Leonardo M. Savoia, Benedetta Baldi, M. Rita Manzini, University of Florence

Micro-variation in nominal plural in North-Lombard and neighbouring Rhaeto-Romance varieties. A Phasal treatment

1.   Plural in Romance

In Romance languages, two fundamental types of plural inflection are attested: (i) *-i* (and *-e, -a*) in Italian and Romanian varieties; (ii) *-s* in West Romania, including, in addition to French, Occitan and Ibero-Romance, also Sardinian, Friulian and Rhaeto-Romance varieties, spoken in peripheral areas with respect to Italian-type varieties. In these latter languages, the inflection *-i* is not totally eradicated but competes with *-s*. In some North-Lombard dialects of Grisons, spoken in Mesolcina and Bregaglia Valleys (see (1)), feminine plural is lexicalized by the morpheme *-ŋ*. In neighbouring dialects, feminine and masculine nouns are devoid of plural inflection. Moreover, these varieties are in contact with Rhaeto-Romance languages with *-s* in the plural.

(1)   The languages of Canton Grisons in the year 2000 (source: Wikipedia): Misox=Mesolcina, Bergell=Bregaglia; the intermediate region between Mesolcina and Bregalia is Val Chiavenna, including Campodolcino. Val Chiavenna is contiguous to Valtellina, where Tresivio is located.
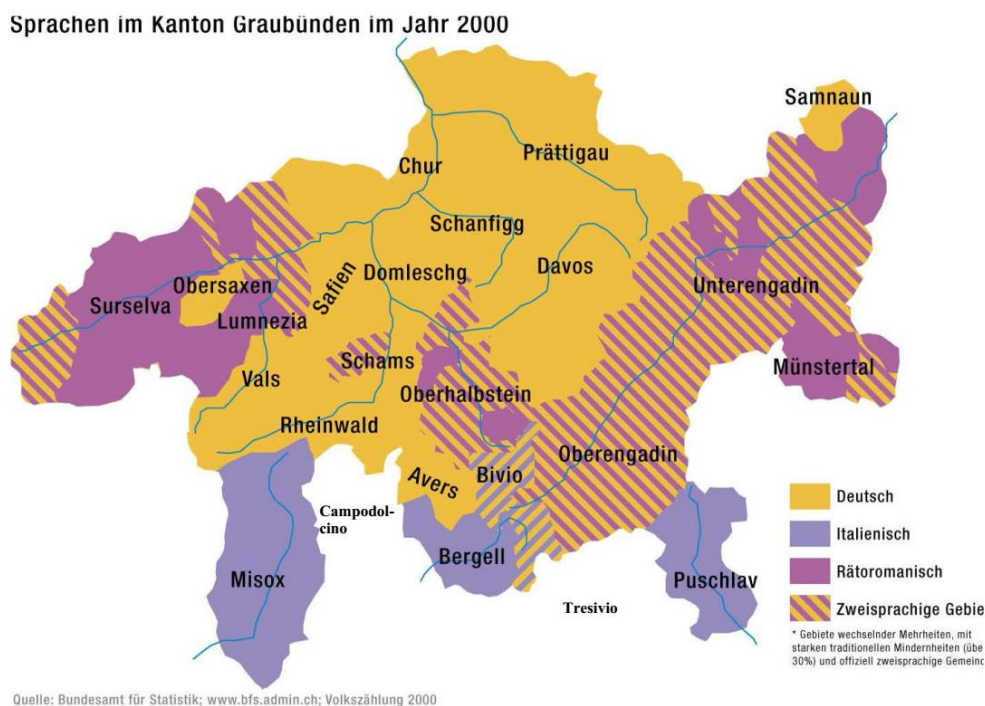
The coexistence of these different inflections gives rise to a micro-variation involving a pervasive asymmetric distribution of plural inflection:
- ✓ between *-s/-ŋ* and vocalic plurals
- ✓ between determiners (/modifiers) and nouns
- ✓ between masculine and feminine plural

In the following sections, we will present the relevant data from the varieties we invetigate. Next, the theoretical framework will be discussed and the observative generalizations will be related to the Phases model proposed in Chomsky (2001).

2. Soazza/Mesocco (Mesolcina Valley)

In the Soazza/Mesocco variety, the plural feminine inflection is *-ŋ*: *-ŋ* occurs on nouns, (2b)-(2b'), and pre- and post-nominal modifiers, in (2b'), except articles, in (2b)[1]. Masculine plural *-i* is realized on articles and other determiners; some sub-sets of masculine nouns have *-i* or *-Vŋ*, as in (3b)-(3b') (see Salvioni 1902, Sganzini 1933, Rohlfs 1968[1949], Manzini and Savoia 2005).

(2) *feminine*
   a. l-a   ʃkabɛl-a
       the-F   chair-F
       'the chair'
   a' kwel-a ʃkabɛl-a/mat-a
       that-F chair-F/girl-F
       'that chair/girl'
   b. l-a   ʃkabɛl-əŋ
       the-F   chair-FPL
       'the chairs'
   b'. kwel-əŋ ʃkabɛl-əŋ/ma't-a-ŋ
       that-FPL chair-FPL/girl-FPL
       'those chairs/girls'

(3) *masculine*
   a. ɛl   di:t   / mar'tel / ma:t
       the.M   finger / hammer/ boy
       'the finger/hammer/ boy'
   a'. kwel di:t   / mar'tel / ma:t
       that.M finger   / hammer / boy
       'that man/boy/finger'
   b. i   di:t   / mar'te-i   / ma't-oŋ
       the.MPL finger   / hammer-MPL / boy-PL
       'the fingers/ hammers / boys'
   b'. kw-i   di:t   / mar'te-i   / ma'to-ŋ/
       that-MPL man-pl / hammer-MPL /   boy-PL
        'those fingers/ hammers/ boys'

Subject clitics (SCl)[2] and object clitics (OCl) in (4) exclude *-ŋ*. In the feminine singular and plural, we find *l-a*; however, finite verbs have *-ŋ* if the reference of the feminine subject is plural, as in (4a'). With unaccusative verbs, the *-əŋ* agreement is also present on the perfect participle, as in (4c). Masculines exclude *-ŋ* on verbal as well as on pronominal forms. In the masculine singular, we find *(ə)l*, in the masculine plural *i*.

