

Agreement Impoverishment under Subject Inversion

A Crosslinguistic Analysis

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1 Introduction

Agreement between I^o and inverted c-commanded subjects is never richer than agreement between I^o and subjects in specIP. More generally, spec-head agreement within local phrasal projections is never poorer than agreement across a wider distance within the clause.

This generalization, argued for in detail in the next section, raises an interesting dilemma. On one hand, its universal nature calls for an analysis based on universal principles, because language specific definitions of what a head can agree with would leave unexplained why no language chooses to make agreement across the boundaries of local projections richer than spec-head agreement. On the other hand, the analysis must allow for crosslinguistic variation, because different languages show different degrees of agreement impoverishment.

Optimality Theory (Prince & Smolensky 1993) can derive both universal generalizations and crosslinguistic variation from the same set of universal constraints and thus constitutes the proper framework to address the above dilemma. Using this theory, I will argue that agreement is a property of syntactic projections and hence sensitive to projection domains. In particular, it is governed by two universal constraints: AGR, requiring agreement within local X-bar projections (i.e. spec-head agreement) and EXTAGR, for *extended agreement*, requiring agreement within the extended projection (Grimshaw 1991) of the agreement head, i.e. within the clause. The interaction of these two constraints with the constraint NOFEATS, which militates against the presence of any agreement morphology, is sufficient to entail the above universal generalization as well as the associated crosslinguistic variation.

The same constraint interaction also determines the agreement inventory of a language, i.e. how much agreement is expressed under each structural configuration. The analysis thus joins a host of similar analyses in OT that derive language specific inventories from universal conditions of grammar, such as Prince & Smolensky (1993:175) on phonological segmental inventories, Bresnan (1998:14) on agreement, Grimshaw (to appear) on clitics, and on expletives Grimshaw (1997), Samek-Lodovici (1996:chap 2.2.4), and Grimshaw & Samek-Lodovici (1998:203).

An important issue in this regard is to which degree constraint re-ranking is equivalent to lexical specification. As will be shown in section 4.3, the explanatory depth reached by tying language specific inventories to universal constraints of grammar is unavailable under lexical specification approaches.

2 Agreement Impoverishment

Impoverished agreement with postverbal subjects has been noticed for specific languages by Brandi and Cordin (1989), Saccon (1993:104), Fassi Fehri (1993), and its universal validity is mentioned or entailed in Moravcsik (1978:365), Corbett (1979:218), Barlow (1992:132), and Manzini and Savoia (1998).

I will consider fundamental to the generalization the *domain* in which agreement occurs: agreement within the local phrasal projection HP of a head H —i.e. spec-head agreement— is never poorer than agreement in the extended projection of H, i.e. across the boundaries of HP but within the clause containing it. The generalization is thus defined as follows:

- (1) *Agreement Impoverishment*: Agreement within local projections is never poorer than agreement within their extended projections.

Lacking evidence to the contrary¹, I chose to enunciate the generalization in the most general terms, hence holding of any agreement head and agreeing item, including subjects, objects, indirect objects, and items with any grammatical function. In this work, however, I will limit myself to the analysis of subject agreement under inversion in non ergative languages. I will however provide some preliminary evidence supporting the generality of (1) in section 2.2.

2.1 Agreement Impoverishment under Subject Inversion

The evidence for agreement impoverishment examined in this work is summarized in table (2) below, based on data from Fassi Fehri (1993), Haiman & Benincá (1992), Saccon (1993), Brandi & Cordin (1989), and Lu (1994). Any relevant data not reported in the paper are listed in the final appendix. For each language, the second and third columns list what features, among *person*, *number*, and *gender*, are overtly expressed on I° when the subject occurs (i) in specIP, or (ii) in a postverbal position ecommanded by I°. The different rows group languages according to the degree of agreement impoverishment suffered by ecommanded subjects. The first row lists languages where all features are preserved. The second, languages where agreement in number is lost. The third, languages experiencing loss of gender agreement, and the fourth loss of both number and gender agreement. Agreement under c-command is never richer than spec-head agreement; even languages lacking spec-head agreement but allowing for subject inversion, such as Chinese, do not show emergence of agreement under the c-command configuration.

(2) Subject-I° agreement in gender (gen), number (num) and person (ps)

Language:	spec-head agreement	extended agreement
Moroccan Arabic,	ps, num, gen	ps, num, gen
Italian,	ps, num	ps, num
Spanish,	ps, num	ps, num
Chinese.	none	none
Standard Arabic,	ps, num, gen	ps, gen
French.	ps, num	ps
Fassan,	ps, num, gen	ps, (num) ²
Genoese,	ps, num, gen	ps, (num)
Ampezzan,	ps, num, gen	ps, (num)
Romagnol	ps, num, gen	ps, (num)
Conegliano,	ps, num, gen	ps
Trentino,	ps, num, gen	ps
Fiorentino.	ps, num, gen	ps

Another way to look at the same table is as in (3) below, where loss of agreement is indexed for each agreement feature *f*. Three major groups emerge: a first one where agreement on *f* is preserved across spec-head and non-spec-head configurations; a second group where agreement occurs under the spec-head configuration but not under c-command; a third group where agreement doesn't occur in either configuration. For example, with respect to I°, French

¹ Heycock and Kroch (1999) discuss interesting data from Icelandic copular sentences of the kind „*the queen of England is you*“ and „*the queen of England may be you*“, observing how agreement in person with the inverted subject is possible in the first sentence but not in the second where a modal is involved. These data do not falsify the above generalization, but indicate that intermediate structural domains could be relevant too, since agreement ceases when the modal introduces additional structural distance between the agreeing items.

² The parentheses express the observation that loss in number agreement is restricted to feminine subjects and it is optional (Haiman & Benincá 1992).

is a preserving language relative to person agreement, it experiences agreement impoverishment on number, and it lacks agreement on gender³.

(3) Classification according to agreement type.

	Group 1 Preserved Agreement	Group 2 Agreement Impoverishment	Group 3 No Agr
Person	Moroccan Arabic Standard Arabic Italian Spanish French Fassan Genoese Ampezzan Romagnol Conegliano Trentino Fiorentino		Chinese
Number	Moroccan Arabic Italian Spanish	Standard Arabic French (Fassan) (Genoese) Fiorentino (Ampezzan) (Romagnol) Conegliano Trentino	Chinese
Gender	Moroccan Arabic Standard Arabic	Fassan Genoese Ampezzan Romagnol Conegliano Trentino Fiorentino	Chinese Italian Spanish French

The agreement patterns of Italian, Standard Arabic, and Conegliano, are presented below. They involve both agreement preservation as well as agreement loss, and exemplify the kind of linguistic variation that any theory of agreement must deal with. This includes variation in the set of agreement features that are expressed, and, among these, variation in the set of features that are preserved under subject inversion.

