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RESEARCH

Missing inflectional features and missing exponents in DP-internal agreement asymmetries

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This paper focuses on different types of agreement asymmetries within the DP in which postnominal modifiers exhibit full agreement while in prenominal modifiers agreement can fail in different ways. The main lines of the optimality-theoretic proposal in Bonet, Lloret & Mascaró (2015) are followed, but it is shown, through a comparison of two Northern Italian varieties, that their constraint set cannot account for varieties of Friulian, where the plural exponent fails to surface in plural contexts. It is argued that one of their constraints must be split into two separate ones, a strictly phonological constraint, MAX(SEGMENT), on the one hand, and, on the other, a constraint on exponence, MAX-M[F], proposed by Wolf (2008).

Keywords: gender; number; exponence; concord asymmetries; Optimality Theory

1 Introduction

While in many Romance languages there is generally full agreement in gender and number within the DP, some varieties show agreement asymmetries, under specific conditions. The example in (1), corresponding to the Cazet subvariety of Fassan Ladin (Rasom 2008), shows feminine plural agreement on the noun and postnominal modifiers, while only feminine agreement is present in prenominal elements. In (1) the noun and the agreement markers appear in boldface.

(1) *Varieties of Fassan Ladin*
l**a** pìcol**a** **steiles** envisìbol**es**
the.F.SG small.F.SG star.F.PL invisible.F.PL
'the small invisible stars'

The example in (2), from North-Eastern Central (NEC) Catalan, shows, similarly to Fassan Ladin, failure of plural agreement in prenominal position; in this case, however, the noun is masculine. The underscores signal the missing plural morph *s*.

(2) *North-Eastern Central (NEC) Catalan*
molt_ poc_ **professionals** bon**s** present**s**
much few professional.PL good.PL present.PL
'very few present good professionals'

Finally, the example in (3), from varieties of Castilian Spanish, shows how a feminine noun can trigger feminine agreement in postnominal elements but masculine agreement in prenominal ones.

(3) *Varieties of Spanish*

el	nuev**o**	**arma**	secret**a**
the.M.SG	new.M.SG	weapon.F.SG	secret.F.SG

'the new secret weapon'

The goal of this paper is twofold. On the one hand, and following previous work by Bonet et al. (2015), hereafter BLM2015, it aims to show that agreement in the nominal domain is not solely the result of purely syntactic mechanisms, but is conditioned by morphological and phonological factors as well; on the other hand, with evidence coming from Northern-Italian Romance varieties, it is argued that the asymmetries can arise not only as the result of defective morphosyntactic feature spreading but also due to failure of exponence of the relevant features, and this requires a modification of one of the constraints in BLM2015.[1]

The rest of the paper is organized as follows: in Section 2 the main points of the BLM2015 proposal are summarized. In Section 3 the analysis of two of their case studies is reviewed, one from NEC Catalan (illustrated in (2)) and one from varieties of Spanish (illustrated in (3)). Section 4 is devoted to a comparison of two Romance varieties based on data from Rasom (2008): the Cazet subvariety of Fassan Ladin (illustrated in (1)), where absence of the feature [PLURAL] leads to a singular form, and one variety of Friulian, which is argued to have full concord but absence of the relevant exponent under specific phonological conditions. It is shown that the constraint set in BLM2015 runs into a ranking paradox when trying to account for this variety. In section 5 it is argued that the origin of the problem is one of BLM2015's constraints, which wrongly conflates different concepts, and that a specific constraint related to exponence must be added. Finally, Section 6 contains further issues and concluding remarks.

2 BLM2015's approach to the asymmetries: The basics

BLM2015 provides an analysis of the facts illustrated in (2) and (3), together with other facts from Spanish, that combines a syntactic approach to postnominal agreement with a postsyntactic constraint-based approach where morphosyntactic and phonological constraints can interact.[2] With Picallo (1991), Bernstein (1993), and Cinque (1996; 2005), among many others, it is assumed that the N originates in the most embedded position within the DP. A non-final position of the N is derived through movement of the NP. Postnominal agreement takes place syntactically, in a Spec-head configuration, as assumed by many other approaches to nominal and clausal agreement (see, among others, Guasti & Rizzi 2002; Samek-Lodovici 2002; Shlonsky 2004; Franck et al. 2006; Nevins 2011a). The failure of prenominal agreement in the DP (or in a verb-subject configuration) is often attributed to long distance Agree. For BLM2015, this failure arises at PF generally as the violation of the markedness constraint CONCORD in (4), a constraint that requires the agreement features of the N to spread to all the other elements in the DP.[3]

[1] Other patterns of agreement asymmetries can be found, for instance, in the varieties of the Lunigiana region in north-eastern Italy. These varieties show considerable differences and it is difficult to see how they should be analyzed. For descriptions of these varieties and analyses of some of their properties see Manzini & Savoia (2005) or Cavirani (2018), among others.

[2] Samek-Lodovici (2002) and Shlonsky (2004), among others, argue that the pattern of agreement discussed in this paper parallels that found at the clause level between the subject and the verb: while agreement between a preverbal subject and the verb is systematic, it is often the case that agreement fails when the subject appears in postverbal position. In this paper I concentrate solely on nominal agreeement.

[3] The constraint CONCORD has similar effects to the constraint EXTAGR$_f$ in Samek-Lodovici (2002), proposed for the clause domain ("an agreement head H and a DP must agree on feature *f* within the extended projection of H").

(4) CONC(ORD)
If a N has an inflectional feature F, all other modifiers within the DP must have the inflectional feature F.

The scope of syntactic agreement and the postsyntactic constraint CONCORD appears schematically shown in (5).

