SUBJECT-VERB NUMBER (DIS)AGREEMENT

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Abstract: This paper discusses cases of number mismatches between subjects and verbs. The main proposal is that subject-verb agreement is not in number but in a different feature, that we call Cardinality. Cardinality is a feature of DPs that is computed on the basis of number features and collectivity features carried by various heads in the DP. The "computation" of the Cardinality feature proceeds internal to the feature matrix of one lexical item – the D. The values of the number and collectivity features carried by various heads in the DP are transferred to the D by means of a feature checking mechanism and the value of the Cardinality feature is then derived from these.

Keywords: cardinality, collectivity, number, agreement, DP-shells

1. Introduction

This paper discusses cases of (apparent) number disagreement between subjects and verbs, as illustrated in (1)-(4):

(1) a. Çocuk-lar ev-e gidiyor. (Turkish)
child-PL home-DIR is-going-SG
'The children are going home.'
b. Çocuk-lar ev-e gidiyor-lar.
child-PL home-DIR are-going-PL
'The children are going home.'

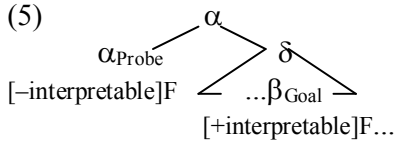
(2) Iki çocuk-lar ev-e gidiyor. (Turkish)
two- PL child- SG home- DIR is-going- SG
'Two children are going home.'

(3) A committee-SG were-PL holding a meeting in here. (British English)

(4) Ta tekna grapei ta grammata. (Classical Greek)
the children-PL writes-SG the letters
'The children write the letters.'

Within the Government and Binding framework subject-verb agreement was assumed to be a reflex of a configurational relationship between a head and its Specifier, more specifically between I and the DP in its Spec. More recently, agreement has been assumed to be the outcome of an independent operation in the grammar -Agree- which obtains between two heads α and β which can be distant from each other, unlike the Spec and the head (Chomsky 2000, 2001).

(5)



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The examples above are clearly problematic for these views. Under both accounts, the agreement relation obtains between two features of the same type and the result of agreement is that both instances of this feature get valued in the same way. In other words, if the subject and the verb agree in number features, we expect both of them to bear the same exact value of the number feature: either singular or plural. However, as apparent from the examples above, the subject and the verb seem to bear number features that are valued differently.

This paper is an attempt to provide an account of these mismatches while keeping the assumption that number agreement is implemented as an agreement relation between the features of the subject and the features of the Verb/Tense.

Before we start, two observations are in order. A first observation is that these are not cases of *default* agreement, whereby a verb is marked as singular by default, in spite of the fact that the subject is plural. First of all, our list includes both examples with singular verbs and plural subjects, and the reverse – plural verbs with singular subjects. The latter clearly cannot be accounted for under this "default agreement" analysis. Second, the list of contexts for which default agreement has been proposed includes contexts that create processing challenges – as illustrated in (6) – and impersonal constructions, as illustrated in (7), and our examples do not seem to be amenable to any of these two types of contexts.

(6) Processing limitations (Villa-García 2009):
?Compró un coche en aquella zona lejos de Madrid el otro día mis primos.
bought3.SG a car in that area far of Madrid the other day my cousins.PL
'The other day my cousins bought a car in that area far from Madrid.'

(7) Impersonal constructions in certain dialects of Peninsular and Latin American Spanish: (Villa-García 2009):

a. Se vende lámparas.
CL sell-SG lamp-PL
'Lamps are sold.'

b. Se hace fotocopias.
CL make-SG photocopy-PL
'Photocopies are taken.'

A second observation is that it is only number agreement that is unexpected in (1)-(4), and not person or gender agreement. This implies that we adopt the view that languages could phi-probe in a split fashion, i.e. that it is possible for one phi-feature to probe independently, without the other two (cf. Béjar 2003). In our examples it is the number feature that seems to be checked independently; in other cases, however, it is the person feature that seems to be checked independently. In Spanish, for example, certain plural subjects trigger agreement in first or second person when they refer to a group which includes the first (b) or the second person (c), as indicated by verbal inflection (cf. Hurtado 1984):

(8) Los ciudadanos están/ estamos/ estáis hartos de tanto papeleo.
the citizens.PL be-3rd PL/be-1st PL/ be- 2nd PL fed-up of so-much paperwork
'The citizens are fed-up with so-much paperwork.'

2. Distributivity?

The British English case suggests that what might be relevant for explaining these cases of number mismatch is the distributive/non-distributive distinction. The nouns that trigger plural agreement with the verb in British English are [+collective] nouns, and as such they denote (a set of) sets. A possible reading of sentences involving such DPs is that for each

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member of that set there is a separate/independent event denoted by the verb. Since we end up with a plurality of events, the number marker on the verb would be plural. A second reading is also possible, i.e. one in which the event takes scope over the subject DP – there is a single event in which the whole set/group denoted by the collective noun was involved. In this latter case, the verb denotes a single event, and is therefore marked as singular. The plural marking on the verb thus corresponds to a distributive reading, whereas the singular marking on the verb corresponds to a collective/group reading.

Even though the [+collective] nature of the noun and hence the possibility of interpreting the verb as distributive or not seems a promising line to take, there are several problems related to the implementation of this view. First, a collective noun can trigger singular or plural agreement on the verb with one and the same verb, which suggests that there is something else going on apart from the collective nature of the noun and the nature of the predicate.

(9) a. The government has not announced a new policy.
b. The government have not announced a new policy.
(10) a. The team is playing in the test matches next week.
b. The team are playing in the test matches next week.

