secondary invariables, in particular, raise a question: given that they are based on inflecting nouns, why *must* they be invariable? Interestingly, native speakers have intuitions about this. According to this intuition, feminines constructed on masculine nouns, like *la ministro* 'the minister [female]', *la Panda* 'the Panda [car]', *la Topolino* 'the Topolino [car]', simply cannot admit plurals with the regular masculine forms: **le ministri*, **le Pande*, **le Topolini*. If a masculine form may be gender-recategorized in the singular, why not in the plural? How does *la ministro* differ from *la mano*, which is lexically marked as feminine but has both the singular and the plural of class II? In particular, why should speakers feel so sure?

The analysis of inflection in terms of [Φ] may shed light on this matter. I hypothesize that these recategorizations have the complex structure in (24):

(24)   [[STEM Φ₁] Φ₂]

This structural reinterpretation treats re-assignment of gender as second suffixation (by [Φ₂]) to a completed word [STEM Φ₁]. The resulting compound-like structure is extremely restricted: the gender

on $[\Phi_2]$ must be licensed by reference to one of very few basic-level concepts (cf. Thornton 2009), or to contextually salient concepts (for instance *la ricorsi* can be, in the appropriate context, the usual name for *la [commissione] ricorsi* 'the appeals [committee]'). If there really are two structurally represented $[\Phi]$ suffixes, our theory actually *predicts* invariability. The reason is that [STEM Φ_1] already has a word-final V; but no rule spells out $[\Phi_2]$, simply because no rule spells out $[\Phi]$ in general. Nor can an outer $[\Phi_2]$ change the stem extension determined by the inner $[\Phi_1]$: if this latter is singular, the stem will acquire the end vowel fitting a singular context. In essence, the end vowels are determined by class-marked vocabulary items and an adjacent $[\Phi]$; a second, outer $[\Phi_2]$ is too far.

Nouns describing roles, where the hypothesized $[\Phi_2]$ must have a human interpretation, may provide additional evidence for a structural interpretation. Although the contrasts are less than clear-cut, and judgments vary somewhat, it seems that a secondary $[\Phi_2]$ interpreted as 'woman' requires DP-internal overt feminine marking to be recoverable. Consider three invariable feminine nouns, *bici* 'bike', *Topolino* 'Topolino [car]', and *ministro* 'minister [woman]'. The second and third are re-categorized from the homophonous masculine nouns, and *ministro* has a human referent. According to our hypotheses, *bici* lacks $[\Phi]$ altogether, while *Topolino* and *ministro* have a feminine $[\Phi_2]$ on top of a masculine $[\Phi_1]$; for *ministro*, $[\Phi_2]$ refers to humans. In (25), these nouns are preceded by an overtly feminine definite article *la*; the feminine DP trigger agreement with the underlined past participles:

(25)   determiner realizes fem:

    a.   <u>la</u> bici è <u>stata prodotta</u> in Italia   no Φ
          'the.FEM bike was produced.FEM in Italy'

    b.   <u>la</u> Topolino è <u>stata prodotta</u> in Italia $[\Phi_2]$ fem
          'the.FEM Topolino was produced.FEM in Italy'

    c.   <u>la</u> ministro è <u>stata ricevuta</u> dal presidente $[\Phi_2]$ fem 'woman'
          'the.FEM minister was received.FEM by the president'

Consider now what happens when *la* is replaced by an invariable determiner, so that the nouns are the only source of feminine gender in the DP:

(26)   determiner invariable:

    a.   ogni / qualche <u>bici</u> è <u>stata prodotta</u> in Italia   no Φ
          'every / some bike was produced.FEM in Italy'

    b.   ogni / qualche <u>Topolino</u> è <u>stata prodotta</u> in Italia $[\Phi_2]$ fem
          'every / some Topolino was produced.FEM in Italy'

    c. *   ogni / qualche <u>ministro</u> è <u>stata ricevuta</u> dal presidente $[\Phi_2]$ fem 'woman'
          'every / some minister was received.FEM by the president'

There is a clear contrast between (26a-b) and the degraded (26c). It would be wrong to draw too strong a conclusion from this single fact, which probably owes much to the fact that *ministro* refers to males unless there is evidence to the contrary. By contrast, the equally masculine *soprano* much more readily admits *ogni soprano è arrivata* 'every soprano has arrived.FEM', apparently because the noun refers to a female role, even without re-categorization (cf. Thornton 2009). What is clear, however, is that such re-categorized nouns are very different from lexical exceptions like *mano*, and that their being invariable is a regular and necessary property. A structural account in terms of two $[\Phi]$ predicts this invariability, makes it expected that $[\Phi_2]$ should be subject to stringent recoverability conditions, and provides the fourth expected combination in the distribution of $[\Phi]$ and word-final vowel (cf. section 5 above).

7. Conclusions

This study justifies a number of theoretical conclusions. In general, I have argued that class (declension) is not just an arbitrary marking of 'lexical items', or stems, or lexical items, or roots. We must distinguish the diacritics assigned by rule from those that are a property of listed elements; among these, it makes an important difference whether class is a property of stems (without mention of gender) or full-fledged lexemes (specified for category and with a fixed gender). On this basis we have uncovered and accounted for several systematic correlations in the distribution of class, gender, and lexical / grammatical categories. An important consequence is that the notion of stem has empirical justification, as a morphological entity carrying class diacritics, and thereby distinct from its phonological realization.

As regards more specifically Italian inflection, my main contention has been that end vowels are not exponents for gender / number. They are there for morphological well-formedness, with or without inflection. I have modelled these word-final vowels as stem-extending word markers (following Harris 1991, 1992); and I have modelled inflection as due to a pronominal ending [Φ], attached postsyntactically to words encoding gender. This abstract morpheme fuses gender and number: gender conditions the class of a stem when it is grammatically determined, and number conditions the exponence of distinct word markers for singular and plural. Invariables are not just a list of exceptions: all lack [Φ], but only some also lack a canonical word marker. Lastly, I have characterized as 'secondary invariables' those fully inflected words that have been assigned to a different gender. They are invariable not because they lack [Φ], but because they have two. In this way, nominal inflection is resolved into the interplay of inherent marking (class) of distinct morphological entities, well-formedness constraints on the shape of words (word markers), and morphologically visible representation of grammatical features (the [Φ] suffix).

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