2.1.1 Agreement Preservation: Italian

Preserved agreement is exemplified by Italian, where specIP subjects agree with I^o in number and person, and an equally rich pattern holds with postverbal subjects; compare (4a) with (4b). Postverbal subjects have been consistently claimed by many authors to be c-commanded by I^o, whether adjoined to VP or stranded into specVP position (Rizzi 1982, 1990, Brandi and Cordin 1989:footnote 8, Saccon 1993, Belletti and Shlonsky 1994, Samek-Lodovici 1996). Slashes separate alternative forms of the auxiliary expressing distinct bundles of agreement features; the ungrammatical ones are starred. Any other conceivable bundle is ungrammatical, but for reasons of space only a few alternatives are shown in each case.

- (4) a. Io ho / *ha / *abbiamo camminato
I have.1sg / *3sg / *1pl walked
I walked
- b. Ho / *ha / *abbiamo camminato io
Have.1sg / *3sg / *1pl walked I
I walked

³ An interesting observation emerging from the table is the lack of agreement loss for the person feature, also noted in Manzini & Savoia (1998), where it is central to their argument against the non existence of *pro_{expl}*. Taraldsen (1996:199), however, observes how Icelandic loses person agreement whenever the preverbal subject carries oblique case and I^o agrees in number with the object, to which it also assigns nominative case.

2.1.2 Loss of Number Agreement: Standard Arabic

Agreement preservation coexists with agreement loss in Standard Arabic (Fassi Fehri 1993), where subjects in specIP are possible, but pragmatically neutral subjects occur c-commanded by I° in specVP. Gender and person agreement is preserved under both configurations, but number agreement is restricted to the spec-head configuration in (5a), and missing in the c-commanded specVP position in (5b), where the initial verb expresses a default singular even though the following subject is plural.

- (5) a. L-banaat-u darab-na / *-at l-ʔawlaad-a
 The-girls -Nom hit-PAST-3Fpl / *-3Fsg the-boys-Acc
 The girls hit the boys
- b. Darab-at / *-na ʔal-banaat-u Zayd-an
 Hit-PAST-3Fsg / *-3Fpl the-girls -Nom Zayd-Acc
 The girls hit Zayd

2.1.3 Loss of Number and Gender Agreement: Conegliano

Agreement impoverishment in number and gender is attested in Conegliano, a northern Italian dialect studied by Saccon (1993). Subjects may occur preverbally in specIP, or postverbally, where they are assigned a presentational interpretation. According to Saccon, postverbal subjects lie within the VP projection, and are therefore c-commanded by I°. Agreement in person, number, and gender is expressed through a preverbal clitic here assumed to be base-generated on I°, but see the more detailed analyses given in Manzini and Savoia (1998) where the clitic heads its own projection. The clitic is obligatory under spec-head agreement, compare (6a) with (6b). It is however obligatorily suppressed in present tense clauses under the ecommand configuration of postverbal subjects, compare (7a) with (7b).⁴ (Original examples from Saccon, 1993:99,107.)

- (6) a. La Maria la riva b. * La Maria riva
 The Mary 3Fsg arrive The Mary arrive
 Mary arrives *Mary arrives*
- (7) a. * La riva la Maria b. Riva la Maria
 3Fsg arrive the Mary arrive the Mary
 Mary arrives *Mary arrives*

As in other Romance languages, it is important to distinguish the distinct postverbal positions available to inverted subjects. Saccon (1993) distinguishes presentational postverbal subjects, which occur within VP and suppress the agreement-clitic, from right-dislocated ones, which are commonly assumed to c-command I° and, as expected, preserve the clitic, because a trace is left in specIP by the dislocated subject⁵.

⁴ For the status of subject clitics as agreement markers see Rizzi (1986).

⁵ It is precisely the absence of this distinction that casts doubts on Suñer's (1992) alleged evidence against agreement impoverishment in Fiorentino and Trentino. Like Conegliano, these dialects show agreement clitics with preverbal subjects but not with postverbal ones (see the appendix). Suñer (1992: 655) notes however how the clitic is preserved in interrogative contexts like the one below.

- (1) Quando é-la revada la Maria?
 When is cl.3Fsg arrived the Mary?
 When did Mary arrive?

Conegliano is representative of a vast number of Northern Italian dialects, see for example the great variety of dialects showing loss of number agreement under subject inversion reported by Manzini and Savoia (1998). These authors also report loss of number agreement under inversion in Southern dialects lacking subject clitics, where the loss is visible on the main verb as in the Arabic cases. One such dialect is that of Urbino, see (8) below.

- (8) a. * Ki bur'dɛi 'dɔrmne de 'la
 Those children sleep.pl of there
Those children sleep there
- b. De 'la 'dɔrme ki bur'dɛi
 Of there sleeps.sg those children
Those children sleep there

Together, the agreement patterns just examined already display a significant degree of linguistic variation concerning which agreement features get expressed, and whether they are expressed under the spec-head configuration alone or also across IP but within the extended projection of I^o. The analysis developed in the next sections will explain this variation through the reranking of AGR, EXTAGR and NOFEATS, while still deriving the established universal generalization on agreement impoverishment.

2.2 Agreement Impoverishment Outside Subject Inversion

As already mentioned, generalization (1) above characterizes agreement impoverishment in the most general terms, as a property characterizing agreement *per se*, independently of what agrees with what. Further investigation is necessary to determine if this is correct, or whether generalization (1) holds for subject inversion alone. Here, I consider preliminary evidence from object, adjectival, and past participle agreement which appears to confirm the general validity of agreement impoverishment across syntactic categories and grammatical functions.

An important case concerning *object* agreement comes from Woolford (1995a:662, 1995b), who successfully accounts for how specificity affects it in five Micronesian and African languages, where specific objects agree with the verb but non-specific ones do not. According to Woolford, [+specific] objects raise to spec-AGR_{Obj} driven by the syntax-LF mapping principle that forces all [+specific] phrases to vacate VP, as proposed by Diesing (1992) and Diesing & Jelinek (1993). The raised objects enter a spec-head relation with AGR_{Obj} and therefore agree, whereas non-specific objects remain in situ, commanded by AGR_{Obj}, and do not agree. We thus have a situation where object-agreement is richer when internal to the local projection of Agr_{Obj} than across it, in full accord with generalization (1).

A case about *adjective* agreement is found in Hewitt (1979), cited in Barlow (1992:132). Hewitt notes how in Abkhaz number agreement is missing with preverbal adjective, but present with postverbal ones: in the examples below, the plural marker *k^oe* absent in (9a) is suffixed to the adjective in (9b).