(5)

	$[_{DP}$ X	**N**	Y t_N]	
SYNTAX:		**S-H**		Agreement via Spec-Head (S-H)
PF:	**Conc**	**Conc**		Agreement through CONCORD

The agreement features assigned syntactically are subject, at PF, to faithfulness constraints against deletion, MAX. The interplay between CONCORD and MAX constraints and others is illustrated in the next section with examples from North-Eastern Central Catalan and varieties of Spanish.

3 Two case studies from Iberian varieties and their analysis

3.1 North-Eastern Central (NEC) Catalan

As was illustrated in (2), with data from BLM2015, in NEC Catalan plural agreement can fail prenominally but not on the noun or postnominal modifiers. Other examples of prenominal missing *s* appear in (6), with a variety of prenominal elements that include articles, demonstratives, adjectives, possessives; the missing plural morph is realized in other dialects of Catalan (as [s] or [z] depending on the context). In the examples (6a–d) the noun is masculine, while in (6e) it is feminine.

(6) a. un_ meu_ company**s**
a.M my.M mate.M.PL
'some mates of mine'

b. el_ bon_ vin**s**
the.M good.M wine.M.PL
'the good wines'

c. aquell_ llibre**s**
that.M book.M.PL
'those books'

d. quin_ nou_ probleme**s**
what.M new.M problem.M.PL
'what new problems'

e. gran_ promese**s**
great promises.F.PL
'great promises'

But the plural morph does surface prenominally if it is preceded or followed by a vowel. Due to the fact that most feminine nominals end in a vowel while most masculine nominals end in a consonant, the vast majority of nominals without the plural morph are masculine. In the examples in (6) the plural morph fails to surface because the *s* would appear in the context C_C; that is, as the second consonant of a complex syllable coda.[4] Some examples showing realized plural morphs in prenominal position after and before a vowel are given in (7) and (8), respectively.

[4] The possessive *meu* in (6a) and the adjective *nou* in (6d) are pronounced with a final glide, not with a vowel.

(7) a. quine**s** male**s** carretere**s**
what.F.PL bad.F.PL road.F.PL
'what bad roads'

b. escasso**s** fet**s**
scarce.M.PL fact.M.PL
'very few facts'

(8) a. quant**s** últim**s** instant**s**
how.many.M.PL last.M.PL instant.M.PL
'how many last instants'

b. aquest**s** estrany**s** ull**s**
this.M.PL strange.M.PL eye.M.PL
'these strange eyes'

As mentioned above, the phonological condition on plural morpheme realization (avoidance of a CsC cluster) holds only for prenominal position; in postnominal position the *s* surfaces regardless of the phonological context, as shown by the example in (2), repeated below as (9). Both the noun and the adjective *bons* 'good' surface with a final plural *s* in spite of the fact that it appears preceded and followed by a consonant in each case.

(9) molt_ poc_ **professionals** bon**s** present**s**
much few professional.PL good.PL present.PL
'very few good professionals present'

Another important aspect to bear in mind is that the *s* which does not surface in prenominal position must be the plural morph; any other final [s] or [z] does surface even if it is preceded or followed by a consonant, as the examples in (10) show, where the consonants in boldface are pronounced [s]; both the *s* in *fals* 'false' and the ç in *dolç* 'sweet' belong to the root.

(10) a. un fal**s** conseller
'a false counselor'

b. un dol**ç** cant
'a sweet singing'

Summarizing the facts, there are three conditions that must be met simultaneously for the non-realization of *-s* in NEC Catalan: (a) a phonological condition by which the missing *s* avoids a C_C context; (b) a syntactic condition by which the missing *s* is prenominal within the DP; and (c) a morphological condition by which the missing *s* is the plural morph.

In BLM2015, the interaction of phonological, syntactic and morphological factors in the failure of *s* realization is a consequence of the interaction between morphosyntactic constraints of the MAX and CONCORD family and other morphosyntactic and phonological constraints. The MAX constraints that are relevant are those in (11).

(11) a. MAX(SEGMENT)
Every segment of the input has a correspondent in the output ("No phonological deletion") (McCarthy & Prince 1995: 264).

b. MAX(MPH)
Every morpheme of the input has a correspondent in the output ("No morphological deletion")

In BLM2015 MAX(SEGMENT) is violated in its standard sense, when a segment in the input is not present in the output, as is the case with plural *s* on the noun or postnominal modifiers, but it is also violated when a candidate, an output, has a morphosyntactic feature without the corresponding exponent, regardless of whether this morphosyntactic feature appears in the input or not. As for MAX(MPH), they consider it to be violated both when a morphosyntactic feature appears in the input, as in postnominal position, and also when a prenominal element surfaces without inflection. The different scenarios for MAX(SEGMENT) and MAX(MPH) violation and satisfaction are shown in (12) and (13), which correspond to BLM2015 (20a, b), with the exclusion of gender, for the sake of clarity. (12) illustrates an adjective in postnominal position, *vell* 'old', after having undergone concord with a plural noun in the syntax. The two MAX constraints apply as would standardly be assumed, with MAX(SEGMENT) being violated by the candidates in (12b, c), because the plural *s* of the input is missing; MAX(MPH) is violated only by (12c), because it has lost the feature [PLURAL].

(12)

		MAX(SEG)	MAX(MPH)
Postnominal input:	vell-s_{PL}		
Outputs:	a. vell-s_{PL}	√	√
	b. vell-$_{-PL}$	*	√
	c. vell	*	*

It is in (13), with an indefinite determiner in the input (*un* 'a'), that the additional meaning of the two MAX constraints comes into play. The input shows the root and, unattached, all the possible inflectional morphosyntactic features (here [SINGULAR] and [PLURAL]), with their corresponding exponents. This is a way to encode Vocabulary Items in Distributed Morphology terms. MAX(SEGMENT) is violated when a [PLURAL] feature in the output is not associated with *s*, as in (13b), but it is not violated when the output is a bare root, with no [PLURAL] feature, as in (13c); compare this case with (12a), where a bare root does violate MAX(SEGMENT) because the *s* morph of the input is not present in the output. MAX(MPH) is only violated by the candidate in (13c), a bare root, the idea being that any determiner should be inflected for number (and gender).

