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Problems of number inconsistency arise in Italian when singular distributive quantifiers float rightward off of subjects, leaving these subjects plural. The inconsistency arises in the presence of adjectives, participles, and pronominal forms. Different proposals are discussed here for ordering adjective agreement and participle agreement with respect to Quantifier Floating, and different theories of pronominalization phenomena are also discussed. It is shown that significant generalizations about number consistency can be captured only if a particular ordering for agreement rules and Quantifier Floating is assumed ALONG WITH a particular theory of pronominalization. Thus the data presented here suggest that agreement phenomena and pronominalization must be related.*

The resolution of feature conflicts in various languages has been the topic of many works.¹ This study of gender/number (G/N) conflicts in Italian proposes a consistency condition for surface structures, and an alternative surface phonetic filter. Both alternatives lead to the conclusion that agreement phenomena and pronominalization phenomena are not independent. Furthermore, the surface phonetic filter is shown to be global in nature.

DATA

1.1. QUANTIFIER FLOATING, hereafter QF,² is the optional rule which moves a quantifier rightward off the subject, depositing it to the right of a verb or auxiliary:

- (1) a. *CIASCUNA donna ha comprato un mazzo di fiori.*
b. *CIASCUNA delle donne ha comprato un mazzo di fiori.*
- (2) *Le donne hanno comprato CIASCUNA un mazzo di fiori.*
- (3) *Le donne hanno comprato CIASCUNA un mazzo di fiori.*

'Each woman (each of the women) bought a bunch of flowers.'

For the purposes of this paper it is not necessary to establish whether 2 and 3 are derived from 1a ('each woman') or 1b ('each of the women'). Let us apply the term 'inter-V' to the position which *ciascuno* assumes in 2, and the term 'post-V' to the position in 3. QF moves the quantifier *tutti* 'all' in all varieties of Italian that I know of, *ciascuno* 'each' in many varieties, and *ognuno* 'every' in a few varieties. All the examples in this paper use *ciascuno*, although *ognuno* gives exactly the same results in those varieties where it can float.

1.2. NUMBER BEFORE QF. If QF does not take place, *ciascuno N* in subject position behaves syntactically as a singular subject: it takes a singular verb; all adjectives and participles having G/N agreement with the subject are singular; and all pronominal forms coreferential with the subject have singular stems.³

* Many thanks go to Judith Alssen, Nick Clements, Giulio Lepeschy, Gary Milsark, Marina Neopor, Dave Perlmutter, Pasquale Talò, and Gilles Fauconnier for observations and criticisms at various stages of this work.

¹ Among these are Givón 1970 on Bantu and Perlmutter 1969 on Polish.

² The term QF is due to Paul Postal. For a discussion of agreement problems with QF in Italian, see Napoli 1974. For a discussion of QF in French, see Kayne 1969, 1975, and Fauconnier 1973.

³ The abbreviations used in this paper are s = singular, p = plural, f = feminine, m = masculine, sem = semantically, syn = syntactically.

- (4) a. *Ciascuna donna* { *ha* (s) } { **hanno* (p) } *comprato un mazzo di fiori.*
 'Each woman bought a bunch of flowers.'
 b. *Ciascuna donna è* { *entra* (s) } { *scalza* (s). }
 { **entra* (p) } { **scalze* (p). }
 'Each woman entered barefoot.'
 c. *Ciascuna donna, ha telefonato a* { *sua*, (s-stem) } *amica.*
 { **loro*, (p-stem) }

(In 4c it is the stem of the possessive adjective that is singular: the G/N ending of this adjective is determined not by the G/N features of the antecedent, but by those of the possessed noun.)

1.3. NUMBER AFTER QF. When *ciascuno* floats, it remains singular. However, the NP which it leaves behind in subject position is syntactically plural, taking the plural form of the NP and requiring a plural verb:

- (5) *Le donne (p) hanno (p) ciascuna (s) comprato un mazzo di fiori.*
 'The women have each bought a bunch of flowers.'

1.4. ADJECTIVES AND PARTICLES. When *ciascuno* floats, S's having adjectives or particles which undergo G/N agreement with *ciascuno*'s NP are rejected.⁴

- (6) Adjective
 a. **Le donne hanno ciascuna attraversato il corridoio scalza (s).*
 b. **Le donne hanno ciascuna attraversato il corridoio scalze (p).*
 'The women have each crossed the hall barefoot.'
 (7) Past Participle
 a. **Le donne sono ciascuna andata (s) in chiesa.*
 b. **Le donne sono ciascuna andata (p) in chiesa.*
 'The women have each gone to church.'