But these are precisely the contexts where Romance languages such as Italian, Catalan, and Conegliano would place main stress on the past participle and dislocate the final subject (Valdoví 1992, Saccon 1993, Samek-Lodovici 1996). Since dislocated subjects may leave a trace in specIP position, the presence of agreement is expected. Before accepting Suñer's evidence, it is thus necessary to check where the main stress falls in her data, and ensure that they do not involve the subject dislocation that the same context triggers in many other Romance languages.

⁶ Theories where subject clitics head their own projections maintain that (relevant aspectual features of) the chains of preverbal subjects occupy the specifier of both IP and the clitic projection (Manzini and Savoia, 1992:25-27). The spec-head agreement configuration thus obtains for both I^o and the subject agreement-clitic.

- (9) a. <Adj N> order: a- bz`əya la-k°e
 Det. good dogs-Pl
good dogs
- b. <N Adj> order: a- la-k°e bz`əya-k°e
 Det. dog-Pl good-Pl
good dogs

Although Hewitt (1979) describes Abkhaz as a non configurational language with a slight preference for the <S IO OBJ V> order, which would appear to indicate a slight head-final preference, the above data show the determiner at the left of the noun, in accord with a head initial analysis. Building on Abney's (1987) hypothesis that adjectives may take NP as complements much like determiners do, we could hypothesize that Abkhaz noun phrases have the overall structure in (10a) below, with an intermediate agreement phrase HP intervening between the top DP and the lower AP, and the lowest NP involving its own agreement projection, here omitted, determining its own agreement suffix. Lack of agreement in (9a) can then be analyzed as in (10a) below: the adjective raises to H°, but no agreement occurs because the noun *dog* is not sufficiently local. Only when the whole NP raises to specHP, as in (10c) below, a spec-head configuration is formed and agreement may occur, suffixing *k°e* to the adjective as in (9b) above. Under this account Abkhaz would thus show loss of number agreement in adjective-nominal contexts in accord with generalization (1).

- (10) a. [DP D° [HP H° [AP A° [NP N°]]]]
- b. [HP -- *good* [AP t_A [NP *dog-k°e*]]]
- c. [HP [NP *dog-k°e*] *good-k°e* [AP t_A t_{NP}]]

A third case concerns agreement impoverishment in past participles, showing how in Romance the generalization need not concern only I°. In Italian, agreement in gender and number between past participles and the subjects of unaccusatives is preserved even when these subjects remain in situ in object position. In Conegliano, however, the same circumstances show agreement loss (Saccon 1989). As shown in (11a) and the corresponding structure in (11b), a past participle agrees in gender and number with the trace left by a raising subject in the past participle specifier.

- (11) a. Na tosa la-e riv-ád-a
 A girl.3Fsg clitic.3Fsg-is.3sg arrived-Perf-Fpl.
A girl has arrived
- b. Na tosa la-e [pp t_{NP} riv-ád-a [vp t_V t_{NP}]]

However, when the subject remains in the lower object position, as in (11), the past participle no longer agrees.

- (12) a. El-e riv-á na tosa
 clitic.3Msg-is.3sg arrived-Perf a.3Fsg girl.3Fsg
There arrived a girl
- b. El-e [pp riv-á [vp t_V [na tosa]]]]

Finally, let us consider the evidence against making linear-order the crucial factor determining agreement impoverishment, as proposed by Barlow (1992). Barlow analyzes agreement in terms of discourse stream, relating it to Dlinking, and proposing that the DP-H

order potentially hosts richer agreement than the H-DP order because the relevant features can be identified before reaching the head responsible for expressing them. Barlow's overall theory is aimed at phenomena other than agreement impoverishment, and should be examined in its full complexity in Barlow (1992).

Distinguishing the domain based approach from Barlow's proposal is made difficult by the fact that if specifiers are universally leftwards, then they always precede the related head, so that spec-head agreement always coincides with the DP-H order associated with richer agreement. An effective distinction thus requires a DP raising from the right of an agreement head H to its left (potentially determining agreement enrichment for Barlow), but also raising beyond the local projection of H while leaving no trace in its specifier (banning agreement enrichment under the domain approach). The observation that DP preposing and topicalization never give rise to agreement enrichment would then appear to support the domain based approach, although the effects of A'-movement and many other factors should be carefully examined before reaching a robust conclusion.

In my opinion, the best reasons to prefer a domain based approach lie in its stronger theoretical architecture. The relevance of local and extended projections for syntactic phenomena is more firmly established than that of pure linear order. Moreover, by identifying the relevant agreement domains, generalization (1) excludes agreement across clauses, whose impossibility follows from the same constraints that derive the generalization (see section 5). In contrast, pure linear order is neutral on this aspect, with the likely consequence of requiring additional principles to handle it.

3 Universal Constraints on Agreement

The following constraints treat the agreement relation as *present* for some feature *f* only when it is expressed by some visible morphology co-varying with different values for *f*. Thus, Italian is maintained to have agreement in person and number because distinct values for these features produce distinct visible forms for I°. In contrast, when different feature values produce no visible change agreement is deemed to be absent. For example, Chinese is considered as lacking agreement all together, rather than as hosting non-visible agreement. Likewise, 'default' agreement, where agreement features are morphologically expressed but remain invariant despite changes in the feature values of the DP they should agree with, are interpreted as lack of agreement.

The agreement relation is also assumed to relate together only the two co-varying items. Thus, if I° agrees with a postverbal subject in specVP, agreement occurs between these two positions and there is no null expletive *pro_{expt}* in specIP acting as intermediary. SpecIP is assumed to be radically empty, as claimed among others by Samek-Lodovici (1996), Grimshaw & Samek-Lodovici (1998), and Alexiadou & Anagnostopoulou (1999). Long-distance agreement between I° and DPs it c-commands is also argued for Heycock and Kroch's study of copular sentences (1999), in contexts not involving *pro_{expt}*.

Discussing in full the arguments against *pro_{expt}* would take us too far afield. They include its inconsistent binding properties (Rizzi 1982, Samek-Lodovici 1996:chap 5.6), unexpected gaps in its distribution (Weerman 1989:212), and unexpected absence of definiteness effects with the associated postverbal subjects (Alexiadou & Anagnostopoulou, 1999:102). For the time being, consider the following data from Icelandic (Taraldsen, 1996:191), where the subject *okkur* (we) is in specIP but cannot agree with I° because it is lexically marked with dative case. As a result I° assigns nominative case and agrees with the object *hestarnir* (horses). In her extensive study of Icelandic, Sigurðsson (1992:204-209) cites a great number of properties showing that oblique subjects like this occur in specIP, including among other their behaving like nominative marked subjects with respect to reflexivization, extraction, cliticization, control, and distribution. But if the subject *okkur* is in specIP then there simply is no available specIP position for *pro_{expt}*, and therefore agreement must link I° directly to the object in its VP-complement.