(4) *SCls*
   a. əl/   l-a   dɔrm

3MSG/ 3-F   sleep
                    'S/he sleeps'
    a'.   i   dɔrm/l-a   dɔrm-əŋ
           3MPL   sleep/3-F   sleep-FPL
           'They sleep'
    b.   tu   l/   l-a/   i   ve:t
           2SG   3MSG/3-F/3MPL   see.2SG
           'You see him/her/them'
    c.   l-a   ɛ-ŋ   vənitʃ-əŋ/rivad-əŋ
           3-F   be-FPL come-FPL/arrived-FPL
           'They(f.) have come/arrived'
    c'.   i   ɛ   və'nitʃ/riva-i
           3MPL   be   come.MPL/arrived-MPL
           'They(m.) have come/arrived'

-*ŋ* is addedto the inflected verb also in the case of feminine OCls with plural reference, as in (5a). When a feminine OCl and a feminine SCl combine, as in (5b-c), the resulting reading is multiply ambiguous, according to whether the OCl is taken to agree with the verbal -*əŋ* inflection, or the SCl is, or both are.

(5)   *OCls*
    a.   tu   l-a   ved-əŋ
           2SG   3-F   see-FPL
           'You see them'
    b.   l-a   l-a   tʃam-əŋ
           3-F   3-F   call-FPL
           'she calls them/they call her/they call them'
    c.   l-a   l   a-ŋ   tʃamad-əŋ
           3-F   3.F   have-FPL called-FPL
           'they have called her', 'she has called them', 'they have called them'

Finally, -*ŋ* combines with post-verbal *l-* in imperatives, in (6), thus suggesting that no phonological restriction is at work. At the same time, we could maintain that -*əŋ* lexicalizes T exactly as in (4a', c), and we are facing a case of mesoclisis, whereby -*l-* is infixed between the verbal base in C and its inflection in T (Manzini and Savoia 2011b, cf. Harris and Halle 2005, a.o.).

(6)   tʃama-l-əŋ   /   tʃa'ma-də-l-əŋ
       call-3-FPL   /   call-2PL-3-FPL
       'Call them!'

Summarizing so far, a subset of 3rd person referential elements, i.e. articles and clitics (not other prenominal modifiers), exclude feminine plural -*ŋ*. So, the feminine -*a* inflection is required for the plural of the referential/definiteness elements. We analyse the semantic content of plural -*ŋ* as a subset operator [⊆], like the content of -*s* (Manzini and Savoia 2011a, 2018a). This content is externalized on the elements inside DP, except D, and in the CP phase, on the inflected verb, as in (5).
  ➤ Plural Determiners in the feminine require the interpretive content of -*a; -ŋ* is excluded.
  ➤ -*ŋ* on the lexical verb contributes to externalizing plurality for external and internal argument.
  ➤ Verbal inflection and nominal inflection share the same interpretive content introduced by the morpheme -*ŋ*.

## 3.	Casaccia/ Soglio (Bregaglia Valley)

Feminine plural *-ŋ* occurs once in a DP, on the first determiner/modifier, as in (7b). Masculine nouns generally lack any inflection; in the plural, *(-)i* is present on determiners and occurs in a subset of adjectives and nouns, as in (8b).

(7)	*feminine*
　　a.	l-a/kwel-a　bel-a　don-a
　　　　the-F/that-F fine-F woman-F
　　　　'the/that fine woman'
　　b.	l-a-ŋ/kwel-a-ŋ　　　　bʀav-a　don-a
　　　　the-F-PL/that-F-PL　　good-F　woman-F

(8)	*masculine*
　　a.	ɛl/　　kwel　　　　kaŋ
　　　　the.MSG/that.MSG　　dog
　　　　'the/that dog'
　　b.	i/　　　kw-i/　kwiʃt-i/　tantʃ-i　　kaŋ
　　　　the.MPL/that-MPL/this-MPL/many-MPL dog
　　　　'the/those/many dogs'

-ŋ is realized on the finite verb, whether the subject is feminine or masculine, as in (9a', b', c'). On the other hand, *-ŋ* is excluded by subject clitics, cf. (9a', b'), which therefore differ from feminine determiners in (7b); this is important since it shows that *-ŋ* depends entirely on syntactic position. What is more, *-ŋ* does not occur on predicative elements (adjectives, nouns and participles) in (9b'). In these contexts, the *-a* inflection occurs, independently of the singular or plural reading, (9a, a', b, b'), as happens for the predicative categories (A, N) in the DP in (7).

(9)	*SCls*
　　a.	al/　　l-a　　dɔʀm
　　　　3.MSG/ 3-F　　sleep
　　　　'S/he sleeps'
　　a'.	i/　　l-a　　dɔʀm-aŋ
　　　　3.MPL/ 3-F　　sleep-PL
　　　　'They sleep'
　　b.	l　　e　　nøv-a / ɲid-a
　　　　3　　be-SG　new-F /come-F
　　　　'She is new'/'she has come'
　　b'.	l　　e-ŋ　　nøv-a /dɔn-a / ɲid-a
　　　　3　　be-PL　new-F/women-F/come-F
　　　　'They are new/women'/'they have come'
　　c.	l　　e　　ɲi
　　　　3　　be-SG　come.M
　　　　'He has come'
　　c'.	i　　e-ŋ　　ɲi
　　　　3.MPL be-PL　come.M
　　　　'They have come'

The masculine 3rd person subject clitic has the plural form *i* in (9a'). Both *-i* and *l-a-ŋ* occur as plural object clitics, in (10a). The transitive structures in (10c, c') present the same type of agreement of the object clitics *i* and *l-a-ŋ* with the participle as unaccusative, whereby feminine plural excludes *-ŋ*. The singular object clitic in (10b) takes a unique form *l-a*, independently of gender (cf. (18)-(19)).

This form is determined by phenomena of suppletivism and mutual exclusion in combinations of 3rd person SCl and 3rd person OCl (Manzini and Savoia 2005, 2007, cf. Halle and Marantz 1993).

(10)   *OCls*
    a.   a   l-a-ŋ/l-i   ve
            3   3-F-PL/3-MPL see
            'S/he sees them'
    b.   a   ll-a   ve
            3   3(-F)   see
            'S/he sees him/her/it'
    c.   a   ll   a   kla'ma   / klamɛd-a
            3   3   have.3SG   called.M / called-F
            '(S)he has called him/ her'
    c'.   a i   a   kla'ma   / a   l-a-ŋ a   klamɛd-a
            3 3.MPL   have.3SG called.M   / 3   3-F-PL have.3SG called.M
            '(S)he has called them'

4.   Contact systems

Rhaeto-Romance and North-Lombard languages, spoken in part in contact with those considered and with one another, shed light on the distribution of the plural inflection and on the special nature of *(-)a*. In fact, the distribution and *-s* reflects the same asymmetries as that of *-ŋ*.