However, if the element which undergoes G/N agreement with *ciascuno*'s NP is not phonetically specific for number, the S is accepted:

- (8) *Le donne hanno ciascuna cominciato l'esame blu di paura.*
 'The women have each begun the exam blue with fear.'

Here the adjective *blu*, like other adjectives and nouns whose stem ends in a stressed vowel, is not phonetically specific for number. From hearing only it, one cannot determine whether it is singular or plural. We can conclude, then, that 6 and 7 are rejected at a stage in the derivation after at least some phonological rules have applied—in particular, after the morphological ending for number has been spelled out to yield a phonetic shape.

Two rules are operating in 6: QF, and G/N agreement of attributives (G/N of A). Let us see how we can account for the ungrammaticality of 6. Assume first that G/N of A applies before QF: then 6a (with singular *scalza*) will be generated, and 6b (with plural *scalze*) will not. However, 6a–b are both bad. The problem with 6a is that the syntactically singular *scalza* cannot be understood to modify the

⁴ See now the Appendix, below.

syntactically plural subject. Thus, if the rules apply in this order, some consistency rejects 6a at a late stage. Such a condition might have the effect of rejecting 6a at an earlier stage. (9) In order for an adjective (or participle) to be understood as agreeing with a given NP, the adjective (or participle) and the NP must be phonetically realized incompatible number.

Note that *ciascuno*, being a quantifier (not an adjective) that is invariably understood to quantify a plural subject. But *scalza*, which agrees for number with the NP it modifies, can be understood in the surface to modify only with the same number. Thus, in 6a, condition 9 rejects an S not because of the presence of *ciascuna* (s), but because of the presence of *scalza* (s) with subject.

If we instead assume that QF applies before G/N of A, then 6a will be generated, but 6b will not. But 6b is also bad. The consistency condition above will not reject 6b: again, the problem is one of incompatibility of number between *ciascuna* (s) and *scalze* (p). The question is whether this incompatibility is semantic or syntactic.

Ciascuno NP, while having a distributive reading for all speakers of Italian, is semantically singular for some speakers, plural for others.⁵ After QF of an S with floated *ciascuno* has the same semantic number it had before. Thus, for some speakers, the subject of 6b is semantically singular. One can propose that for such speakers the semantic number of the subject in 6b is compatible with the syntactic number of *scalze* (p). However, such a proposal would account for the ungrammaticality of 6b, for in Italian many nouns a

⁵ There are a handful of adjectives that are invariable in Italian:

- (a) *La gonna è rosa.*
Le gonne sono rosa.
 'The skirt(s) is/are pink [the color of the flower].'
 (b) *La gonna è viola.*
Le gonne sono viola.
 'The skirt(s) is/are violet [the color of the flower].'
 (c) *La gonna è avana.*
Le gonne sono avana.
 'The skirt(s) is/are beige [the name of the Cuban city].'

Such examples will have to be listed as exceptions to condition 9 and to the alternation discussed below in the text.

⁶ In order to see the semantic number of *ciascuno NP*, consider the predicate *distribuire* 'to group themselves in factions', which requires a semantically plural subject.

- (a) *La gente si distribuisce in fazioni (syn-s, sem-p).*
 'The people grouped themselves in factions.'
 (b) *Le donne si distribuiscono in fazioni (syn-p, sem-p).*
 'The women grouped themselves in factions.'
 (c) **La donna si distribuisce in fazioni (syn-s, sem-s).*
 'The woman grouped herself in factions.'

The following sentences are acceptable to some speakers, but not to others:

- (d) *Ciascuna donna si distribuisce in fazioni.*
Le donne si distribuiscono ciascuna in fazioni.
 'The women each grouped themselves in factions.'
 (e) Those who accept (b) read *ciascuna NP* as semantically plural.

syntactically but singular semantically, or vice versa. In such cases, G/N of A creates syntactic agreement, not semantic agreement.⁷

- (10) a. *Le forbici (p) sono taglienti (p)* (syn-p, sem-s)
 'The scissors are sharp.'
 b. *La folla (s) è impazzita (s)* (syn-s, sem-p) 'The crowd is crazed.'

Thus, if QF precedes G/N of A, the syntactic number on *scalzo* should be plural, just as it is in 6b, regardless of the fact that for some speakers the subject is semantically singular.

The problem with 6b, then, is a syntactic incompatibility: the syntactic singularity of *ciascuna* is incompatible with the syntactic plurality of *scalzo*. Keeping in mind that this incompatibility must be phonetically distinguishable (see 8), the filter rejecting 6b might have this form:

- (11) If an element A is a gender-agreement target of an element C, and an element B is a G/N-agreement target for that same element C, then A and B must not have phonetically realized incompatible number.