(13)

		MAX(SEG)	MAX(MPH)
Prenominal input:	un,[$Ø_{SG}$, s_{PL}]		
Outputs:	a. un-s_{PL}	√	√
	b. un-$_{-PL}$	*	√
	c. un	√	*

The tableau in (15) illustrates the relevant constraint interaction applied to the example *aquest_ cabells llargs* in (14) (part of BLM2015: (11a)).

(14) aquest_ cabell**s** llarg**s**
this hair.PL long.PL
'these long hairs'

The tableau in (15), in addition to the MAX constraints and CONCORD (relativized to number in NEC Catalan), includes other constraints. MATCH is a constraint banning contradictory morphosyntactic features. The constraint *PL ("no morphological expression of the plural") belongs to the NOFEATS family (Samek-Lodovici 2002). Finally, *CsC is shorthand for the set of phonological constraints that ban an [s] in interconsonantal position (see BLM2015 for a justification of the constraint set and the constraint ranking).

(15) Tableau corresponding to (14)

Input:	aquest [$Ø_{SG}$, s_{PL}]	cabell-s_{PL}	llarg-s_{PL}	MAX (seg)	MATCH	*CsC	CONC (num)	MAX (MPH)	*PL
a.	aquest-s_{PL}	cabell-s_{PL}	llarg-s_{PL}			**!			***
b.	aquest-$Ø_{SG}$	cabell-s_{PL}	llarg-s_{PL}		*!	*	*		**
☞ c.	aquest	cabell-s_{PL}	llarg-s_{PL}			*	*	*	**
d.	aquest-$_{\_PL}$	cabell$_{_PL}$	llarg-s_{PL}	**!					

The constraint MAX(SEGMENT) is violated twice by candidate (15d) for different reasons: the noun violates it because the input has a final *s* that is missing in the output; and the demonstrative violates it because the morphosyntactic feature [PLURAL] of the output does not appear with the corresponding exponent, *s*. The constraint MATCH is violated by the candidate in (15b), because the demonstrative is singular while the noun is plural. CONCORD(num) is violated by (15b) and (15c) because the demonstrative does not agree with the noun in plurality. The latter candidate, (15c), also violates MAX(MPH) because the demontrative does not have any inflectional feature. All violations of MATCH also constitute violations of CONCORD, while not all violations of CONCORD constitute violations of MATCH, given that a bare root does not agree with the noun, but it does not have contradictory features (compare (15b) and (15c)).

3.2 Spanish gender asymmetries

In (3) an example from dialects of Spanish was given that shows a feminine noun, *arma* [árma] 'weapon', triggering feminine agreement in postnominal modifiers but masculine agreement in prenominal ones. In what follows I first describe how this pattern arose and afterwards I summarize the account of it in BLM2015.

Historically in Spanish the feminine definite article *la* acquired the form *el* when a following common noun started with [á], avoiding a sequence of two identical low vowels, *[aá], a phenomenon that can be interpreted as a dissimilation caused by the Obligatory Contour Principle (OCP). In some approaches this form *el* has been identified with the masculine article, and hence as a change in morphosyntactic features, while in other approaches it has been analyzed as the feminine exponent undergoing phonological changes (see, for discussion, Plank 1984; Zwicky 1985; Harris 1987; and Kikuchi 2001, among others). I will assume, as reflected by the glosses, that the form *el* is the masculine exponent.

The example in (16a) shows the regular form of the feminine definite article, with a noun that starts with a consonant, *casa* 'house'. The examples in (16b) contain different nouns that start with stressed [á]; only the definite article changes, postnominal modifiers surfacing clearly as feminine.

(16) a. la casa fría
the.F water.F cold.F

b. el [á]gua fría
the.M water.F cold.F

el [á]rma cargada
the.M weapon.F loaded.F

el [á]guila vieja
the.M eagle.F old.F

The change in the definite article does not apply when the following noun starts with an unstressed vowel, as exemplified in (17a).[5] The avoidance of a phonological sequence containing two identical low vowels is not simply a phonological phenomenon. Nor does it apply when the definite article is followed by an element other than the noun, like an adjective or an adverb, (17b). Some nouns starting with [á] are exceptions and do not trigger the change, (17c).[6] Moreover, the third person feminine singular accusative pronominal clitic *la*, which is identical to the feminine definite article, does not change to *el* when the following verb starts with [á], (17d).

(17) a. la alm[é]ndra
the.F almond.F

b. la [á]lta$_{Adj}$ consideración
the.F high.F consideration.F

la [á]ntes$_{Adv}$ mencionada
the.F before mentioned.F

c. la Ágata
the.F 'proper name.F'
la [á]stro
the.F (movie-)star.F

d la$_{Pr}$ [á]rma$_{V}$
her.F arms 's/he arms her'

This change of the definite article from feminine to masculine does not apply when the noun is plural, as shown in (18). This can be attributed to the fact that the presence of the plural morph *s* in the definite article breaks the [aá] sequence and hence avoids a violation of OCP.

(18) las [á]guas frías
the.F.PL water.F.PL cold.F.PL

Finally, in Standard Spanish, the change in the definite article applies only when the article is adjacent to the noun, not when a modifier intervenes, as illustrated in (19). In these examples the feminine article is not adjacent to [á]; the only [aá] sequence arises from the contact between the feminine adjective and the nouns starting with [á], but in Standard Spanish no change affects the adjective in this context.