4.1   *-s/-i* plurals

In the Montereale (Friulian) data in (11), we see that:
    (i)   *-s* is the marker of plural in feminine nouns/adjectives/participles and in a sub-set of masculine nouns/adjectives, as in (11a', b', c', d');
    (ii)   *-i-* is the inflection of the feminine plural between the root of nouns/adjectives and *-s*, in (11a');
    (iii)   *(-)i* is the plural marker in determiners/modifiers in (11a', b');
    (iv)   *(-)i* characterizes subject and object clitics in (11c, c') and dative clitics in (11e).

(11)   a.   l-ɑ/kist-ɑ   (bjel-ɑ)   fɛmin-ɑ   vɛtʃ-ɑ
              the-FSG/this-FSG   (fine-FSG) woman-FSG old-F
              'the/this (fine) old woman'
    a'.   l-i/kest-i   fɛmin-i-s   (vɛtʃ-i-s)
              the-PL/that-PL woman-PL-PL (old-PL-PL)
              'the/these (old) women'
    b.   al kur'tʃel/   l/kel   ɔŋ   (vetʃ-u)
              the.M knife/   the.M/that.M   man   (old-M)
              'the knife'/'the/that old man'
    b'.   i kur'tʃe-i/   i/ke-i   bje-i   ɔŋ-s/ɔm-i-s   (vɛtʃ-u-s)
              the.PL knife-PL/   the.PL/that-PL fine-PL man-PL   (old-M-PL)
              'the knives'/'the/those fine (old) men'
    c.   l-i fɛmin-i-s/   i ɔŋ-s   i   duar
              the-PL woman-PL-PL/ the.PL man-PL 3PL   sleep
              'the women/the men sleep'
    c'.   l-u/   l-a/   i-u/   l-i   ve:t
              3-MSG/3-FSG/3PL-M/3-PL   see.1SG
              'I see him/her/them'

d. l-u   a-i   vjɛrt   / l-ɑ a-i   vjɛrt-ɑ
    3-M   have-1 open.MSG/ 3-F have-1   open-FSG
    'I have opened it'

d' i-u   a-i   vjɛr-s   /   l-i   a-i   vjɛrt-i-s
    3PL-M have-1   open-PL   /   3-PL have-1   open-PL-PL
    'I have opened them'

e. a   i-e   da   kist-u
    3   3DAT-INFL   give   this-MSG
    'S/he gives him this'

4.2   *-s*/*-a* plurals

In the Rhaeto-Romance (Ladin) varieties of Cadore (Italy), *-s* and vocalic plurals coexist. In Borca di Cadore, *-s* occurs only on nouns and post-nominal/predicativive modifiers (Chiocchetti 2003, Rasom 2006, Pomino 2012, Bonet et al. 2015). The data in (12) show that plural *-s* characterizes feminine nouns/adjectives and a sub-set of masculine nouns, in (12a', b'); plural Ds are asigmatic, taking the same form *l-a* as in the singular. Other sub-classes of masculine nouns have the inflection *-i* or *-e*, as in (12b', c'); (-)*i* is also the plural D. It is of note that *-e-* is also found in the feminine plural between the lexical base and sigmatic endings.

(12)   *feminine*
    a. l-a   botʃ-a/   ɔndʒ-a/   rɔð-a
        the-F   mouth-FSG/   nail-FSG/   wheel-FSG
        'the mouth/nail/wheel'
    a'. l-a   botʃ-e-s/   ɔndʒ-e-s/   rɔð-e-s
        the-F mouth-PL-PL/   nail-PL-PL/   wheel-PL-PL
        'the mouths / the nail/ the wheels'

    masculine
    b. al   djɛd-o/   jal
        the.MSG finger-MSG/   rooster
        'the finger/rooster'
    b'. i   djɛd-e/   ja-i
        the.MPL finger-PL/   rooster-MPL
        'the fingers/roosters'
    c. al   fuo
        the.MSG fire
        'the fire'
    c'. i   fuo-s/   fuog-e
        the.MPL fire-PL/   fire-PL
        'the fires'

In the feminine, the *-a* inflection, in addition to the singular in (12a), characterizes the plural in pre-nominal modifiers as well as determiners, (12a') and (13a'), and in pre-adjectival nouns, (13b'). Plural *-s* is lexicalized in post-nominal/predicative adjectives as well as on nouns, (12a') and (13a', b').

(13)   *feminine*
    a. l-a/   kel-a/ kel autr-a   bɛl-a femen-a
        the-F/   that-F/ that other-F   fine-F woman-F
        'the/that (other) fine woman'
    a'. l-a/   kel-a/ kel autr-a   bɛl-a femen-e-s

the-F/ that-F/ that other-F   fine-F woman-PL-PL
'the/those (other) fine women'

b.   kel-a femen-a bra-a
       that-F woman-F good-F
       'that good woman'

b'.   kel-a femen-a   vɛtʃ-e-s
       that-F woman-F   old-PL-PL
       'those old women'

Finally, *(-)i* lexicalizes the masculine plural not only in articles in (12b', c') and in other modifiers (14a'), but also in clitics, (15a, b); in addition, it lexicalizes the dative clitic, (15c). Feminine SCls and OCls have the sigmatic form *l-e-s*, in (15a, b, d); *-e-s* characterizes also the agreement on participles and predicative adjectives, as in (15d).

(14)   *masculine*
       a.   kel (autr-o)/   (ke)st-o   libr-o/tʃaŋ
              that other-MSG/this-MSG   book-MSG/dog
              'that (other)/this book/dog'
       a'.   k-i/   kist-i   bje-i   libr-e/tʃɛ-i   vɛtʃ-e
              that-MPL/this-MPL   nice-MPL   book-PL/dog-MPL   old-PL
              'those/these nice old books/dogs'

(15)   *clitics*
       a.   i   i/   el-e-s   l-e-s   ðɔrm-e
              they.MPL   3MPL/ they-PL-PL   3-PL-PL   sleep-3
              'They sleep'
       b.   l-a   l/   l-a/   i/   l-e-s veð-e
              3-FSG 3MSG/ 3-FSG/ 3MPL/ 3-PL-PL see-3
              'She sees him/her/them'
       c.   i   ða-o   kest-o
              3DAT   give-1SG   this-MSG
              'I give this to him/her/them'
       d.   al   l-e-z   a   veðuð-e-s   strak-e-s
              3MSG 3-PL-PL have   seen-PL-PL   tired-PL-PL
              'He has seen them tired'

4.3   Plural inflection missing on nouns

In the North-Lombard dialects bordering on Mesolcina, such as the Campodolcino dialect in (16), except a limited subset of nouns with the plural *-i*, e.g. *fra'dɛl/ frade-i* 'brother/ brothers', plural is devoid of inflection, both in masculine and feminine nouns (Baldi and Franco 2018). Therefore, the plural is expressed only on the pre-nominal elements by *(-)i*, in (16a') for feminine and in (16b') for masculine; the singular selects *-a* in the feminine, in (16a), and ∅ in the masculine, in (16b). The inflection *(-)i* characterizes also SCls, in (16c, c'), and OCls, in (16c''); participles regularly agree with SCl and OCl as in (16c', c''). Again, *i* is also the lexicalization of the dative, as in (16d).