Two solutions for 6 have been explored: in one, G/N of A precedes QF, and condition 9 is needed; in the other, QF precedes G/N of A, and filter 11 is needed. Independent evidence as to which rule (QF or G/N of A) comes first is non-existent, as far as I know. I know of no problems which will arise if G/N of A is assumed to be a cyclic rule. If it is postcyclic, however, it must be global—in that cyclic rules may destroy structural information identifying the subject of a given attributive (cf. Napoli 1975), yet G/N of A needs to have access to this information. QF, on the other hand, has been argued by Fauconnier to be cyclic for French; but I have pointed out various problems (Napoli 1974) in assuming that the rule is either cyclic or postcyclic in Italian. Thus it is not clear, on independent grounds, whether the two rules always apply in a certain order. For the moment, let us keep both 9 and 11.

Looking at 7, we find that again two rules have applied: QF and past participle agreement (PPA). There is evidence that PPA must be a postcyclic rule: it must follow Clitic Placement, which is postcyclic (cf. Perlmutter 1973). Still, since it is unclear whether QF is cyclic or postcyclic, it is not obvious whether these rules

⁷ When the subject of a sentence is the indefinite *si* or the *voi* of polite address (found mainly in southern Italian), attributives often do not have the same number as verbs:

- (a) *Si è (s) felici (p) qui*. 'One is happy here.'
 (b) *Voi siete (p) importante (s)*. 'You are important.'

Napoli 1973 attributes the differing number of the verb and adjective in a sentence such as (a) to the ordering of the rule of Subject-Verb agreement at a later point than G/N of A. When G/N of A takes place, a plural subject is still present. But when Subject-Verb agreement takes place, that subject has been replaced by *si*; thus the V assumes the unmarked (i.e. singular) number. Cornie 1975 attributes the differing number of verb and adjective in both (a) and (b) to a syntactic/semantic contrast: he says that the adjectives here are agreeing with the underlying (i.e. semantic) subject, while the verbs are agreeing with the surface (i.e. syntactic) subject. Setting aside examples such as these, I know of no full NPs in Italian which do not call for syntactic number agreement on attributives, regardless of semantic number.

always apply in a certain order.⁸ With arguments parallel to those given for 6, then, we need both filter 11 and condition 9 to account for 7.

1.5. PRONOMINAL FORMS. When *ciascuno* is floated, S's having pronom forms coreferential with *ciascuno*'s NP are rejected:

- (12) a. **I ragazzi, possono ciascuno telefonare a sua madre*.
 'The boys can each telephone his mother.'
 b. **I ragazzi, possono ciascuno telefonare alla loro madre*.
 'The boys can each telephone their mother.'
- (13) a. **I ragazzi, sembrano ciascuno parlare fra sé (e sé)*.
 'The boys seemed to each speak to himself.'
 b. **I ragazzi, sembrano ciascuno parlare fra loro*.
 'The boys each seemed to speak to themselves.'

In 12a and 13a, the stem of the pronominal form is singular,⁹ in 12b and 13b plural.

⁸ One could, however, avoid generating sentences like (a) below, with floated *ciascuno* a passive participle, by ordering QF before Passive:

- (a) **Le donne (p) sono ciascuna (s) {apprezzata (s)} dagli uomini*.

But then you would expect to find sentences like (b), in which *ciascuno* quantifies the agent phrase:

- (b) **Le donne sono ciascuno apprezzate dagli uomini*.

'The women are appreciated by each of the men.'
 But sentences like (b) never occur. Thus passive participles present the same problem other participles and attributives.

⁹ In 13a, we find *se* by itself could be singular or plural. However, the phrase *fra sé* can appear only with a 3sg. subject for many speakers. These speakers use *loro* for the (*fra loro* is ambiguous between 'to themselves' and 'among themselves'). Thus, for speakers, *se* is singular in 13a because of the particular prepositional phrase in which it occurs.

For other speakers, however, *fra sé* is used with a 3sg. subject to mean 'to himself', *se e sé* is used with a 3pl. subject to mean 'to themselves'. These speakers vary as to *fra loro* is ambiguous between 'to themselves' and 'among themselves', or has the reading 'among themselves'. For many such speakers, the examples in 13 should be rephrased as follows:

- (a) **I ragazzi sembrano ciascuno parlare fra sé*.
 (b) **I ragazzi sembrano ciascuno parlare fra loro*.
 (c) **I ragazzi sembrano ciascuno parlare fra sé e sé*.
 (d) **I ragazzi sembrano ciascuno parlare fra loro*.