(19) a. la nueva árma
the.F new.F weapon.F

b. la única águila
the.F only.F eagle.F

The change to masculine that we have seen with the definite article is also found, in Standard Spanish, with the indefinite article (*un*), and quantifiers like *algún*. What is of interest here is an extension of this phenomenon, found mostly in colloquial varieties of Castilian Spanish, but banned by prescriptive grammars, by which all prenominal elements surface in the masculine while all postnominal modifiers are feminine. This phenomenon is found only with the closed set of about 25 common nouns starting with [á] like those that

[5] In (17a) the most common pronunciation is with a single [a], not two; the sequence [aa] is also avoided.
[6] Acronyms starting with a stressed [á] are also an exception: *la AMPA* (Asociación de Madres y Padres de Alumnos).

were exemplified in (16b). More detailed descriptions, additional data, and discussion of this phenomenon can be found in, among other sources, *Nueva gramática de la lengua española* (RAE 2009), Álvarez de Miranda (1993), Ambadiang (1999), and Eddington & Hualde (2008), who refer to the nouns that trigger the phenomenon as hermaphroditic nouns. Some examples appear in (20). In (20a), the masculine definite article is preceded by the universal quantifier *todo* 'all' in its masculine form, not the feminine *toda*; the phonological OCP context that would trigger the change is not present here. Something similar happens in (20b, c), where the definite article is followed by a prenominal modifier and there is no phonological trigger for the change. Of special interest is example (20d). In this case the noun *agua* is preceded by the invariable possessive *su*, without surfacing gender; nevertheless the preceding quantifier *todo* appears as masculine.

(20) a. todo el agua perdida
all.M the.M water.F lost.F

b. el nuevo arma secreta
the.M new.M weapon.F secret.F

c. el mismo agua parecerá fría
the.M same.M water.F will.seem cold.F

d. todo su área delantera
all.M its area.F front.F

When the noun is plural, all modifiers, whether prenominal or postnominal, surface as feminine, as shown in (21a, b), the plural version of (20b, d), respectively. The original reason for the presence of full gender agreement in the plural was the lack of an [aá] sequence and was illustrated with the definite article in (18).

(21) a. las nuevas armas secretas
the.F.PL new.F.PL weapon.F.PL secret.F.PL

b. todas sus áreas delanteras
all.F.PL its.PL area.F.PL front.F.PL

In the analysis of this variety of Spanish, BLM2015 assume that the triggering nouns are all feminine and therefore cause feminine agreement to postnominal modifiers in the syntax, as is the case with all other feminine nouns of the language. The fact that these triggering nouns all start with [á] is synchronically a coincidence, the phonological factor that caused the change not being relevant nowadays, as was illustrated in (20). BLM2015 attribute the lack of masculine agreement in prenominal elements to a rule of impoverishment, a Distributed Morphology operation (see Halle & Marantz 1993, among others); this rule, in (22), deletes the feature [FEMININE] postsyntactically only for this set of nouns.

(22) Impoverishment: [FEMININE] ⇔ Ø/_[SG] for *agua, ama, alma, …*

The loss of the feature [FEMININE] from the relevant nouns prevents the assignment of this feature to prenominal elements, which will surface with default masculine. The derivation of a DP containing prenominal masculine and postnominal feminine is schematically shown in (23) (adapted from BLM2015: (55)).

(23) *Este agua fría* 'this cold water'

a. Input to Syntax
est- fri- **agua**
[ ] [ ] [F SG]

b. Syntax
est- **agua** fría
[ ] [F SG] [F SG]

c. Input to PF
est- **agua** fría
[ ] [_ SG] [F SG]

d. Output
este **agua** fría
[M SG] [_SG] [F SG]

In the tableau in (24), corresponding to an abstract example with a prenominal and postnominal modifier, like in (23), the constraint CONCORD is relativized to the features [FEMININE] and [PLURAL]. The additional morphosyntactic constraint *FEM ("no morphological expression of the feminine") belongs to the same family as *PL. The input reflects the noun once it has lost its feature [FEMININE] through impoverishment (as in (23c)).

(24) Failure of prenominal concord with singular nouns like *agua* 'water'

Input: X **N** Y _SG F.SG	MAX(MPH)	CONC (F,PL)	*FEM
☞ a. X **N** Y M.SG _SG F.SG			*
b. X **N** Y F.SG _SG F.SG			**!
c. c. X **N** Y _SG F.SG	**!		*

The cover constraint CONC (F,PL) is vacuously satisfied by all candidates because, on the one hand, the noun is singular (and the constraint is relevant for the feature [PLURAL]), and, on the other, it has lost the feature [FEMININE] through impoverishment before evaluation. The candidate in (24c) violates the constraint MAX(MPH) twice because the prenominal element is not inflected for either gender or number (it is a bare root). The constraint *FEM favors the surviving candidate with fewer instances of the feature [FEMININE], (24a), which surfaces with default masculine agreement.

As was mentioned earlier, when nouns like *agua*, *arma* or área, are plural feminine, agreement is found in all elements of the DP (see the examples in (21)). It is in this context that the constraint CONCORD(F,PL) becomes decisive, as shown by the tableau in (25).