- (13) Okkur lik-a / *-um hestarnir
 We-Dat like-3pl -1pl horses-the-Nom
We like the horses

The agreement impoverishment generalization itself casts doubts over the existence of null expletives: most analyses proposing *pro_{expl}* require it to transmit case and agreement to postverbal subjects, but we know from generalization (1) that the degree of agreement that gets transmitted varies across languages. Once again we face the choice between maintaining *pro_{expl}* and derive the relevant differences by stipulating stronger and weaker *pro_{expl}* in different languages, or avoid positing *pro_{expl}* and reach the more principled account proposed in the following.

3.1 The Constraints

Lack of agreement is favored by the constraint NOFEATS —for *no features*— which is violated whenever agreement occurs. NOFEATS thus exerts a delimiting influence on morphological structure analogous to that of similar structure-fighting constraints in OT and Minimalism, such as the very similar ‘Economy of Structure’ by Taraldsen (1996:94), but also *STRUC (Kager, 1999:404), and ‘Minimize Structure’ (Cardinaletti and Starke, 1994:38).

(14) NOFEATS: No morphological expression of agreement features.

The next two constraints, AGR and EXTAGR, require agreement to occur and state the related legitimate domains. Since languages differ in the set of features that they express, these two constraints are relativized to specific features through the subscript *f*, which varies over person, number and gender feature-values (on constraint families see also Prince & Smolensky 1993, and McCarthy & Prince 1993).

The constraint AGR_f is present throughout the generative linguistics literature in one form or another and favors structures where agreement occurs within the smallest available domain, i.e. the local projection of a head.

Locality is here intended in the strictest possible sense, with the agreement relation wrapped within a local projection and never crossing a phrasal boundary. It follows that AGR_f is violated whenever no agreement occurs on *f*, but also when agreement crosses an XP-boundary, as is the case when I° agrees with inverted subjects in its VP-complement. The only configuration satisfying AGR_f in the cases examined in this work is spec-head agreement⁷.

(15) AGR_f: An agreement head H and a DP must agree on feature *f* within the local projection HP, (i.e. *spec-head agreement*).

The constraint EXTAGR_f —for *extended agreement*— imposes a looser condition, only requiring agreement to occur within the extended projection of the agreeing head H, which in most of our cases coincides with the clause containing I°. EXTAGR_f is violated whenever agreement is absent or crosses the boundaries of an extended projection to reach a subject within a subordinate clause. Agreement between I° and inverted subjects in the same clause, however, satisfies EXTAGR_f.

⁷ The head-complement relation would also satisfy AGR_f, but in the cases considered here the complement is always a VP, hence lacking the relevant features to trigger agreement. I leave open to further investigation whether head-complement agreement indeed occurs, confirming the proposed definition of AGR_f, or whether this must be explicitly restricted to spec-head agreement.

- (16) EXTAGR_f: An agreement head H and a DP must agree on feature *f* within the extended projection of H.

Note how all structures that satisfy AGR_f — i.e. show spec-head agreement on *f*— necessarily satisfy EXTAGR_f as well, whereas there are structures that satisfy EXTAGR_f but not AGR_f, such as clause-bound agreement between I° and an inverted subject within VP. As we will see, it is precisely this relation that makes it possible to derive agreement impoverishment while accounting for individual variations across languages.

3.2 The Analysis

The interaction among the above constraints entails the generalization on agreement impoverishment, and governs how much agreement is carried by agreement heads in each specific language⁸. Let us start here with the most general case, and then move in the next section to a detailed derivation of the data from Italian and Standard Arabic.

Consider a generic agreement feature *f*, an agreement head H and a DP. We examine two distinct inputs, the first where the DP occurs in a spec-head configuration with H, the second where the DP is within the extended projection of H but not in its specifier. Rather than stipulating whether agreement occurs or not, we let GEN build two competing candidates: one where H morphologically expresses *f* and the other where *f* is left unexpressed. The interaction of AGR_f, EXTAGR_f, and NOFEATS then partitions the set of possible languages in the same three groups shown in table (3) above:

- Group 1 – Preserved Agreement.

Agreement occurs and is preserved whenever EXTAGR dominates NOFEATS. As shown in tableau T1, when H and DP are in a spec-head configuration, the structure with agreement in (a) wins over the one lacking it in (b), because agreement satisfies EXTAGR which non-agreement fails. Since EXTAGR already dominates NOFEATS, the ranking of AGR_f becomes irrelevant, because under this configuration it assesses the same violations as EXTAGR.

T1. Preserved agreement

input = spec-head	EXTAGR	NOFEATS	AGR
a. \mathcal{E} with agreement		*	
b. no agreement	*!		*

When the DP occurs elsewhere in the extended projection of H, agreement is preserved. The higher rank of EXTAGR in fact ensures that the structure displaying agreement is preferred over the one lacking it. Since no spec-head agreement occurs, AGR_f is violated by both candidates, and can thus once again be ranked anywhere.

T2. Preserved agreement

input = non spec-head	EXTAGR	NOFEATS	AGR
a. \mathcal{E} with agreement		*	*
b. no agreement	*!		*

⁸ The same interaction could technically derive for each language which heads may show agreement and which not, through the constraint relativization discussed in section 5.2. However, it wouldn't explain why some functional heads are more likely to show agreement than others.

- Group 2 –Agreement Impoverishment.

Agreement loss arises whenever AGR dominates NOFEATS, and this in turn dominates EXTAGR. Under the spec-head configuration, agreement now wins because it satisfies the highest ranked AGR, which the non-agreement structure fails.

T3. Impoverishment

input = spec-head	AGR	NOFEATS	EXTAGR
a. ☞ with agreement		*	
b. ☞ no agreement	*!		*

When agreement occurs under a non spec-head configuration, however, AGR no longer distinguishes among the two competitors, and since NOFEATS dominates EXTAGR, the winning candidate is the agreementless (b).

T4. Impoverishment

input = non spec-head	AGR	NOFEATS	EXTAGR
a. ☞ with agreement	*	*!	
b. ☞ no agreement	*		*

Languages with this ranking will thus experience agreement loss when the DP shifts from a spec-head configuration with H to another positions within the same clause.

- Group 3 –Lack of Agreement

Finally, languages with no agreement emerge whenever NOFEATS dominates both EXTAGR and AGR. In this case, the no-agreement candidate is optimal in either configuration, because it is the only one satisfying the highest ranked constraint NOFEATS. As the two tableaux below show, this occurs independently of the ranking of the two agreement constraints relative to each other.