'The boys seemed to each speak among themselves.'
 Why (b) is so much better than the other examples is unclear to me, especially since the text is hard for these speakers. For other speakers with distinction between *fra sé e sé*, and *fra loro*, (b) and 12b are perfectly acceptable. For these speakers, pronominal phenomena are not constrained by the same kind of consistency conditions or filters that strain agreement phenomena. However, the matched theories of agreement and pronominal phenomena presented below would be in no way inconsistent with the grammars of speakers. Thus such speakers provide no evidence for or against the major thesis of this that agreement phenomena and pronominalization phenomena are not independent.

However, if the pronominal form is not phonetically specific for number, then the S is accepted:

- (14) *I ragazzi se ne sono ciascuno comprate tre.*
 'The boys have each bought themselves three.'

In 14, the clitic *se* is not phonetically specific for number; from hearing only it, one cannot determine whether it is singular or plural. Thus 12-13 must be rejected because of the phonetic shape of the pronominal forms; i.e., a phonetic incompatibility arises in 12-13 that is not found in 14.

Let us consider how to account for the ungrammaticality of 12. Many theories of pronominalization have been proposed; but let us assume first that pronouns are either generated in deep structure or, at some point in the derivation, replace full NP's generated in deep structure. In either case, what eventually shows up as the pronominal form has a given number for its stem at all points in the derivation. Thus 12a, with the singular pronominal stem, will be generated, and 12b will not. However, 12a is rejected: speakers cannot form the proper coreference relationship here, because the subject is syntactically plural but the stem of the pronoun is singular. Some sort of consistency condition applying after QF is called for—probably at the surface level, since it must apply after some phonological rules.¹⁰ Jackendoff 1972 has proposed a consistency condition to account for certain impossible coreference relations involving English pronouns, and a modified version of his condition will serve us well in this instance. Given the grammaticality of 14, the condition must be sensitive to phonetic shapes:¹¹

- (15) In order for a pronominal form to be understood as coreferential with a given NP, the stem of the pronominal form and the NP must not have phonetically realized incompatible number.

Since a given individual cannot be both plural and singular at the same time, 12a is rejected with the reading in which the pronoun and the subject are coreferential.

Now let us assume that pronouns are present in deep structure, marked only with the feature [+pro]. Then, at some point in the derivation, a coreference relation is established between the pronoun and an NP, and only at this point

¹⁰ Many arguments have been made that certain phonological rules may be followed by syntactic rules: the most convincing of these involve facts of intonation and stress (cf. Bierwisch 1968, Bresnan 1971, and Pope 1971). However, for the type of phonological rule involved in the phenomenon discussed here, I know of no evidence to suggest that such a phonological rule may be followed by a syntactic rule—with the possible exception of the syntactic rule of Subject Pronoun Drop, discussed below.

¹¹ Condition 15 refers only to incompatible number, but certainly a similar condition is needed for gender as well. However, there are instances in Italian in which an NP and a coreferential pronominal may have different genders:

- (a) *La spia (f) entrò con cautela, ma (fa (f) / lo (m)) l'uffi subito.*

'The spy entered cautiously, but I saw him immediately.'

La spia is syntactically feminine, whether the spy is a man or a woman; and most speakers would use only the feminine pronominal in (a). However, some speakers would use the masculine pronominal if they knew that the spy was a man.

are other features (such as gender, number, and person) assigned to the pronoun. If the point at which features are copied onto the pronoun precedes QF, this explains why the proper coreference relations cannot be made in 12a. If, in the point at which features are copied onto the pronoun follows QF, the will not be generated, but 12b will.¹² Yet 12b is rejected. The problem is: compatibility of number between the singular *ciascuno* and the plural *stretti loro*. We need, then, a filter like this:

- (16) If the stem of a pronominal form coreferential with the trigger of a gender target is in the same S as that target, then the stem of the nominal form and the target must not have phonetically realized incompatible number.

Exactly the same arguments used in discussing 12 apply to 13. Thus 13a-b both are ruled out by the combination of condition 15 and filter 16.

Since determining a proper theory of pronominalization is beyond the scope of this paper, let us keep both condition 15 and filter 16 for the moment.