(25) Full concord with plural nouns like *armas* 'weapons' or áreas 'areas'

Input: X **N** Y F.PL F.PL	MAX(MPH)	CONC(F,PL)	*FEM
a. X **N** Y M.PL F.PL F.PL		*!	**
☞ b. X **N** Y F.PL F.PL F.PL			***!
c. X **N** Y M.PL F.PL PL	*	**!	*

Crucially, the impoverishment rule in (20) does not affect the set of nouns that include *agua*, *arma*, or área, in the context of [PLURAL]. Therefore, the presence of the features [PLURAL] and [FEMININE] on the noun, turns CONC(F,PL) into a fully relevant constraint, violated twice in (25c), where the feature [FEMININE] of the noun is not present on its

modifiers. The ranking of CONCORD(F,PL) above *FEM causes the candidate with full agreement (25b) to beat the candidate with partial agreement (25a). The prenominal elements in (25a, c) also violate MATCH, not included in the tableau, because the values for gender between these elements and the noun are contradictory.

4 Comparing Iberian varieties with Northern Italian varieties

4.1 Fassan Ladin

In Section 1 an example was given from Rasom (2008) from Fassan Ladin (Cazet subvariety, example (2)), in which a feminine plural noun triggers full feminine agreement in all the modifiers in the DP but plural agreement only in postnominal modifiers, not prenominal ones. The example in (2) is repeated below as (26).

(26) l**a** pìcol**a** steil**es** envisìbol**es**
the.F.SG small.F.SG star.F.PL invisible.F.PL
'the small invisible stars'

The examples in (27) show the same adjective in postnominal and prenominal position; only postnominally does it agree in number with the noun.

(27) a. dut**a** l**a** bez**es** belot**es**
all.F.SG the.F.SG girls.F.PL nice.F.PL
b. dut**a** l**a** belot**a** bez**es**
all.F.SG the.F.SG nice.F.SG girls.F.PL

Lazy concord, as Rasom (2008) calls the phenomenon, affects only the feminine plural, as in other Northern Italian varieties; with masculine nouns full agreement is systematically found.

Fassan Ladin differs from the Spanish dialect analyzed in Section 3.2 in two ways. Firstly, as was just shown, in Fassan Ladin lazy concord affects number when the noun is feminine while gender is the affected feature in Spanish, with masculine instead of feminine surfacing prenominally. Secondly, in Fassan Ladin all feminine nouns are affected, while in Spanish only a small subset of nouns trigger lazy concord. This means that no impoverishment operation is needed for Fassan Ladin. These two varieties differ from NEC Catalan in the sense that lazy concord is systematic prenominally; it does not depend on specific phonological contexts. Therefore no phonological constraint will be interspersed among morphosyntactic constraints. The constraints needed to account for partial agreement in Fassan Ladin have all been presented. The constraints CONCORD(F) and CONCORD(PL) which in Spanish have the same ranking and were hence presented as the cover constraint CONC(F,PL) must now occupy different positions in the hierarchy, because of the active role of the markedness constraint *PL (belonging to the same family as *FEM), which must be ranked above CONCORD(PL), CONCORD(F) never being violated. Two slightly different constraint rankings can derive the right surface outputs, given that in sentences like (26) the adjective *pìcola* can be interpreted either as a feminine singular form (*pìcol-*a_{F}-$Ø_{SG}$), which would violate the constraint MATCH, in addition to CONCORD(PL), or as a feminine form with no number value (*pìcol-*a_{F}), violating only CONCORD(PL). For reasons of space the tableau in (28) includes only candidates with the second interpretation and omits the constraint MATCH. The constraint CONCORD(F) has not been included either because all the candidates shown satisfy this constraint.

(28) Tableau for (26), Fassan Ladin (Cazet subvariety)

Input:		pìcol	steil-es F.PL	envisìbol-es F.PL	MAX (SEG)	*PL	MAX (MPH)	CONC (PL)
☞	a.	pìcol-a F	steil-es F.PL	envisìbol-es F.PL		**	*	*
	b.	pìcol-es F.PL	steil-es F.PL	envisìbol-es F.PL		***!		
	c.	pìcol-a F	steil-es F.PL	envisìbol-a F	*!	*	**	**

In (28c), there is a fatal violation of the highly ranked constraint MAX(SEG), because the [PLURAL] feature that was assigned syntactically to the postnominal adjective has been deleted.[7] The candidate with full agreement, (28b), violates only one of the constraints, *PL, but it does so in more instances than the winning candidate, (28a). The constraint MAX(MPH) is violated by the prenominal adjective in (28a) and (28c), because it lacks a value for number; in (28c) there is a second violation of MAX(MPH) because the feature [PLURAL] that appears in the input for the postnominal adjective is missing in the output. The rankings CONCORD(F) >> *FEM but *PL >> CONCORD(PL) cause full feminine agreement but only partial plural agreement.

One observation I will not attempt to analyze here concerning Fassan Ladin (and also the Friulian variety discussed in sections 4.2 and 5, but not varieties like Gherdener, for instance) is that, according to Rasom (2008), with postnominal modifiers the noun itself can be plural or singular; when the noun is singular the meaning varies slightly. Adjectives in prenominal position, as in (29a) and postnominal adjectives only with the noun in the plural, as in (29b), receive a non-restrictive reading; the interpretation of (29a, b) is that all houses are small. Adjectives in postnominal position with the noun in the singular, as in (29c), receive a restrictive reading; in this case for example, the implication is that some but not all of the houses are small.

(29) a. la pìcola cèses
the.F small.F house.F.PL

b. la cèses pìcoles
the.F house.F.PL small.F.PL

c. la cèsa pìcoles
the-F house-F small-F.PL

The data in (29a, b) follow essentially the same pattern as NEC Catalan or dialects of Spanish, with postnominal modifiers agreeing with the noun and prenominal ones lacking this agreement. (29c) deviates from this pattern: while the modifiers behave as expected (singular prenominally, plural postnominally), it is the noun that unexpectedly surfaces in the singular. The absence of number on the noun cannot be attributed to a postsyntactic impoverishment operation, because it is not a property of a closed class of items, like the class of nouns starting with [á] in Spanish. In Rasom's (2008) analysis, the noun

[7] The surfacing feminine-related exponent *a* in candidate (28c) also violates an IDENT constraint because the quality of the vowel is different from the input, which is *e*.

in (29a, b) has moved through NumP, where it gets the feature [PLURAL], to a relatively low position within the DP; for (29c) she suggests that the noun moves to a high position in the DP without passing through NumP, and hence surfaces in the singular. The lower versus higher position that the noun occupies in (29a, b) and (29c), respectively, would account for the differences in interpretation, but it would be difficult to justify why N would have skipped NumP in (29c) but not in (29a, b).