(16)   a.   l-a   / kwel-a bɛl-a   kadrɛɟ-a
              the-F   / that-F nice-F   chair-F
              'the / that nice chair'
       a'.   i   / kw-i   bɛ-i   ka'drɛc
              the.PL / that-PL   nice-PL   chair
              'the / those nice chairs'

b.   al   / kwɛl   bɛl   pɛrsac
        the.M / that.M   nice   peach

b'.   i   / kw-i   bɛ-i   pɛrsac
        the.PL / that-PL   nice-PL peach
        'the / those nice peaches'

c.   i   drɔm-aŋ
        3PL   sleep-3PL
        'They sleep'

c'.   i   e-ŋ   ve'ɲy:t
        3.PL   be-PL   come
        'they have come'

c".   i   u   ve'dy:t
        3.PL   have.1 seen
        'I have seen them'

d.   i-al dɛtʃ
        3Obl-3 give.1
        'I give it to him'

4.4   *-a* plural

In a number of North-Lombard varieties, feminine plural is lexicalized by the same *-a* inflection of the singular. For instance, in Tresivio's (Valtellina) dialect (Savoia et al. 2018), (-)*i* occurs in determiners and demonstratives in the feminine and masculine plural, as in (17b-b') and (18b-b'). Feminine nouns have the *-a* inflection both in the singular and in the plural, (17b-b'). In the masculine, prenominal adjectives can take the plural *-i* inflection, behaving like prenominal determiners, as in (18b'). Otherwise, masculine nominal bases and postnominal adjectives appear bare in both singular and plural, (18b-b'). Plural *-i* occurs in a subset of masculine nominal bases, as illustrated in (18b').

(17)   *feminine*
     a.   l-a   femm-a
          the-F   woman-F
          'the woman'
     a'.   kwel-a bɛl-a femm-a
          that-F nice-F woman-F
          'that nice woman'
     b.   i   femm-a
          the.PL woman-F
          'the women'
     b'   kw-i bɛl-a femm-a
          that-PL nice-F woman-F
          'those nice women'

(18)   *masculine*
     a.   l   kaŋ/ l   me   fra'ðel
          the   dog/ the   my   brother
          'the dog/my brother'
     a'   kwel bɛl   kaŋ
          that   nice   dog
          'that nice dog'
     b.   i   kaŋ/ i   fra'ðe-i
          the.PL dog/   the.PL brother-PL

'the dogs/the brothers'

b'   kw-i   be-i   kaŋ
       that-PL nice-PL dog
       'those nice dogs'

The data in (19a-a') illustrate the SCl paradigm where the plural is *i* for all genders (19a'); the same is true for OCls (19b'). Note the phenomena of reduction or mutual exclusion between 3P OCl and SCl, cf. (10) and references quoted there. The perfect participle has the *-a* inflection in the feminine plural (19b'), as expected of a predicative element

(19)   *clitics*

     a.   əl/l-a   dɔrum
         3M/3-F sleep
         'S/he sleeps'

     a'   i   dɔrum
         3PL   sleep
         'They sleep'

     b.   a   ll   a   tʃamað-a/tʃamat
         3   3SG   have   called-F/called.M
         'S/he has called him/ her'

     b'   i   a   tʃamað-a/tʃamat
         3PL   have   called-F/called.M
         'S/he has called them'

The occurrence of *-a* in the plural, where it combines with (-)*i* in D and on pre-nominal modifiers, as in (17), provides crucial evidence about the nature of *-a*. In keeping with our preceding research (Savoia et al. 2018, 2019) we assume that *-a* entails an interpretation compatible with the plural understood as 'aggregate' (Chierchia 2010), of individuals or of parts. This conclusion fits in with the occurrence of *-a* in a subset of plurals in Italian and other Italian varieties (e.g. *uov-a* 'eggs', Acquaviva 2008). Our proposal is that *-a* is a morpheme endowed with specialized content, which encompasses gender and number specifications.[3]

5.   Differential Plural Marking (DPM) and Phases

The systems of Soazza (2)-(5), Casaccia (7)-(10), Montereale (11) and Borca (12)-(15) share some asymmetries in the plural:

(19)   a.   between masculine and feminine: *-i* vs *-s/ŋ* and their distribution;
       b.   between left and right positions in the DP: richer inflections on D vs richer inflections on NP vs different inflections;
       c.   between nominal inflections and clitic inflections (in the feminine).

The asymmetry in (19a) is unexpected if we consider related phenomena in Ibero-Romance in which plural *-s* in the masculine and feminine is treated alike, also from the viewpoint of (19b) (Costa and Figueredo Silva 2002, Bonet and Mascarò 2012, Bonet et al. 2015, cf. also Baier 2015 on the unrelated language Noon). The existence of mirror image asymmetries in (19b) is again surprising from the perspective of the literature, since existing studies consider only distributions where definite/deictic elements require a more clearly denotational morphology (Costa and Figueiredo 2002) or the reverse (Bonet et al. 2015). As far as we can tell, the integration of clitics (19c) into the

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[3] Other interesting evidence comes from the occurrence of *-a* as inflection of syncretic OCls, like (10b), in a number of North-Lombard and Po valley varieties.

set of phenomena considered is not pursued in the literature.

Costa and Figueiredo (2002) treat the distribution of -*s* in varieties of Brazilian Portuguese, assuming that -*s* is a 'singleton', i.e. a specialized interpretable morpheme associating only with D, the "element anchoring the information concerning number". Plural occurring on all of the elements internal to DP would be a dissociated morpheme (Embick and Noyer 2001), i.e. introduced by a post-lexical DM rule. Our treatment excludes this solution; we start from the hypothesis that syntax is projected from morphological terminals, which have interpretive lexical content, independently of their distribution. More importantly, however, our data call in question such a structural differentiation. Specifically, the distribution of -*s*, *(-)i* (and -*a*) occurring complementarily, excludes the relevance of the contrast between dissociated morpheme and singleton.