1.6. A GENERALIZATION. When one considers 6-8 and 12-14 side by side similarities are striking:

- (6) a. **Le donne hanno ciascuna attraversato il corridoio scalata.*
 b. **Le donne hanno ciascuna attraversato il corridoio scolate.*
 (7) a. **Le donne sono ciascuna andata in chiesa.*
 b. **Le donne sono ciascuna andate in chiesa.*
 (8) *Le donne hanno ciascuna combinate l'esame blu di paura.*
 (12) a. **I ragazzi possono ciascuno telefonare a sua madre.*
 b. **I ragazzi possono ciascuno telefonare alla loro madre.*
 (13) a. **I ragazzi sembrano ciascuno parlare fra sé (e sé).*
 b. **I ragazzi sembrano ciascuno parlare fra loro.*
 (14) *I ragazzi se ne sono ciascuno comprate tre.*

¹² Partee 1971 gives a third proposal. In her fn. 6, she briefly suggests that pronominal change number transformationally. This proposal is motivated by various number problems in English sentences involving each NP as subject. Such a proposal will encounter the difficulties as the interpretive proposal which I discuss below.

¹³ Throughout these arguments, I have been assuming that adjectives and participles agree with NP's—and that pronouns, if there is a feature-assuming/changing transformation, get their number-gender features from coreferential NP's. A reader has raised the point that, in the S's in which a Q has floated, the pronominal form (and, one might suggest, the participle or adjective) may get its number (and gender) feature either from the NP or from the NP left behind. Thus if



is the structure before QF, and if features get copied from NP₁ before QF, then at features may be copied from Q or from NP₂. Since the floated Q *ciascuno* is singular since NP₂, when left behind in subject position, is plural—the number facts in this paper arise from this choice. If this is indeed the source of the incompatibility, then phonetic features and filters similar to those presented in this paper are still needed.

However, I know of no evidence that features are copied from Q's in any language. The question is open whether or not such feature-copying rules are plausible rules of language. Furthermore, even if such rules can be justified for other languages, it is not that they can be justified for Italian.

In 6 and 7, inadmissibility is due to phonetic incompatibility of number either between the subject and an agreement target, or between *ciascuno* and that agreement target. In 12 and 13, inadmissibility is due to phonetic incompatibility of number either between the subject and the stem of a pronominal form, or between *ciascuno* and the stem of that pronominal form. In 8 and 14, no problems arise, because the agreement targets and the pronominal forms involved are not phonetically distinct for number. There is a generalization lurking here which an adequate grammar should capture.

It is possible to collapse conditions 9 and 15 as follows:

- (17) In order for $\left[\begin{array}{l} \text{an adjective (or participle)} \\ \text{a pronominal form} \end{array} \right]$ to be understood as $\left[\begin{array}{l} \text{that adjective (or participle)} \\ \text{the stem of the pronominal form} \end{array} \right]$ agreeing with a given NP, and the NP must not have phonetically realized incompatible number.

Likewise, it is possible to collapse filters 11 and 16:

- (18) If an element A is an agreement target for a trigger C, and an element B is $\left[\begin{array}{l} \text{an agreement target of C} \\ \text{a stem of a pronominal form coreferential with C} \end{array} \right]$ then A and B must not have phonetically realized incompatible number.

It is perfectly natural to collapse 9 with 15 and 11 with 16. This is because 9 and 15 both deal with consistency of features between a given NP and its agreement targets or its coreferential pronominal forms, while 11 and 16 both deal with consistency of features between *ciascuno* and other agreement targets of *ciascuno's* NP, or pronominal forms coreferential with *ciascuno's* NP.

There is no 'natural' way to collapse 9 with 16 or 11 with 15, as far as I know. Likewise there is no natural way to collapse 17 with 18. Rather, 17 and 18 are alternative generalizations.

THEORETICAL IMPLICATIONS

2.1. AGREEMENT PHENOMENA AND PRONOMINALIZATION PHENOMENA ARE RELATED. All the problems dealt with in this paper arise because *ciascuno* agrees only in gender, not in number, and the singular ending on floated *ciascuno* contrasts with the plural number of the NP which it leaves in subject position. While the contrast of number between floated *ciascuno* and its subject is not judged inadmissible, accompanying contrasts of number between either the subject or *ciascuno* and other elements leads to inadmissibility. Why one contrast should be admissible, but the other should not, is unclear to me. Furthermore, I cannot say what importance this difference of behavior may have for linguistic theory.