T5. Lack of agreement

input = spec-head	NOFEATS	AGR	EXTAGR
a. ☞ with agreement	*!		
b. ☞ no agreement		*	*

T6. Lack of agreement

input = non spec-head	NOFEATS	AGR	EXTAGR
a. ☞ with agreement	*!	*	
b. ☞ no agreement		*	*

3.3 Universal Consequences

A synthesis of the overall interaction is shown in the table below. Remember that the agreement constraints are relativized with respect to agreement features. Therefore, a language may fall into one agreement class relative to one feature but in another with respect to a different one. For example, Italian has preserved agreement with respect to person and number, but lacks gender agreement, thus belonging to the no-agreement class gender-wise. A similar picture holds true for Standard Arabic, which has preserved agreement in person and gender, but agreement loss in number.

(17) Agreement Typology via Constraint Reranking

Agreement-Type	Ranking
Group 1 – Preserved Agreement .	EXTAGR >>NOFEATS (ranking of AGR irrelevant)

Group 2– Agreement Impoverishment .	AGR >>NOFEATS >>EXTAGR
Group 3– No Agreement.	NOFEATS >>{AGR, EXTAGR}

All grammars identified by a ranking of these constraints falls into one region of the above partition. Any grammar will in fact either rank EXTAGR over NOFEATS, and fall into the first group, or rank them in the reverse order. In this latter case, a grammar will either rank AGR over NOFEATS, and fall into the second group, or do the reverse, and fall into the third group. No other agreement pattern is thus possible. In particular, what is excluded from this list, and hence predicted impossible, is a language where agreement under c-command is richer than agreement under a spec-head configuration. Hence the generalization of agreement impoverishment follows straightforwardly as a necessary entailment of the analysis.

The interaction of the constraints also determines for any given configuration whether agreement on some feature *f* may or may not occur. The overall agreement inventory of a language thus follows directly from the constraint ranking that identifies it, with no need for a separate language specific stipulation of what agreement features a head may express in each configuration. This point is further clarified by the next section, which derives in detail the I^o agreement inventory in Italian and Standard Arabic indicative finite clauses.

4 Agreement Inventories: Deriving Mixed Patterns

Agreement inventories are derived by letting alternative morphological realizations for the same head H compete against each other. The competitor set contains any possible combination of agreement features, including the candidate expressing no agreement. The competing possible combinations of person, gender and number features are listed below. For example, candidate (f) restricts agreement to gender and number, candidate (b) restricts agreement to gender only, and finally, candidate (h) completely lacks agreement.

(18) Candidate-set: bundles of agreement features.

a. ps	c. num	e. ps, num	g. ps, gen, num
b. gen	d. ps, gen	f. gen, num	h. none

The shown features are those for which agreement *holds*, i.e. those *co-varying* with the person, number, and gender specifications of the subject. Selecting one candidate as optimal determines what *agreeing* features are morphologically expressed by I^o, i.e. the agreement inventory for this head in the language at issue. For example, in Standard Arabic, where preverbal subjects agree in person, gender, and number, and postverbal ones only in person and gender, the related constraint ranking will select (g) as optimal in the preverbal case, and (d) in the postverbal one.

Languages, however, may also morphologically express an invariant *default* value for any feature lacking agreement. This default value is not predicted by the current analysis and for the time being is assumed to be lexically specified. To come back to the Arabic example, the lack of number agreement with specVP subjects produces an invariant default *singular* value for the number feature. This value is thus interpreted as the lexically specified value for the number feature that emerges whenever this feature carries no agreement relation. In short, the lack of agreement in number is predicted by the analysis, but its morphological realization as *singular* is stipulated. An OT analysis of agreement avoiding this stipulation turns out to require a finer grained definition of agreement as well as constraints composed out of simpler constraints, and is being developed in (Samek-Lodovici, in preparation).

4.1 Italian

In Italian indicative finite-tense clauses, I^o shows preserved agreement with subjects in person and number, but lacks agreement in gender. This was already shown in section 2.1, and is shown

again in (19), which have overt agreement in person and number for both specIP and postverbal VP-adjoined subjects.

- (19) a. Le auto funzion-ano /* {o,i,a,iamo,ate} bene
 The.Fpl cars.Fpl work.3pl /* {1s,2s,3s,1pl,2pl} well
The cars work fine
- b. Funzion-ano / *{o,i,a,iamo,ate} bene le auto
 Work.3pl / *{1s,2s,3s,1pl,2pl} well the.Fpl cars.Fpl
The cars_{focus} work fine

The overall pattern can be seen as the merging of the three rankings characterizing preserved agreement in person, preserved agreement in number, and lack of agreement in gender. As we know from the previous discussion, each of these three patterns is characterized by the ranking conditions shown in (20) below, involving agreement constraints relativized to specific features. The constraints AGR_{ps} and AGR_{num} are omitted because their ranking is irrelevant for preserved agreement (see section 3.2).

- (20) Italian:
 -Preserved number agreement: $EXTAGR_{num} \gg NOFEATS$
 -Preserved person agreement: $EXTAGR_{ps} \gg NOFEATS$
 -No gender agreement: $NOFEATS \gg \{EXTAGR_{gen}, AGR_{gen}\}$

Any total ranking compatible with these ranking conditions will derive the overall agreement pattern of Italian. This is shown for specIP subjects in tableau T7, and for postverbal subjects in tableau T8 below.

In T7, the competition between the optimal person and number agreement in (a), and the person agreement candidate in (e) motivates the higher rank of $EXTAGR_{num}$ over $NOFEATS$, else (a) would lose against (e). Likewise, $EXTAGR_{ps}$ must outrank $NOFEATS$, else (c) would beat (a). These two ranking relations are responsible for the suboptimal status of all other candidates, except for the full agreement candidate (b). This candidate, however, violates $NOFEATS$ one more time than (a) because it expresses gender agreement. The extra violation is fatal, because $NOFEATS$ outranks both $EXTAGR_{gen}$ and AGR_{gen} , leaving (a) optimal.

T7. Spec-head agreement in person and number in Italian

	E.AGR _{num}	E.AGR _{ps}	NOF	E.AGR _{gen}	AGR _{gen}
a. \mathcal{E} ps, num			**	*	*
b. ps, gen, num			** *!		
c. num		*!	*	*	*
d. gen, num		*!	**		
e. ps	*!		*	*	*
f. gen	*!	*	*		
g. ps, gen	*!		**		
h. none	*!	*		*	*

The same ranking hierarchy determines preserved agreement in person and number on inverted subjects, as shown in tableau T8. The only change in the tableau concerns AGR_{gen} , which is now always violated because the subject is never in a spec-head relation with I^o . The discussion proposed for the former tableau identically applies to this tableau as well.