Other principles referred to in the literature concern the asymmetric properties of post- or pre-nominal agreement (Rasom 2006 in a cartographic framework, Bonet et al. 2015); the special Concord status of noun-modifier agreement as opposed to Agree (Baier 2015, and again Bonet et al. 2015); the contrast between marked vs. unmarked features (Pomino 2012). These solutions, while capturing interesting factors, present elements of theoretical richness, notably the intervention of both syntax and morphology or the split of Concord vs Agree. At the same time, they are open to the empirical criticism advanced above, namely that they cannot be extended account for the full spectrum of observed variation (see Manzini et al. 2018 for in depth discussion).

The treatments in the literature imply a recognition of the syntactic nature of these phenomena, or of at least part of them. We propose explaining the distribution of plural inflections and of their different exponents in terms of phases. Our assumption is that the internal structure of the phase is universally defined, in that head and complement of the phase are independently individuated by the Phase Impenetrability Condition (Chomsky 2001). Phases connect the distribution of the relevant features with externalization. Specifically, phases are able to define boundaries in the application of agreement processes, in so far as they correspond to different stages of access to lexicon.

6. Distribution of plural inflections in the DP, vP, CP phases

In this section, we provide schematic summaries of the distributional patterns of plural/gender in the different varieties considered, with respect to the DP, CP and vP phases. In the Soazza variety, feminine plural -*ŋ* excludes D elements, i.e. articles and 3P clitics, which present *l-a* in feminine singular and plural – both in the DP phase (20a) and in the CP/vP phases (20b, c). We construe the finite verb as an exponent of T and the participle as an exponent of *v*. In the Casaccia variety, the inflection -*ŋ* characterizes Ds (21a) and SCls (21b), but not OCls (21c), appearing instead on participles.

(20) *Soazza*

		D/Q	Adj	N	Adj
(a)	DP phase:	D/Q	Adj	N	Adj
	F	-a	-ŋ	-ŋ	-ŋ
	M	-i	∅/-i	∅/-i	∅/-i
(b)	CP phase:	SCl	T		
	F	-a	-ŋ		
	M	-i	∅		
(c)	vP phase:	OCl	v		
	F	-a	-ŋ		
	M	-i	∅/-i		

(21) *Casaccia*

		D/Q	Adj	N	Adj
(a)	DP phase:	D/Q	Adj	N	Adj
	F	a-ŋ	-a	-a	-a
	M	-i	∅/-i	∅/-i	∅/-i

			SCl	T
(b)	CP phase:			
	F		-a	-ŋ
	M		-i	-ŋ
(c)	vP phase:		OCl	v
	F		a-ŋ	-a
	M		-i	∅

With the same format adopted above, we can summarize the data of Rhaeto-Romance sigmatic varieties and of other Lombard varieties (without nominal -*ŋ*), as in (22)-(23) and (24)-(25), respectively.

(22) *Montereale*

		D/Q	Adj	N	Adj
(a) DP phase:					
	F	-i	-i(-s)	-i-s	-i-s
	M	-i	-i/-s	-i/-s	-i/-s
		SCl	T		
(b) CP phase:					
	F	-i	∅		
	M	-i	∅		
		OCl	v		
(c) vP phase:					
	F	-i	-i-s		
	M	-i	-s/∅		

(23) *Borca*

		D/Q	Adj	N	Adj
(a) DP phase:					
	F	-a	-e-s/-a	-e-s/-a	-e-s
	M	-i	-e/-i	-e/-s/-i	-e/-i
		SCl	T		
(b) CP phase:					
	F	-e-s	∅		
	M	-i	∅		
		OCl	v		
(c) vP phase:					
	F	-e-s	-e-s		
	M	-i	-e/-i		

(24) *Campodolcino*

		D/Q	Adj	N	Adj
(a) DP phase:					
	F	-i	∅	∅	∅
	M	-i	∅	∅	∅
		SCl	T		
(b) CP phase:					
	F	-i	-Vŋ		
	M	-i	-Vŋ		
		OCl	v		
(c) vP phase:					
	F	-i	∅		
	M	-i	∅		

(25) *Tresivio*

		D/Q	Adj	N	Adj
(a) DP phase:					
	F	-i	-a	-a	-a
	M	-i	∅/-i	∅/-i	∅/-i
		SCl	T		
(b) CP phase:					
	F	-i	∅		

	M	-i	∅
(c)	vP phase:	OCl	v
	F	-i	-a
	M	-i	∅

In many varieties, feminine plural *-i* or *-a* characterize D, SCl and OCl, in contrast with the occurrence of extra sigmatic or *-ŋ* plural material, or of zero plural material in nominal morphology. In the masculine, in fact, the distribution is not substantially different once we take into account that the system of nouns in many cases does not imply the sigmatic plural and never allows the *-ŋ* plural. Thus in the relevant varieties, in the DP phase the occurrence of *-a* or *-i* is associated with the head of the phase, i.e. determiners and possibly other nominal modifiers. In the CP phase, it is the SCl that lexicalizes the same plural specifications, and in the vP phase it is the OCl. Casaccia and Borca are different. In Borca, SCl and OCl present plural *-s*, so that only within the DP are distributional asymmetries observed. In Casaccia, *-ŋ* is excluded on SCl, but notably present on D and OCl as opposed to other nominal categories.

Let us then briefly review the notion of phase according to Chomsky (2001, 2007, 2013, 2019). Chomsky (2001) identifies phases with lexical subarrays, i.e. structures, computed at the SM and C-I interfaces by the operation of Transfer. The procedure is constrained by the Phase Impenetrability Condition (PIC) in (26). The idea is that, in a structure $[_{ZP} Z…[_{HP} \alpha [H\ YP]]]$, where Z and H are heads, the complement YP of H is not accessible to operations at ZP (Richards 2011).

(26)   *PIC*
        The domain of H is not accessible to operations at ZP; only H and its *edge* are accessible to such operations Chomsky (2001: 14)

Chomsky (2001, 2007, 2013, 2019) assumes the existence of two phases, CP and vP. The CP phase implies inheritance of features from the phase head C to the lower head T. Furthermore "the inheritance mechanism is simplified if it is generalized to phase heads generally, not restricted to C but extended to v* as well […]. Therefore V (or R) must receive φ-features from v*. It follows that just as a nominal phrase can raise to SPEC-T within CP, so it should be able to raise to SPEC-V within v*P" (Chomsky 2007: 20-21).