However, the fact that 9 and 15 can be collapsed, while 9 and 16 cannot—and likewise, that 11 and 16 can be, while 11 and 15 cannot—does point to an important conclusion. Agreement phenomena and pronominalization phenomena are not independent. The choice between 9 and 11 lies in the differing orders of the two transformations QF and G/N of A. If G/N of A applies before QF, we need 9. If QF applies before G/N of A, we need 11. The choice between 15 and 16 lies in the differing theories of pronominalization considered in this paper, as well as in

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ordering. If pronouns have a full set of fixed features (whether they are in the base, or arise transformationally by replacing full NP's), then we transformationally (see fn. 12 above), the situation is different. If the assuming/changing transformation applies before QF, we again need 15 this transformation applies after QF, we need 16. Thus the facts for agreement targets and pronominal forms are parallel, and the conditions or filters in the two cases are also parallel. These parallels allow the collapsing of 9 into 17, and of 11 and 16 into 18. However, 17 and 18 are possible generalizations only if G/N of A applies before QF and pronouns have all their features— or if G/N of A applies after QF, and pronouns assume/change their features after QF. That is, generalizations 17-18 can be stated only if agreement phenomena and pronominalization phenomena behave in a particular matched way, apply the label T_1 to the theory in which G/N of A applies before QF, to that in which G/N of A applies after QF. Now let us call the parallel for pronominalization T_1 and T_2 . Then generalizations 17-18 can be stated if we assume both T_1 and T_2 (leading to the adoption of 17) or both T_2 (leading to the adoption of 18). If one assumed T_1 and T_2 , for example, there would be no way to capture the generalization which one senses in 6-8 and since 9 and 16 cannot be collapsed. Since an adequate grammar should capture the generalization there, we must assume both T_1 and T_2 , or both T_2 at least.

2.2. GLOBALITY. If one assumes T_1 and T_2 , then one must adopt 17, a very late condition applying after the relevant morphemes have been spelled out. There is a serious problem with condition 17, however: it collapses phonetic number incompatibility between a subject NP and an adjective, pre or pronominal stem. Subject NPs that are pronominal, however, usually Italian by a rule called Subject Pronoun Drop. When these subject pronouns are spelled out, the sentences with floated *ciascuno* have the same acceptability as with a subject NP.

In this paper I have not presented any conclusive evidence to support one theory of pronominalization over another. Thus I cannot claim that the Italian data call for a solution which Fauconnier has proposed for the French data. However, it is interesting to note that Fauconnier's proposal is not in conflict with the Italian data (although, by the presence of consistency conditions or filters in Italian, it is not clear how that proposal can be proved). Most important is that French and the Italian data, for entirely different reasons, strongly suggest that agreement phenomena and pronominalization are similar processes.

¹⁴ For a different kind of evidence that agreement and pronominalization are related, see Szamosi 1974: he proposes that verb-object agreement in Hungarian, instead of 'straightforward' agreement rule, is the manifestation of the two rules of Clitic Doubling Placement.

Fauconnier 1973 looks at structures like those studied in this paper, for a variety of which sentences corresponding to 6-8 and 12-14 are all acceptable. With data entirely from the Italian, he concludes that agreement and pronominalization share the p-Feature Copying. First, an adjective or participle A in the configuration 'NP_i *è* A' cycle is attracted into the 'network of coreference of NP_i'. Prenominal forms are an underlying structure as to coreference with NP_i's by indices. Then both adjectives/p and pronominals are within the network of coreference of an NP_i and both receive the index of that NP_i by Feature Copying.

subject. Thus, consider sentences 6-8 and 12-14 when they lack any NP in subject position in the surface:

- (6) a. **Hanno ciascuna attraversato il corridoio scalza.*
 b. ?*Hanno ciascuna attraversato il corridoio scalze.*
 (7) a. **Sono ciascuna andata in chiesa.*
 b. **Sono ciascuna andate in chiesa.*
 (8) a. *Hanno ciascuna combinate l'esame bin di para.*
 (12) a. **Possono ciascuno telefonare a sua madre.*
 b. ?*Possono ciascuno telefonare alla loro madre.*
 (13) a. **Sembravano ciascuno parlare fra sé (e sé).*
 b. ?*Sembravano ciascuno parlare fra loro.*
 (14) *Se ne sono ciascuno comprate tre.*

If condition 17 is to rule out the starred sentences generated by T_1 and T_1' above (i.e. 6a, 7a-b, 12a, 13a, and 14), and if it is a local condition, it must apply before Subject Pronoun Drop. But then we must claim that the relevant morphemes have been phonetically spelled out BEFORE the syntactic rule of Subject Pronoun Drop applies. Certainly, Subject Pronoun Drop must be a very late rule. And, in fact, it has been shown elsewhere (Napoli 1974) that certain phonetic filters involving subject NPs operate in a given way regardless of whether Subject Pronoun Drop has applied. Furthermore, I know of no evidence that any syntactic or phonological rule must apply AFTER Subject Pronoun Drop. So it may be possible to defend the position that Subject Pronoun Drop indeed applies after condition 17 (or even that it applies after all syntactic and phonological rules).

However, if one cannot defend the position that Subject Pronoun Drop applies after 17, then 17 is a global condition, in that it applies at a stage after certain phonological rules have applied, but has access to an earlier stage in which subject pronouns were still present.