4.2 Friulian (Friuli Occidentale), a problem for BLM2015

The examples from Fassan Ladin that were included in section 4.1 showed that when there is lack of plural agreement, in prenominal position, the modifiers (and the noun in (29c)) surface in the feminine singular form, a final *-a*. When there is plural agreement, the feminine plural modifiers and the noun surface as final *-es*. So in the plural there is not just the addition of an *s* but also a change in the quality of the preceding vowel. One variety of Friulian, Friuli Occidentale (henceforth FO), has a similar pattern of exponence, with the feminine singular ending in *-a* or *-e* and the feminine plural ending in *-is*, according to Rasom (2008) (a fairly similar pattern is described in Manzini & Savoia 2005 for the variety spoken in Montereale). An interesting difference with respect to Fassan Ladin is that in FO the output form in partial agreement is identical to the plural minus the final *-s*, that is, *-i* instead of the feminine singular *-a* or *-e*. Relevant examples are given in (30), where the exponents of inflection appear in boldface and the missing plural morph *-s* is signaled with underscores. (30a) illustrates the exponents of nominal inflection when the noun is feminine singular: final *-a* is found in the definite article, while the adjective and the noun have a final *-e*. In (30b) feminine plural full agreement (always a possibility in DPs) is expressed with final *-is* for all categories. (30c) illustrates the pattern of interest here: when the adjective precedes the noun, what surfaces prenominally in defective agreement is the plural form *-is* but without the final *-s*, not the feminine singular forms, shown in (30c′). Finally, when the adjective is postnominal, as in (30d), it shows full agreement.

(30) a. l**a** bjel**e** cjas**e**
the nice house

b. l**is** bjel**is** cjas**is**

c. l**i**_ bjel**i**_ cjas**is**

c′. *l**a**_ bjel**e**_ cjas**is**

d. l**i**_ cjasi**s** bjeli**s**

Summarizing the facts, the asymmetry between prenominal and postnominal inflectional material present in NEC Catalan, varieties of Spanish, and Fassan Ladin, is also present in FO, but in this case, when defective agreement is found, it is not the feminine singular that surfaces, but the feminine plural form excluding the *-s*. According to Rasom (2008) this pattern is also found in early stages of the acquisition of Fassan Ladin, when children produce prenominal elements with final *-e* (corresponding to the plural form minus the final *-s*) instead of final *-a* for examples like (29a); that is, they pronounce *pìcole* instead of feminine singular *pìcola* or feminine plural *pìcoles*.

An additional fact that Rasom (2008) points out regarding FO is that, in addition to the position of modifiers within the DP, the presence of final *-s* seems to be phonologically conditioned: this consonant is realized prenominally when otherwise a sequence of vowels, VV, would surface. The *-s* thus has an anti-hiatus effect, as illustrated in (31), with examples from Rizzolatti (1988), cited by Rasom (2008: 169). In (31a) the final *-s* of the

adjective surfaces because the following noun starts with a vowel; in (31b) the noun starts with a consonant and the final *-s*, which would surface in coda position, is missing. Hence FO resembles NEC Catalan in having lazy agreement depending partially on phonological requirements.

(31) a. li màli**s** àrbis ‘the bad herbs [= weeds]’ (translation EB)
b. li màli_ plantis ‘the bad plants’ (translation EB)

The phonological constraint that favors deletion of sibilants in (31b) vs. (31a), penalizes *s* in coda position. In a candidate like (31a), this constraint is violated by the noun but not the adjective (because the plural morph of the adjective is an onset). This constraint, which appears as *s] in the tableaux that follow, is not too different from *CsC for NEC Catalan.

Similarly to other Romance varieties, including Fassan Ladin, the sigmatic *-s* present in the plural can be assumed to be the exponent corresponding to the feature [PLURAL]. The preceding vowel, independently of its shape (*a* or *e* in the singular, *i* in the plural) can be considered a class marker in the sense of Harris (1991), a thematic element, as in Oltra-Massuet & Arregi (2005), or a stem formative, following Bermúdez-Otero (2006) (see also Lampitelli 2014 and references therein). In all these approaches the vowel is indirectly related to gender; it is a morph different from the plural. The fact that the quality of the vowel differs in the singular and plural is not uncommon in Romance, as Fassan Ladin, in Section 4.1, illustrates, with *-a* in the singular but *-e* in the plural (compare *cèsa* ‘house.FSG’ and *cèses* ‘house.FPL’). In Asturian, to give another example, there is an alternation between *u* and *o* in the masculine and between *a* and *e* in the feminine for most nouns and adjectives (compare *llobu*, *llobos* ‘wolf, wolves’ and *casa*, *cases* ‘house, houses’; Academia de la Llingua Asturiana 2001), the pattern corresponding to the feminine being the same as what we find in Fassan Ladin.[8] We can assume then that final *-a* and *-e* in FO are allomorphs of the feature [FEMININE], and that the vowel *-i* that appears in the plural is also an allomorph of [FEMININE] which surfaces only in the context of [PLURAL]. The fact that in lazy concord environments the vowel *-i* appears means that morphosyntactically there is full concord (the constraint CONCORD is satisfied), with only the plural exponent missing.