T8. Agreement in person and number in Italian under c-command

	E.AGR _{num}	E.AGR _{ps}	NOF	E.AGR _{gen}	AGR _{gen}
a. \mathcal{F} ps, num			**	*	*
b. ps, gen, num			** *!		*
c. num		*!	*	*	*
d. gen, num		*!	**		*
e. ps	*!		*	*	*
f. gen	*!	*	*		*
g. ps, gen	*!		**		*
h. none	*!	*		*	*

Summing up, once AGR and EXTAGR are relativized to specific features, their interaction with NOFEATS derives at once both the what agreement features are expressed by a head (here I°), as well as whether the expressed agreement is preserved or suppressed when moving from spec-head agreement to less local configurations. In the case of Italian, the high ranking of EXTAGR_{num} and EXTAGR_{ps}, and the low rank of EXTAGR_{gen} and AGR_{gen} relative to NOFEATS determine both person and number agreement between a specIP subject and I°, as well as its preservation with postverbal c-commanded subjects.

4.2 Standard Arabic

Agreement impoverishment is exemplified by Standard Arabic, where I° agrees in person, number and gender with specIP subjects but only in person and gender with specVP subjects (see section 2.2). Standard Arabic thus shows preserved agreement with respect to person and gender, but agreement loss with respect to number. Drawing from table (17), we combine the following ranking conditions:

(21) Standard Arabic:

- Preserved person agreement: EXTAGR_{ps} >> NOFEATS
- Preserved gender agreement: EXTAGR_{gen} >> NOFEATS
- Agreement loss in number: AGR_{num} >> NOFEATS >> EXTAGR_{num}

Any total ranking, consistent with these conditions, yields the desired agreement pattern. This is shown in the two tableaux below. Once again, I omit irrelevant constraints, here AGR_{gen} and AGR_{ps}.

Consider first agreement in specIP in T9. The higher ranking of EXTAGR_{ps} and EXTAGR_{gen} relative to NOFEATS is sufficient to exclude any candidate that does not express person and gender agreement, leaving only (a) and (b) as potential optima. But (b) lacks agreement in number, and thus fatally violates the next lower ranked constraint AGR_{num}, leaving the full-agreement candidate (a) optimal.

T9. Spec-head agreement in person, number and gender in Standard Arabic

	E.AGR _{ps}	E.AGR _{gen}	AGR _{num}	NOF	E.AGR _{num}
a. \mathcal{F} ps, gen, num				** *	
b. ps, gen			*!	**	*
c. ps		*!	*	*	*
d. ps, num		*!		**	
e. num	*!	*		*	
f. gen, num	*!			**	
g. gen	*!		*	*	*
h. none	*!	*	*		*

A major change occurs when subjects remain in specVP, and are no longer in a spec-head configuration with I°. The constraint AGR_{num} is now violated by all candidates, and therefore no longer distinguishes between (a) and (b). The next lower constraint, however, is NOFEATS, which prefers (b) to (a) because it expresses one agreement feature less. Candidate (b) thus emerges as optimal under this configuration.

T10. Loss of gender agreement under c-command in Standard Arabic

	E.AGR _{ps}	E.AGR _{gen}	AGR _{num}	NOF	E.AGR _{num}
a. ps,gen,num			*	* * *!	
b. ps, gen			*	* *	*
c. ps		*!	*	*	*
d. ps, num		*!	*	* *	
e. num	*!	*	*	*	
f. gen, num	*!		*	* *	
g. gen	*!		*	*	*
h. none	*!	*	*		*

As in the previous case about Italian, a ranking of the proposed constraints simultaneously determines what features allow for spec-head agreement and which preserve agreement under a c-command configuration.

4.3 Comparison with Parametric Approaches

All agreement patterns listed in table (2) and (3) in section 2 can be derived in the way just outlined for Italian and Standard Arabic, i.e. by merging together the ranking relations required for deriving the expression and eventual preservation of each feature. What features are expressed under each structural configuration, is thus determined by the ranking of the constraints, and need not be stipulated as language specific properties of the agreeing head.

A legitimate and often raised question in this regard concerns the difference between deriving inventories via language specific rankings of universal constraints and parametric approaches where the inventories are idiosyncratic properties specified language by language, as is for example proposed for agreement by Griffith (1996).

At first sight the two approaches might appear equivalent, but they are not. As shown in section 3.2, no ranking of the constraints can make non spec-head agreement richer than the spec-head one. This, however, becomes possible when heads specify what features they express in each configuration. For example, I° could be specified to agree in number with c-commanded subjects but not with subjects in specIP, against generalization (1).

More sophisticated parametric theories, such as Manzini and Savoia's minimalist account of agreement loss (1998), are able to derive the generalization on impoverishment. For example, in their extensive study of number agreement loss in Italian dialects, Manzini and Savoia, maintain that agreement always requires spec-head checking of the relevant features. This is always possible with preverbal subjects in virtue of their position, but not necessarily so with postverbal subjects, where agreement requires covert raising of the relevant features. When a feature fails to raise and be checked, agreement on that feature cannot occur. In particular, whether the number feature may or may not raise is a parametric and language specific property. The model thus derives generalization (1), because every feature that determines agreement under the spec-head configuration of preverbal subjects may or may not fail to do so with postverbal ones, and hence only agreement impoverishment may ensue.

The problematic aspect with this analysis is that the component of grammar determining agreement loss is distinct from the one determining how rich agreement can be in the preverbal case, effectively treating the agreement inventory for preverbal subjects and its degree of preservation under inversion as separate issues. Agreement in fact varies across languages even in the preverbal case, as shown by the difference between Standard Arabic, showing agreement in gender, and Italian, where this is not possible. In Manzini and Savoia's model, preverbal subjects never fail to check out their agreement features (1998:21), indeed this is a

necessary property if impoverishment is to be derived in the way just described. But this entails that differences in agreement richness in the spec-head configuration must be determined by some parameter or component of the grammar other and distinct from the failure to raise to the appropriate checking configuration used to account for agreement impoverishment.

The same is not true for the analysis advocated here, where the proposed constraints and ranking are responsible at once for determining how much agreement is shown under the spec-head configuration and how much of that same agreement is preserved under inversion, thus deriving the agreement inventory for preverbal subjects and its degree of preservation in a unified manner.

5 Additional Issues

This section examines some interesting issues raised by agreement across clauses, agreement with expletives, and past participle agreement.

5.1 Lack of Agreement across Extended Projections

Consider (22) below. When the complement of the raising verb is finite, the matrix verbs display default invariant third person agreement, here interpreted as lack of agreement. Why cannot the matrix verb agree with the lower subject?

- (22) Sembr-a / *-iamo che noi non voteremo
 seems -3sg -1.pl that we not vote.FUT.1pl
It seems that we will not vote

Agreement with the lower subject is not possible because the finite subordinate clause forms its own extended projection. Since no constraint favors agreement across extended projections, any structure allowing it always loses against the structure lacking agreement, which performs better relative to NOFEATS.

The relevant tableau is given in T11 below, with the ranking found valid for Italian in previous sections. The competition is between the candidate lacking agreement in (a) and candidate (b) with the standard person and number agreement found for c-commanded subjects. The agreement constraints are violated by both candidates, either because agreement is absent, as in (a), or because it does not occur within the proper domain, as in (b). The only constraint distinguishing the two is thus NOFEATS, which favors the agreementless candidate in (a). Agreement across extended projections is thus predicted impossible.