In SCl/OCl languages like the ones we consider, we may surmise that the heads of agreement are respectively SCl for the CP phase and OCl for the v phase. Roberts (2010) suggests a similar conclusion as regards the object clitic in Romance languages by dealing with OCls as bundles of phi-features on the edge of the v phase, as for instance in (27), cf. also Mavrogiorgos (2006).

(27)   a.   …le voit
              'he sees him/it'
       b. $[_{v*} \ le_{[i\varphi]} \ [_{v*} \ voit \ v \ [_{v*} \ V, uV, u\varphi]]]]$

(Roberts 2010: 57, with adaptations)

Our core proposal is that the D/NP split simply points to the independently motivated split between head of a phase and complement of a phase. So, far from manifesting differences between different agreement processes – or between morphology and syntax – partial distributions of plural inflections reflect phasal structure interacting with externalization. According to this proposal, we assume DP to be a phase; notwithstanding the original proposal by Chomsky (2001), there is considerable evidence that DP is a phase, beginning with the evidence that led to consider it (or NP as it then was) a cyclic node for Subjacency, namely the difficulty in extracting from it. Extraction is not impossible but generally restricted to the possessor which has an escape hatch within the DP (Szabolcsi 1994). Finally, the possibility that also words may be phases, advanced in Marantz (2001), can be justified in reference to the 'lexical integrity', a well-known property of words reportable to

the PIC.

7.   Analysis

In previous sections, we provided a schematization of the data, a presentation of core assumptions about phases and a basic statement of our proposal – namely that Differential Plural Agreement reflects the structure of phases, as determined by the PIC. Applying the phasal externalization idea to the data, a tentative parametrization can be stated, whereby the asymmetry in the distributional patterns of plural morphology reflects the phasal status of the host lexical items along the lines of (28).

(28)   *Externalization by Phase Parameter*
        In the process of externalization, a given property P may be differently realized on the head of the phase vs the complement of the phase. Logical possibilities include: non-realization on head, or non-realization on complement or different realization. All logical possibilities are expected to be instantiated.

The Parameter in (28) is generalized in two crucial respects. First, it is not conceived so as to apply only to plural, but in principle to any (functional) property/feature, or at least to those with referential import. Therefore, since our data are restricted to plural, we may either need evidence as to actual extensions – or at least reasons as to why only plural is affected. This issue goes beyond the scope of the present article, but we surmise that a necessary condition of Differential Marking is the presence of a specialized position on the tree, namely [⊆] for number.

The other generalization implied by (28) is that the Parameter is, in reality, uniformly applied in all phases, namely DP, vP and CP. The DP-phase is at the basis of our hypothesis; the idea is that D vs NP distribution of different plural morphologies reflects the fact that the NP complement of the D phase is shipped to externalization separately from the D head and its edge. So the left-right asymmetry is actually a head/edge of phase vs complement of phase asymmetry. Keeping the preceding discussion in mind, the distribution of plural inflection on OCls and SCls reinforces the conclusion that they are the true agreement heads of CP and vP phase.

Let us examine the vP and CP phases. While in Borca, OCls/SCls and perfect participles uniformly lexicalize feminine plural as *–es*, in the other dialects OCls and SCls have a different morphology than the one of participle, generally corresponding to the plural feminine of adjectives or nouns. So, in the vP phase, object clitics generally lexicalize plural specifications by means of the same exponents as determiner Ds. This fits in with the idea that object clitics are the true agreement head of the vP phase, as already discussed (cf. Roberts 2010). In the CP phase, subject clitics again have the same plural inflections as Ds and OCls. It is natural to relate this to the presence of a pronominal inflection on the finite verb in T, heading the CP-phase, which the SCl doubles – the two jointly playing the role of agreement head of the phase. We suggest that the right way to look at the apparent exception introduced by Casaccia is that, in reality, the feminine plural inflection of the head of the phase is *-a-ŋ* across phases. This is realized on D or OCl for the DP and vP phases, respectively. In the CP phase, what matters is the set (*-a*, *-ŋ*) resulting from the agreement of SCl and T. This is made possible by the fact that plural *-ŋ* inflects both nominal and verbal categories, a condition not realized in the other varieties.

Before illustrating our analysis with tree graphs, we may consider further the question how phase boundaries could be involved in regulating agreement in the different domains. Agree establishes an identity relation between two or more referential feature sets, subject to locality. This is what Chomsky (2001) calls Minimal Search and Match and what forms the core of Agree. For present purposes, we assume one simplification, namely that all phi-feature sets are interpretable and valued. This means that Agree is not triggered by the need for a probe to interpret/value its features. Rather it is triggered directly by the necessity to create equivalence classes of phi-feature bundles

lexicalizing the same argument, substantially denoting a single referent (Manzini and Savoia 2005, 2018a). The idea that all lexical material is associated to an interpretable/valued content leads to a conception of Agree as an operation not intrinsically different from Chomsky's (2001) mechanism as far as it expresses the identity (Match) between features under locality (Minimal Search). Crucially, however, we are able to extend this agreement operation also to the DP-internal domain, to clitic doubling and to other nominal/nominal agreements.
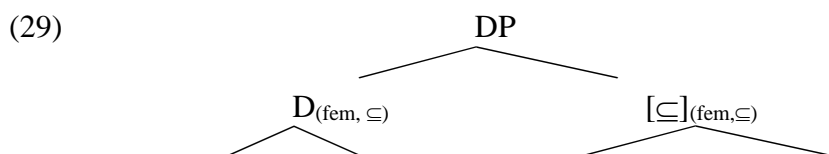
Let us consider then the relation D-N in the DP phase. By all that precedes the head D enters into an agreement relation with N, which satisfies the PIC, among other conditions. The nodal point of our analysis is that the NP complement of the D phase is shipped off to externalization at Merge with the superordinate phase head (v). On the other hand, D and the edge of the D phase are shipped to externalization separately. We expect that at each transfer point a consistent lexicalization of agreeing inflections is adopted – so that for instance plural *-s* is consistently realized in the NP (N and modifiers of N). At the same time, we do not necessarily expect material transferred as part of a different phase to display a consistent lexicalization with that of the previous phase – so that for instance plural *-s* is always excluded by D. This is what emerges in the dialects examined here, and in a wider cross-Romance perspective.