Applying to FO the constraints as understood in BLM2015, however, gives rise to a ranking paradox, which means that the constraint set is not appropriate. This ranking paradox is shown in (32) by means of a combination tableau (see McCarthy 2008). In a combination tableau, violations for each constraint are shown, as in regular tableaux, but the constraints are not ranked. The intended winner appears in (32a). For all the losing candidates (losers), (32b–d), a W in a cell means that that constraint favors the winner; an L means that that constraint favors a loser. The right ranking is obtained if for any candidate the constraints can be ranked such that all L are preceded by at least one W. As the Ws and Ls in boldface highlight, the problem for BLM2015 is that, when considering (32b), the conclusion is that *s] must be ranked above MAX(MPH) (*s] >> MAX(MPH)), while, when considering (32d), the conclusion is exactly the opposite: MAX(MPH) should precede *s] (MAX(MPH) >> *s]). Adding to the tableau a constraint like *PL will not

[8] Savoia, Baldi & Manzini (2017) compare different systems within Italy, from ones that have a clear sigmatic ending for the plural to those that have a plural ending in *-i*. Although they do consider some Friulian varieties, like the one spoken in Comeglians, none of them coincide with the variety of Ladin described by Rasom (2008), with *-i* followed by *-s* in feminine plurals. It is unclear how they would analyze this case.

make any difference, because these candidates, like the winner, violate the constraint three times.

(32) Combination tableau for (30d), FO: ranking paradox

Input: l		cjasis F.PL	bjelis F.PL	MAX (SEG)	*s]	CONC (NUM)	MAX (MPH)	MATCH
☞ a.	li_ F.PL	cjasis F.PL	bjelis F.PL	*	**			
b.	lis F.PL	cjasis F.PL	bjelis F.PL	**L**	***W**			
c.	la-Ø F.SG	cjasis F.PL	bjelis F.PL	L	**	*W		*W
d.	li_ F.PL	cjasis F.PL	bjeli_ F.PL	**W**	*L			

When ranking paradoxes arise, the solution is often to find an additional constraint that can be highly ranked and favors the winner. The solution proposed in the next section is based on a reinterpretation of one of the constraints in BLM2015.

5 Max(segment) as a phonological constraint only

As was pointed out when the MAX constraints were defined in (11), and illustrated in (12) and (13), the constraint MAX(SEGMENT) in standard OT is understood as a constraint that relates a segment in the input with a segment in the output. In the last tableau discussed, (32), the output *bjeli* in (32d) violates MAX(SEGMENT) in this sense because the input has an *s*, *bjelis*, and this *s* is absent in the candidate. But in BLM2015 this constraint is understood in an additional sense: it is also violated when a given morphosyntactic feature lacks the corresponding exponent. This is why the candidate in (32a), the intended winner (and also the definite article in (32d)), violates MAX(SEGMENT): the candidate (an output) has a [PLURAL] feature but not the corresponding *s*, also in the output (see also (13b), taken from BLM2015). BLM2015 collapse into one and the same constraint a purely phonological requirement against deletion and a requirement on realization of exponents. The ranking paradox in (32) can be solved if the constraint that regulates exponence is different from the phonological constraint MAX(SEGMENT). This additional constraint, a different type of MAX constraint, must be violated when a given morpheme lacks a corresponding morph. This type of constraint has been proposed by Wolf (2008) in a dissertation that combines many aspects of Distributed Morphology, including late insertion, with Optimality Theory, and views Vocabulary Items, the pairing of morphosyntactic features and exponents, as part of GEN (see also McCarthy 2012 for an application of these ideas).[9] This constraint, MAX-M[F], is defined in (33) (Wolf 2008: 26).

(33) MAX-M[F]
For every instance φ of the feature F at the morpheme level, assign a violation mark if there is not an instance φ of F at the morph level, such that φℜφ.

[9] See Trommer (2003) for another proposal that combines Distributed Morphology with Optimality Theory.

The constraint MAX-M[F] is violated when a candidate has a morphosyntactic feature but not the corresponding exponent. Contrary to MAX(SEGMENT), it is not an input-output faithfulness constraint. The tableau in (34) illustrates again the example in (30d) but now with the new constraint MAX-M[F] plus the traditional interpretation of MAX(SEGMENT), which appears with a superscript, MAX(SEGMENT)^{T}, to avoid confusion. The constraint MATCH has not been included because no candidates are shown that could distinguish violations of this constraints from violations of CONCORD.

(34) Tableau for (30d), FO, with reformulated constraints

Input:	l	cjasis	bjelis	MAX (SEG)^{T}	*s]	CONC (NUM)	MAX M[F]	MAX-(MPH)
☞ a.	li_ F.PL	cjasis F.PL	bjelis F.PL		**		*	
b.	lis F.PL	cjasis F.PL	bjelis F.PL		***!			
c.	la-Ø F.SG	cjasis F.PL	bjelis F.PL		**	*!		
d.	li_ F.PL	cjasis F.PL	bjeli_ F.PL	*!	*		**	

The crucial difference between the tableau in (34) and the tableau in (32), in the previous section, is that in (34) candidate (34a) does not violate MAX(SEGMENT)^{T}; the violation that in (32a) appears for MAX(SEGMENT) is now a violation of MAX-M[F]. The ranking paradox has thus disappeared.

For the cases that BLM2015 studied it was not important to make a distinction between deletion of segments and exponence, and a phenonemon like the one found in NEC Catalan was analyzed as a stem without inflection. The existence of FO, where there is evidence for the presence of the feature [PLURAL] in spite of the absence of the sigmatic plural morph, makes it equally plausible to reanalyze NEC Catalan as a case of a morphosyntactic plural without the corresponding exponent. The tableau in (35) applies the constraint ranking in (34) for FO to the example in (15).