If, on the other hand, one assumes T_2 and T_2' , then filter 18 must be adopted. Examples 6'-8' and 12'-14', in which Subject Pronoun Drop has applied, will not affect this filter directly, since 18 concerns phonetic number incompatibility between *ciascuno* and some adjective, participle, or pronominal stem. But a problem still arises with this filter: 18 is sensitive to the phonetic shape of the elements involved, yet it must have access to structural information—e.g., which NPs are the subject of which attributes. It is impossible, with surface-structure information alone, to determine which attributes go with which NPs (see Napoli 1975). Yet it is only after some phonological rules have applied that the phonetic shapes of the elements involved here are recognizable. Thus, if phonological rules follow syntactic rules (with the possible exception of Subject Pronoun Drop, discussed above), filter 18 must apply globally after the relevant phonological rules (see fn. 10).

We see now that condition 17 requires either that Subject Pronoun Drop apply after certain phonological rules, or that we allow global conditions. Filter 18 requires the power of global solutions, in any case. Although it is possible to adopt condition 17 without allowing global solutions in the grammar, it does not follow that T_1 and T_1' (the theories leading to the adoption of 17) are superior to T_2

and T_2' (the theories leading to the adoption of 18). Rather, 18 may just more piece of evidence in support of the claim that agreement phenomena are for global solutions (see Andrews 1971, 1973, and Napoli 1975, among others). Also, the fact that 6b, 12b, and 13b are slightly better than 6a, 12a, and 13a respectively, suggests that 18 may be the correct generalization. And final speakers who accept plural pronominal stems with floated *ciascuno* (discussed in fn. 9) give further evidence that filter 18 is the correct generalization.

2.3. OTHER LANGUAGES. Jackendoff has proposed a consistency condition for English pronouns and their antecedents similar to 15. Dorothy Siegel (in communication) has proposed a surface phonetic filter for person/number of subjects and verbs in English, to account for the ungrammaticality of 20a in contrast to 19b and 20b:¹⁵

- (19) a. They'll think that my husband, and thus that I *is/*am/*are
 b. They'll think that your friends, and thus that you, are crazy.
 (20) a. I, rather than you, ?am/*are in this situation.
 b. They, rather than you, are in this situation.

Although the proper forms of *be* for 3rd person plural and 2nd person are r logically distinct, they are not phonetically distinct; thus *are* in 19b and 20b no phonetic incompatibility. However, the forms of *be* for 3rd person and 1st person are all phonetically distinct; thus 19a is rejected. Likewise, the for 1st person singular and 2nd person are phonetically distinct; thus 20a is rejected in French, for many speakers, facts similar to those of Italian are found

- (21) a. *Ces hommes sont chacun considérés stupides.*
 'Those men are each considered stupid.'
 b. **Ces hommes sont chacun considérés égal.*
 c. **Ces hommes sont chacun considérés égal.*
 d. **Ces hommes sont chacun considérés égaux.*
 e. ?*Ces hommes sont chacun considérés égaux.*
 'Those men are each considered equal.'

In 21a, the G/N ending on the adjective *stupides* is not phonetically distinct number. The past participle *considérés* cannot enter into liaison, since it following it does not begin with a vowel. Therefore, there is no phonetic incompatibility. But in 21b-c, the adjective *égal* is phonetically distinct for number heard as singular. Thus, regardless of liaison (which has applied in 21b but 21c, as the presence or lack of a connecting line between *considérés* and *égal* shows), the S's are rejected because of phonetic incompatibility between *considérés* and the plural subject.

In 21d-e, *égaux* is phonetically distinct for number, and is heard as *Chacun* is heard as singular. *Considérés* in 21d is heard as plural because liaison: thus, in 21d, two forms (plural *considérés* and *égaux*) are phonetically incompatible with singular *chacun*, and in 21e one form (*égaux*) is incompatible with the quantity of forms incompatible with *chacun* is significant. Apparently the quantity of forms incompatible with *chacun* is significant 21d is worse than 21e.

¹⁵ These are Siegel's examples with my own judgments.

Thus (surface) phonetic conditions or filters which check for consistency or compatibility of various features are found in English and French as well as Italian, and may well be typical of natural languages.

CONCLUSION

3. Two different orderings for QF and agreement rules offer alternative ways of rejecting 6-7. Different theories of pronominalization offer alternative ways of rejecting 12-13. The parallelism between 6-8 and 12-14 is striking, and should be captured by one generalization. A generalization can be reached only if we assume a particular ordering for the agreement rules involved with QF, and a particular theory of pronominalization with an accompanying ordering of pronominal feature-assuming/changing rules with QF. Thus, in order to capture the generalizations found in the data, agreement phenomena and pronominalization phenomena must be handled in mutually dependent ways.