Other recent approaches to phases at the PHON interface, notably D'Alessandro and Scheer (2015) (see also the references quoted there), exemplify a canonical use of phasal boundaries as blocking certain phonosyntactic processes (Raddoppiamento[4]). In our case study, phasal boundaries enable some processes rather than preventing them. This is an equally canonical use of locality, for instance in enabling pronominal reference in the absence of locality under principle B. Thus, there is no principled contradiction, but rather complementarity in this respect. The modularization (hence weakening) of the PIC which forms the core of D'Alessandro and Sheer is left open for future research.
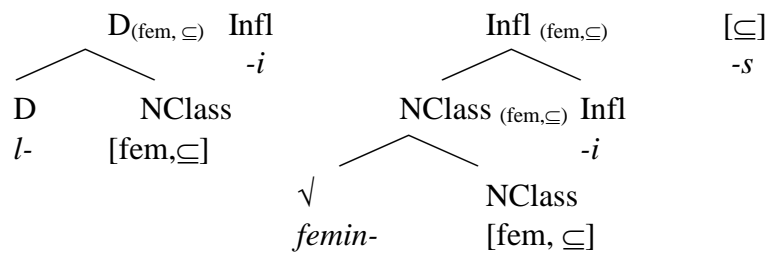
8.   Implementations

We conclude by applying the analysis just outlined to selected data. In keeping with the model proposed in Manzini and Savoia (2011a, 2018a), Savoia et al. (2017, 2018), inflectional structures are built in the syntax. Thus inflected nouns are analysed as the result of a syntactic Merge operation that combines a lexical root with gender (feminine/masculine) and other classificatory properties, including number. Labels are mostly self-explanatory, such as $\sqrt{}$ for the category-less root (Marantz 1997) and N Class to host gender and eventually number specifications. Infl is our label for the vocalic morpheme which externalizes gender and/or number in terms of inflectional class (roughly the Th vowel of Kramer 2015 and references quoted there). The [⊆] notation corresponds to a part-whole/inclusion property, to the effect that the denotation of the root can be partitioned into subsets of individuals, i.e. number/plural.
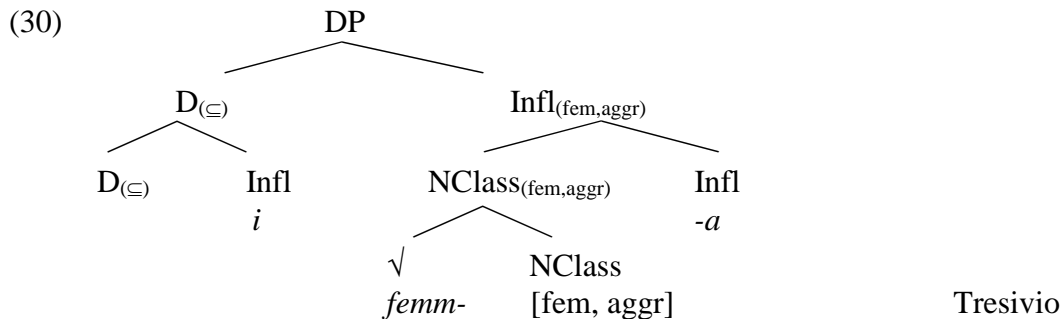
Within this framework, let us consider first DP-internal agreement. In Montereale in (11), D agrees with N with respect to [fem] and [⊆] properties. Naturally, nothing in principle would prevent the agreement to be externalized as *-i-s* on both D and N, given the availability of both *-i* and *-s*, but another possibility, robustly illustrated by our data for many varieties, is that D is associated to the Class element for plural, i.e. *-i*, as illustrated in (29).
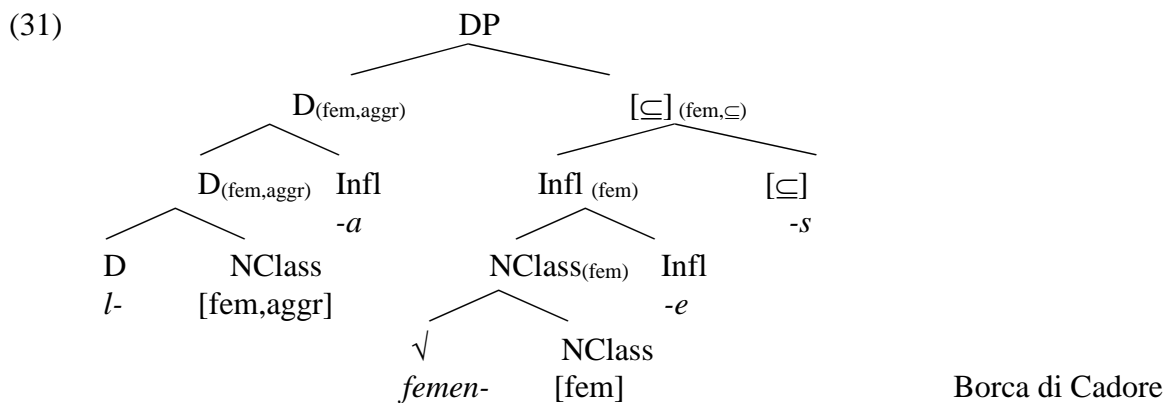
(29)

$$\begin{array}{c} \text{DP} \\ \diagup \diagdown \\ \text{D}_{(fem, \subseteq)} \qquad \qquad [\subseteq]_{(fem,\subseteq)} \\ \diagup \diagdown \qquad \qquad \diagup \diagdown \end{array}$$

---

[4] 'Raddoppiamento fonosintattico' is the sandhi process whereby the initial consonant of a word geminates depending on the prosodic or lexical properties of the preceding word belonging to a specialized lexical subset.

```
        D(fem, ⊆)   Infl                    Infl (fem,⊆)              [⊆]
                    -i                                                -s
    D        NClass              NClass (fem,⊆)  Infl
    l-       [fem,⊆]                             -i
                                √        NClass
                              femin-     [fem, ⊆]              Montereale
```