T11. Agreement in person and number across extended projections in Italian

	E.AGR _{num}	E.AGR _{ps}	NOF	E.AGR _{gen}	AGR _{gen}
a. \emptyset none	*	*		*	*
b. ps,num	*	*	*!*	*	*

The violations assessed by each constraint for (b) are never less than those assessed by the same constraint for (a), and on NOFEATS they are inevitably more than those for (a). It follows that (b) is *harmonically bounded* by (a), i.e. no ranking of the above constraints will ever make (b) better than (a) (on ‘harmonic bounding’, see Prince & Smolensky 1993, Samek-Lodovici & Prince 1999).

The same is true for any candidate *c* expressing agreement with the lower subject. Like (b), in fact, candidate *c* necessarily violates all the agreement constraints, either because it lacks agreement on the relevant feature, or because the agreement relation extends beyond the relevant domain of the constraint. Moreover, *c* collects one NOFEATS violation more than the agreementless candidate (a) for every feature it expresses. As a result, (a) harmonically bounds *c*, and all other things being equal it will always beat it. The universal generalization that agreement can never occur across extended projections thus follows from the analysis. Note how the same result would not hold if we based our analysis on linear order as in Barlow (1992),

since linear order cannot distinguish between agreement relation occurring within rather than across the boundaries of local and extended projections.

5.2 Agreement in Raising Structures

When the subordinate clause is non finite, as in (23) below, a raising verb agrees with the lower subject across the clause boundary. That the subject occurs in the lower clause is confirmed by its interpretation, which is under the scope of the neg-marker whenever stress falls on the auxiliary *aver* (to have).

- (23) sembr-ano / *-anon AVER votato pochi elettori
 seem-3pl -3sg not to-have voted few voters
There seem to have been more than a few voters voting

As we just saw, nothing triggers agreement across extended projections, which suggests that agreement here occurs within a single extended projection determined by the properties of raising verbs. Support for this view comes from the observation that the exact same domain allows for A-movement of subjects as well as anaphoric binding, both of which are operations generally restricted to extended projection domains; see (24) below.

- (24) Gli elettori sembr-ano aver votato se stessi
 The voters seem-3pl to-have voted themselves
The voters seem to have voted for themselves

5.3 Agreement with Expletives

From a descriptive perspective, agreement with expletives occurs in some structures and not in others. For example, while the verb agrees with the English expletive *it* in (25), in (26) it agrees with the postverbal subject rather than with the expletive *there*.

- (25) It seems that
- (26) a. There is a man in the garden
 b. There are three men in the garden

The asymmetry does not depend on specific properties of *there*, since it can be replicated in German, where the same expletive *es* occurs in both examples⁹.

- (27) Es scheint dass ...
 It seems.3sg...
it seems that ...
- (28) a. Es ist ein Mann im Garten
 It is a man in-the garden
There is a man in the garden
 b. Es sind drei Männer im Garten
 It are three men in-the garden
There are three men in the garden

⁹ The German data provide another argument against null expletives. If long distance agreement is mediated by an expletive in specIP responsible for transmitting case and agreement, it appears very odd that the expletive does not itself participate in the agreement relation. Yet the German singular expletive *es* in (27) above does not, and never does.

The analysis of this asymmetry relies on the assumption that agreement and nominative-case assignment are parasitic one single relation directly linking I° to the lower subject (Samek-Lodovici 1996, chap 5). Agreement in (26) and (28) above is simply agreement under c-command, and the above examples only show that in English and German agreement is preserved rather than impoverished, and should thus be analyzed in parallel with the analysis given for agreement preservation in Italian.

As expected, there also are varieties of English showing agreement impoverishment. In the example below, reported by Baker (1989:359), number agreement is lost in *there* constructions, where the agreement relation is no longer local to IP.

- (29) a. Some bats *are* in the bellfry
 b. There *is* some bats in the bellfry

As in Arabic, the pattern follows when the spec-head related constraints AGR_{num} and AGR_{ps} outrank NOFEATS, and NOFEATS outranks EXTAGR_{num} and EXTAGR_{ps}. As we know, this leads to agreement loss in number and person when the subject is c-commanded by I°. As T12 shows, the agreement relation is upheld by the AGR constraints when occurring under the spec-head configuration. Agreement in (b) wins against lack of agreement in (a) because it satisfies the high-ranked AGR constraints.

T12.Spec-head configuration

	AGR _{ps}	AGR _{num}	NOF	E.AGR _{ps}	E.AGR _{num}
a. none	*!	*		*	*
b. ☞ ps,num			**		

When the subject is c-commanded, however, AGR_{num} and AGR_{ps} are violated by both candidates, and NOFEATS breaks the tie in favor of the agreementless (a), which surfaces with a default third person realization.

T13. Non spec-head configuration

	AGR _{ps}	AGR _{num}	NOF	E.AGR _{ps}	E.AGR _{num}
a. ☞ none	*	*		*	*
b. ps,num	*	*	*!*		

Finally, let us consider again (25) and (27), repeated below. Three potential accounts are available, all compatible with the analysis developed so far. Either (i) no agreement relation occurs and the verb shows its default form for lack of agreement, or (ii) the expletive is the target of nominative case assignment, and therefore I° agrees with it, or finally (iii) I° agrees with the expletive, but this has no intrinsic features, and thus agreement is once again expressed by the third person singular default.

- (30) It seems that ...
 (31) Es scheint dass ...
 It seems.3sg...
it seems that ...

What is important is that all these accounts require no appeal to transmission of agreement features, while they allow for the same variation between preservation and impoverishment agreement varieties found in Romance languages.

5.4 Simultaneous Agreement on Multiple Heads

The analysis proposed by this work is not specific to agreement between subjects and I^o, and can be extended to other agreement heads. Different heads of the same clause, however, can involve distinct and even opposite sets of features. For example, in Italian, while I^o agrees in person and number but lacks agreement in gender, the past participle of passives and unaccusatives¹⁰ agrees in gender and number but lacks agreement in person, as shown in (32) below.

- (32) a. Gianni é arrivat-o
 John is.3sg arrived-MSG
- b. Maria é arrivat-a
 Mary is.3sg arrived-Fsg

The proposal explored here is a further relativization of the agreement constraints, which are indexed with respect to functional heads as well. Thus, each constraint in the AGR_f and EXTAGR_f families doubles into a constraint for I^o and another for the past-participle head. The group of constraints so generated is listed below, where *P* stands for past participle, and *I* for I^o.