APPENDIX

In examples 6-7, I have used inter-V as the target position for floated Q's. This position is the most reliable for determining if QF has taken place, since the only way a quantifier may wind up in this position is by QF from the subject. However, in 3 we see that post-V position is another target point for QF. This position is a less reliable test for QF, since there is evidence that quantifiers may wind up in post-V position by some means other than QF. For example, in (a) below, *ciascuna* may have come from subject position by QF (as shown in (b)); or *ciascuna* may be in post-V position in an S fragment (probably reduced from a full S at some underlying stage) which gives additional information not present in the first S, as seen in (c):

- (a) *Le donne vanno ciascuna (a) in chiesa.*
 (b) *Ciascuna donna va in chiesa.*
 (c) *Le donne vanno, ciascuna (b) in chiesa.*

'Each woman goes to church.'

Let us call the post-V position source in (c) the tag source.

Two facts show that, in (a), *ciascuna* has these two sources. First, (a) may be read with a regular simplex S intonation, or with a break after *vanno* and a sharp rise on *ciascuna*. The first reading is semantically equivalent to (b) (the QF source); the second reading is semantically equivalent to (c) (the tag source), in that it gives the part after the break the weight of an afterthought.

Second, many speakers do not allow *ciascuno* to float. For these speakers, 5 is bad, like any S in which *ciascuno* appears in inter-V position. However, such speakers accept (a) with the second intonation; i.e., they allow *ciascuno* in post-V position if it has originated as shown in (c), but not if it has floated to post-V position from the subject. Thus they have a tag source for post-V quantifiers, but not a QF source.

Given these facts, (d), which might seem to be a counter-example to the phenomena illustrated in 7, can be understood differently:

- (d) *Le donne (p) sono andate (q), ciascuna (s) in chiesa.*

'The women went, each to church.'

Contrast (d) to 7, repeated here:

- (7) a. **Le donne sono ciascuna andata in chiesa.*
 b. **Le donne sono ciascuna andate in chiesa.*

Ex. (d) is good only with a break after *andate* and a sharp rise on *ciascuna*. Thus (d) has the intonation of a sentence with a quantifier coming from the tag source; it does not have the intonation of a sentence with a floated quantifier.

CONSISTENCY

In contrast to (b) and 7, note the following:

- (e) *Ciascuna casa è andata di male in peggio.*
 (f) **Le case (p) sono ciascuna (s) andata (q) di male in peggio.*
 (g) **Le case (p) sono andate (p)(x) ciascuna di male in peggio.*

'Each thing went from bad to worse.'

Andate di male in peggio is a fixed phrase. In (e), we see that *ciascuna* can occur in a well S with this fixed phrase. In (f), we see that *ciascuna* cannot appear in inter-V position, these facts are the same as those in 7. In (g), however, we see that *ciascuna* cannot in post-V position—yet in (d) it could. The difference is that (g) has no reading in which it comes from a tag source. In other words, (g) has no reading synonymous with

- (h) **Le case sono andate, ciascuna (cova è andata) di male in peggio.*

In fact, (h) is not a grammatical S.

The fixed phrase *andate di male in peggio* contrasts with the VP *andate in chiesa* and *andate di male in peggio* is understood as a unit, not as the sum of its parts, whereas *in chiesa* is understood as *andate* plus the locative phrase *in chiesa*. Thus (g), in which from the first S is combined with *di male in peggio* from the following S fragment, yield a good surface S. But (d), in which *andate* from the first S is combined with *di male in peggio* from the following S fragment, does yield a good surface S. Therefore there is a source for *ciascuna* in (d), but not in (g).

The difference in acceptability in (d) and (g) now follows from the different possible structures which these S's may have. Ex. (g), in which *ciascuna* in post-V position has only one possible source (that from QF) is unacceptable; and 7 in the text, in which in inter-V position again has only one possible source (that from QF), is unacceptable (d), in which *ciascuna* in post-V position has two possible sources, that from a tag and the QF, is acceptable with the intonation corresponding to the tag source. I conclude source of *ciascuna* in (d) is a tag. Thus (d) is not a counter-example to the phenomenon listed in 6-7.

One final point: if no element other than *ciascuno* undergoes G/N agreement with a NP, then *ciascuno* in an S such as (g) may float rightward from the subject:

- (i) *Le case andate ciascuna di male in peggio.*

'Things were each going from bad to worse.'

Thus QF may occur in a fixed phrase.

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[Received 13 December 1974.]