As to the exponent *-a*, Manzini and Savoia (2018b, 2019), Savoia et al. (2018) have recourse to the [aggr(egate)] class differentiating the *-a* plural from the *-i* plural. We characterize the content of [aggr] like Chierchia (2010), for whom 'aggregate' captures the common core of mass and plural denotation. We assume that set-divisibility [⊆] is a specialization of [aggr], so that the two are compatible/non-distinct under Agree, allowing *-a* and *-i* to combine, as in (30) for Tresivio. Therefore, *-a* is selected as positively specified for a plural denotation, and not as a default type agreement in the absence of specialized plural.

```
(30)                         DP

          D(⊆)                          Infl(fem,aggr)

    D(⊆)        Infl           NClass(fem,aggr)      Infl
                i                                    -a
                            √         NClass
                          femm-       [fem, aggr]           Tresivio
```
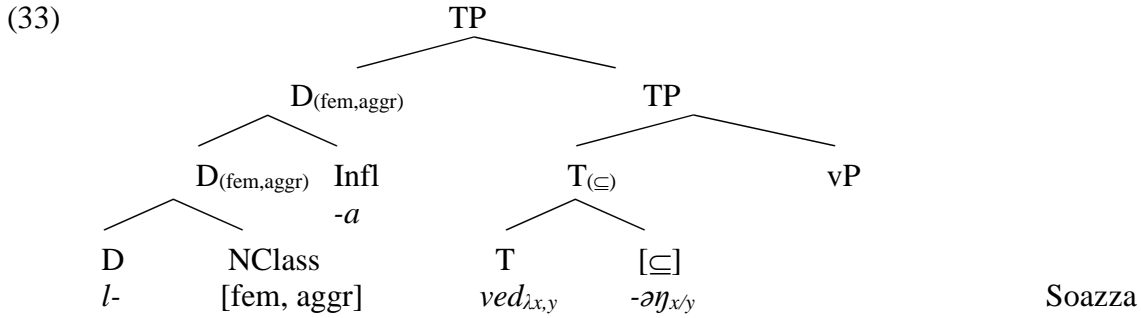
A somewhat reversed structure is found in varieties like Borca where D selects *-a* in the plural feminine, since [aggr] occurs on D and N includes *-s/-ŋ* number elements, as in (31). The treatment of pre-nominal adjectives (13a') like pre-adjectival nouns in (13') should in principle receive an analysis along the same lines as (31) – though see further peculiarities of Borca in (36).

```
(31)                             DP

           D(fem,aggr)                      [⊆] (fem,⊆)

    D(fem,aggr)    Infl            Infl (fem)            [⊆]
                   -a                                    -s
    D       NClass            NClass(fem)  Infl
    l-      [fem,aggr]                     -e
                            √        NClass
                          femen-     [fem]          Borca di Cadore
```

Let us then turn to agreement in the sentential domain. In Soazza, the pure number specification is externalized by *-ŋ*, on V and N but not on D. Importantly, *-ŋ* behaves as a sort of enclitic added to the personal inflection, as in the 1st person singular where it combines with the ending *-i*, as in (32).

(32)   l-a   tʃam-i-əŋ
        3-F   call-1SG-FPL
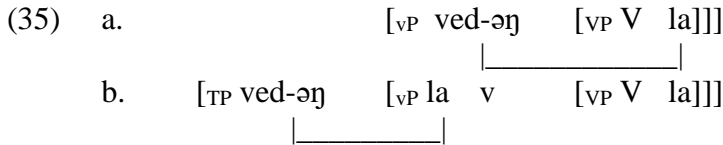   'I call them'

In (33), the plural -*ŋ* is introduced on T in an agreement (non-distinctness) relation with *l-a*, which in turn can be interpreted as the external or the internal argument.

(33)

```
                              TP
                    ┌─────────┴─────────┐
              D(fem,aggr)                TP
           ┌──────┴──────┐         ┌─────┴─────┐
    D(fem,aggr)        Infl      T(⊆)           vP
     ┌────┴────┐        -a      ┌──┴──┐
     D       NClass             T      [⊆]
     l-    [fem, aggr]        ved_λx,y  -əŋ_x/y              Soazza
```

The behaviour of plural agreement in Soazza is discussed by Nevins (2011: 8, 9). He assumes that the ability of number to extend ambiguously to object or subject descends from the underspecified status of singular, whereby "unmarked values of number, e.g. [-singular], are never syntactically active and never referred to in the syntax". This means that a singular subject does not intervene on the agreement path between T and an object clitic, as schematized in (34). By contrast, "person features are always fully specified on syntactic arguments", thus giving rise to intervention effects.

(34)   [TP ved-əŋ   [vP la   v   [vP V   la]]]
             |_____|_____|
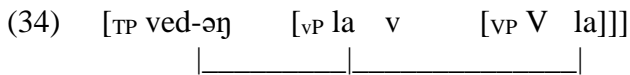
Our analysis simply assumes that -*ŋ* on the verb can lexicalize the agreement either with the external argument or with the internal argument, as the reflex of the relation between SCl and T in (35b) or between v and OCl in (35a).

(35)   a.   [vP ved-əŋ   [vP V   la]]]
                                      |_____|

        b.   [TP ved-əŋ   [vP la   v   [vP V   la]]]
                   |_____|

A somewhat complementary case is that of Borca in (12)-(15), where OCls and SCls take on the -*s* inflection, independently of the fact that -*s* does not occur on Ds, as in the structure in (36) for the subarray including the SCl *les* and the participial *v veðuð-e-s* 'seen'.

(36)   [[[l- D] e- Infl] s [⊆]] ...   [[[veðuð- v/Asp] e- Infl] s ⊆]

9.   Conclusions

Asymmetries in the externalization of plural inflections in Romance varieties may be explained in terms of some principled factors, relating to the nature of the categories D vs. N, and of their syntactic distribution. Moreover, feminine rather than masculine favors a special externalization of plural because of the properties of -*a*. Our core idea is that (the externalization of) agreement by the phi-features categories, i.e. N, D, Cl and verb depends on their status in relation to phases.

Our aim is to translate externalization phenomena into an adequate syntactic framework, able to highlight the link between morphological properties and syntax, all in all what we expect that an optimal design of language should assume. In this perspective, Phases allow us to account for the observed asymmetries in terms of a more comprehensive and in-depth theory. The analysis is placed within a minimalist framework, where Agree is Minimal Search and Match. In the instance at hand, the PIC works not to prevent externalization processes – but rather to enable them. Specifically, we suggested that, when the complement of a phase is shipped off to PHON, a consistent externalization

of inflectional features prevails (up to effability). This breaks down at the phase transfer boundary, yielding the pervasive Romance asymmetries between Ds and their NP complements. In a perspective of optimization of interface phenomena, D/NP asymmetries may actually be favoured as making phase boundaries transparent; in other words, we exclude that they are just quirks of morphology, entirely governed by a post-syntactic morphology component of the DM type and its readjustment rules.

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