(35) Tableau corresponding to (14)

Input:	aquest [$Ø_{SG}$, s_{PL}]	cabell-s_{PL}	llarg-s_{PL}	MAX (seg)^{T}	*CsC	CONC (num)	MAX (MPH)	MAX-M[F]
a.	aquest-s_{PL}	cabell-s_{PL}	llarg-s_{PL}		**!			
b.	aquest-$Ø_{SG}$	cabell-s_{PL}	llarg-s_{PL}		*	*!		
c.	aquest	cabell-s_{PL}	llarg-s_{PL}		*	*!	*!	
d.	aquest-$_{-PL}$	cabell$_{-PL}$	llarg-s_{PL}	*!				**
☞ e.	aquest-$_{-PL}$	cabell-s_{PL}	llarg-s_{PL}		*			*

BLM2015 provide an example that is consistent with their analysis of NEC Catalan, in which the surfacing form is a stem with no inflectional features, not a singular form. Their

example (29) appears below as (36). Catalan has a phonological process of final /n/ deletion, illustrated in (36a) with the word *ple* 'full' in its masculine singular form. When the /n/ is not final, as in the feminine, (36b) or the masculine plural, (36c), the /n/ surfaces. (36d) shows that in prenominal position, with a potential CsC configuration, the plural morph does not surface but the resulting form of the adjective is not the singular form, *ple*, but a form that keeps the /n/, *plen*.

(36)	*No CsC context*		*CsC context*
	a. ple poder	'full power'	
	b. plena vida	'full life'	
	c. plens acords	'full agreements'	
	d.		plen poders 'full powers'
			*ple poders

While BLM2015 use the data in (36) to argue for an analysis in which the CONCORD constraint is violated prenominally and the resulting form is an uninflected adjective, (36) is also consistent with the reanalysis proposed here: the constraint CONCORD is not violated and there is full agreement. As in FO, the problem would be one of exponence, namely that realization of the feature [PLURAL] is in conflict with a phonological requirement. While the data from NEC Catalan is compatible with both views—absence of a morphosyntactic feature vs. non-realization of a morphosyntactic feature that is present—for FO only the latter view is possible, because of the presence in this variety of a vowel that can only appear in plural contexts, a vowel that is part of the inflection; hence it cannot be an uninflected form.

6 Further issues and concluding remarks

In many agreement patterns within the DP, there is postnominal full agreement, while prenominal agreement often fails. The split concord view in BLM2015 has been assumed in the analysis of Northern Italian varieties. The comparison between the Cazet subvariety of Fassan Ladin and the FO variety of Friulian (as well as early stages of acquisition in Fassan Ladin) has shown that the distinction between deletion of a segment and lack of exponence for a morphosyntactic feature cannot be encoded within the same constraint, MAX(SEGMENT), as proposed in BLM2015. This is based not only on conceptual grounds, because the constraint is mixing different types of relations, but also on empirical grounds, because it gives rise to a ranking paradox in FO. As argued, MAX(SEGMENT) must exclusively make reference to deletion of segments, a strictly phonological operation, which has been renamed MAX(SEGMENT)^{T} for the sake of clarity. The relation between a morphosyntactic feature and its exponent, a Vocabulary Item in Distributed Morphology terms, has been captured through the constraint MAX-M[F], proposed in Wolf (2008), Vocabulary Items themselves being part of GEN.

There is still one concern that cannot be ignored. It has been assumed all along that, when the DP enters PF, postnominal agreement has taken place syntactically and the input to PF contains both the relevant morphosyntactic features and their exponents. At PF constraints like MAX(SEGMENT)^{T} assign violation marks to the result of deletion operations on this input. But one must wonder how postnominal agreement and realization took place (see Nevins 2011b for a similar concern). Focusing only on nominal inflection, in a late insertion model there are no exponents in the syntax and only morphosyntactic features are assigned (through a Spec-Head relation, as assumed here). From an OT perspective, it makes sense to assume that all exponence is regulated by constraints of the MAX-M[F] family interacting with other constraints; that is, prenominal and postnominal agreement is regulated by the same types of constraints. A model of OT that is consistent

with BLM2015 is Stratal Optimality Theory (see Bermúdez-Otero 2018, for instance). In Stratal OT different levels or cycles are evaluated serially, and each level can have its own constraint ranking. Assuming this model, within the DP the first cycle is the one determined by Spec-head agreement, as assumed in BLM2015, consistent with other approaches (see section 2). At that level, a constraint like MAX(SEGMENT)^{T} is irrelevant because there is no input segment to be faithful to. MAX-M[F] and CONCORD constraints are ranked high and determine the presence of all exponents and regular agreement; other phonological constraints (*CsC, *s]) and constraints against structure, like *FEM or *PL, are ranked low and hence have no effect. These constraints are reranked crucially at the next cycle, the DP cycle, an outer level, in the way that has been proposed in BLM2015 and here.

Alternatively, one could assume a parallel model of OT following Samek-Lodovici (2002). He proposes a parallel analysis of the types of asymmetries discussed here in which all agreement takes place simultaneously at PF, and it is subject to two different types of agreement constraints, AGR$_f$ for local agreement and EXTAGR$_f$ for long distance agreement (see footnote 3). It is unclear, though, how the the different behavior between Fassan Ladin (and NEC Catalan and varieties of Spanish) and FO would be captured in this model.

As mentioned in section 2, several approaches have made reference to syntactic relations having a different impact on agreement, claiming, for instance, that a Spec-head relation causes strong agreement, while Agree causes weaker agreement. BLM2015 and this paper constitute a concrete proposal that explains how weak agrement is derived.

Abbreviations

F = feminine, M = masculine, PL = plural

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