Agreement Constraints.	I ^o	Past Participle Head
Person	AGR _{ps,I} EXTAGR _{ps,I}	AGR _{ps,P} EXTAGR _{ps,P}
Number	AGR _{num,I} EXTAGR _{num,I}	AGR _{num,P} EXTAGR _{num,P}
Gender	AGR _{gen,I} EXTAGR _{gen,I}	AGR _{gen,P} EXTAGR _{gen,P}

Ranking conditions will now have to be determined for each head. For example, the reader may check as an exercise that the agreement pattern for I^o and the past-participle of passives and unaccusatives in Italian is determined by merging together the following ranking conditions:

- (33) I^o and past-participle agreement in Italian:
- a. I^o-agreement in person and number:
 E.AGR_{num,I}, E.AGR_{ps,I} >> NOFEATS >> E.AGR_{gen,I}, AGR_{gen,I}
- b. Past participle agreement in number and gender:
 E.AGR_{num,P}, E.AGR_{gen,P} >> NOFEATS >> E.AGR_{ps,P}, AGR_{ps,P}

¹⁰ An important issue that I leave open to further research is why past participles of transitive verbs show no agreement with in situ objects in Italian, but show agreement with object clitics. Note how an analysis à la Kayne (1987) —where clitics agree because they move into the specifier of the participle, whereas in situ objects do not— is not feasible under the approach argued for here, because it restricts agreement to spec-head configurations. There are however reasons to question Kayne’s analysis. First of all, if subjects originate in specVP, as claimed by Koopman and Sportiche (1988), it is unclear why they cannot move through the past participle specifier and trigger agreement while on their way to specIP. Moreover, agreement with the in situ subject of unaccusatives would require a null expletive to raise through the specifier of the past participle, against all the provided and reminded arguments against null expletives.

Since the same fundamental interaction now underlines agreement on any head, we expect the consequences that we observed for I^o to generalize as well. In particular, the generalization on agreement impoverishment will now have to hold of agreeing heads other than I^o. This is indeed the case, as the data discussed in section 2.2 for past participles in Conegliano and Adjectives in Abkhaz showed.

6 Conclusion

While the number of constraints obtained via feature and head relativization may seem large, the way they are generated is fully systematic. The actual primitives of this analysis of agreement are limited in number and elementary in character, involving only the following elements:

- (i) The set of distinct agreement features.
- (ii) The set of heads that may potentially host agreement; these need not belong to distinct syntactic categories, but should be represented by distinct heads in the phrase-structure representation because so far optimization only determines the features for one agreement relation per head.
- (iii) A basic fundamental constraint favoring agreement, relativized to the local- and extended-projection domain (i.e. AGR and EXTAGR).
- (iv) The constraint NOFEATS, against any agreement feature.

The relativization of the agreement constraints to features and heads is necessary to account for the distinct patterns of agreement found on different heads, but the overall analysis is invariant across syntactic structures: whatever head and whatever features it concerns, agreement is always governed by the same fundamental mechanism: the interaction between AGR and EXTAGR with NOFEATS.

I conclude with what I consider the most interesting property of OT and therefore of this analysis as well: the potential for deriving universal generalizations, language specific inventories, and crosslinguistic variation, all from the same fundamental interaction among universal constraint. In this analysis: (i) the determination of a language agreement inventory, (ii) the variation among languages of that same inventory, (iii) the universal generalization on agreement impoverishment.

Appendix – Agreement Patterns Crosslinguistically

For the agreement patterns of Italian, Standard Arabic and Conegliano, see sections 2.1 and 2.2.

- Moroccan Arabic, (Fassi Fehri 1993).

The following examples show that unlike Standard Arabic, Moroccan Arabic preserves number agreement; compare (34a) with (34b). As (34c) shows, lack of number agreement causes ungrammaticality.

- (34) a. L-ulad ja-w
 The boys came -pl
 The boys came
- b. Ja-w l-ulad
 Came-pl the boys
 The boys came
- c. *Ja l-ulad
 Came the boys

- French.

The following example shows loss of number agreement with inverted subjects.

- (35) Il arriverá tres hommes
 clitic arrive-FUT-3sg three men.3pl
There will arrive three men

• Fiorentino, Trentino (Brandi and Cordin 1989:121-122).

Subjects in specIP must occur with an obligatory clitic expressing gender, person and number agreement, see (36) below.

- (36) La Maria la parla
 The.3Fsg Mary.3Fsg cl.3Fsg speaks.3sg
Mary speaks

The agreement clitic is obligatorily suppressed whenever the subject occurs in postverbal VP-adjoined position. The position is identified on the basis of scope interactions with sentential negation (Brandi and Cordin 1989:138, fn8). The loss in person, number and gender agreement is particularly evident in (37), where the subject is plural and feminine. When the subject is postverbal only a locative clitic precedes the verb (loss of person, number, and gender agreement), and the auxiliary occurs in the singular (loss of number agreement).

- (37) a. Gli é venuto delle ragazze
 Locative-clitic is.3sg come.3Msg some.3Fpl girls.3Fpl
There arrived some girls
- b. *Le son venute delle ragazze
 cl.3Fpl are.3pl come.3Fpl some.3Fpl girls.3Fpl
There arrived some girls

The agreement-pattern of Trentino closely resembles that of Fiorentino, except for the absence of the overt initial clitic *gli* in inversion structures. See Brandi and Cordin (1989).

• Conegliano (Saccon 1993).

Loss of gender agreement has already been illustrated in section 2.1. The following example shows loss of number agreement in present perfect clauses.

- (38) El a caminá milioni de persone, in te sto' marciapié
 Expl.3Msg has.3sg walked millions.Mpl of persons, on this sidewalk
There walked millions of people, on this sidewalk

• Fassan, Genoese, Ampezzan, Romagnol (Haiman and Benincá 1992).

The following examples from Haiman and Benincá (1992:193) show loss of gender agreement.

- (39) Fassan: L e venu la vivano
 He.3Msg is.3sg come.Msg the witch.Fs
The witch has arrived

- (40) Genoese: U vene a Katajning
 He.3Msg comes.3sg the.3Fsg Catherine
Catherine arrives

(41) Ampezzan:

Agnere l e sta ra sagra inz el nosc paes
 Yesterday he.3Msg is3sg been.3Fsg the.3Fsg feast.Fsg in the our town
Yesterday, there was a party in our town

- (42) Romagnol: E chenta una turtureina
 He.3Msg sings.3sg a.3Fsg turtledove.Fsg

A turtledove is singing

- Chinese (Lu, 1994).

Postverbal subjects in Chinese are restricted to a few unaccusative verbs and existential sentences, where they do not display agreement. The following examples are taken from Lu (1994).

(43) Zhe xueqi lai le sange xin laoshi
This semester come ASP three-CL new teacher
Three new teachers came (to this school) this semester

(44) Nabian you sange ren
There have three man
There are three men

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