Second, this account raises architectural issues for the overall model of UG in the sense that under this account, subject-verb number agreement is a reflex of distributivity, and hence semantic in nature. Since under the current Y model, both LF and PF take the output of syntactic computation as their input, it is hard to understand how exactly PF has access to the semantic computation. Third, it seems unlikely that the plural/singular marking on the verb simply depends (only) on the collective/distributive interpretation of the subject DP. In particular, sentences with plural subjects are open to both distributive and collective interpretations, but the number marker on the verb is always plural.

(11) These books-PL are-PL expensive.

Moreover, in Classical Greek, the so-called neuter nouns are marked as plural and as such they should be open to both collective and distributive interpretations, but in fact they only trigger singular agreement with the verb.

We will conclude that, even though the relative scope of the verb and the subject is important for determining distributivity, and hence plurality of the verb, this cannot be the whole story and that there is probably more to it than that.

3. Claims

The main points of our proposal can be summarized as follows:
(i) DPs contain two nominal shells, an outer DP and an inner DP (Aboh 2004, Ihsane and Puskas 2001, Laenzlinger 2005, Cornilescu 2006).

(12) $[DP_{outer}\ D\ [DP_{inner}\ D_{[def]}\ NP\ ]\ ]$

(ii) DPs are phases and the outer DP shell is the edge of the DP phase.

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(iii) Phase edges are uniformly represented by quantificational projections (Butler 2004, Svenonius 2004). The quantificational layer on top of phases deals with closure of the variables inside the phase domain, allowing phases to be referential. The semantic role of the inner D is thus to supply an <e> denotation to the NP, and the outer D quantifies over <e> entities, rather than over the range of a predicate (Matthewson 2001).

(13) [DP/QP$_{outer}$ D/Q [qu] [DP$_{inner}$ D [def] NP]]

(iv) Number is expressed both in the lower and in the upper DP. We assume that number on the lower DP is hosted by an independent projection – the Number Phrase according to Abney (1987), Ritter (1991), Carstens (1991, 2000), Picallo (1991), Siloni (1997) and others.[1] In addition, we propose that the higher DP also contains Number features, located in the outer D head. The number feature on the higher D is uninterpretable, and gets checked against the number feature of the lower D.

(14) [DP/QP$_{outer}$ D/Q [qu] [uNum:] [DP$_{inner}$ D [def] [NumP Num [Num:±pl] NP]]]

(v) In addition to Number, there is another feature that plays a role in determining the agreement feature on the verb, namely collectivity [coll]. In the lower DP layer, the [coll] feature can be born by three types of lexical items: nouns, Number heads, and weak quantificational items like cardinals. A noun that bears a [+coll] feature denotes a set of sets, i.e. a set of plural (collective) individuals, and a noun that bears a [–coll] feature simply denotes a set of atomic individuals. If a Cardinal or Num head bears a [+coll] feature, the group that is denoted by the quantified NP is perceived as a collection of atomic individuals. If, on the other hand, the Cardinal or Num head is [–coll], the group is perceived as one unit. The [coll] feature is also marked on the higher DP, as an uninterpretable feature that gets checked against the interpretable [coll] feature of the noun/Num/quantifier.
(vi) The higher D contains, in addition to uninterpretable [coll] and [Num] features, a Cardinality feature, which can be valued either singular or plural. The Cardinality feature on the higher D is not valued by feature checking, but is determined on the basis of the [Num] and [coll] features on the higher D. The novelty of this view is to propose that the lexical entry of the higher D is *structured* such that the [coll] feature and the Number feature on the higher D determine the value of the Cardinality feature on the higher D.

(15) [DP/QP$_{outer}$ D/Q [qu] [uNum:] [ucoll:] ⇓ [Card:] [DP$_{inner}$ D [def] [NumP Num [Num:±pl] [NP N [coll:±coll]]]]]

The algorithm for calculating the value of the Cardinality feature on the higher D will be made explicit when we discuss each case in detail. The main idea is that a higher D whose

[1] Assuming an independent projection hosting the cardinality feature is however not crucial for our proposal. Alternatively, we could assume that the Number feature is synchretically hosted by the inner D head.

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collective feature is set as [+coll] can "see" the members of the set that it quantifies into, and thus can lead to a Cardinality that is one (singular), if the set contains only one member, or bigger than one (plural), if the set contains more than one member. If on the other hand, the collective feature on the higher D is set as [–coll], the set denoted by the lower DP is seen as one atom, with no internal structure and the Cardinality feature of a [–coll] D is always one. When the Cardinality of a set is assessed "collectively", the cardinality is being assessed inside the set and what is being evaluated is the number of members of that set. When the Cardinality of a set is assessed "non-collectively", what is being evaluated is the number of sets. We will refer to these two types of cardinality as "inside" Cardinality and "outside" cardinality.
(vii) It is the Cardinality feature that will enter agreement with the verb.
(viii) Under the view of morphology advocated by Distributed Morphology – "syntax all the way down" – the examples in (1)-(4) end up being cases of syntactic agreement.

4. The analysis

4.1 British English

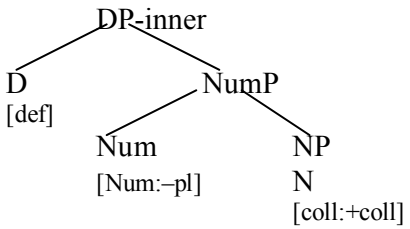
In British English a singular noun can trigger plural agreement, as in (3), repeated below.

(16) A committee-SG were-PL holding a meeting in here. (British English)

This agreement pattern is observed with a particular class of nouns – nouns that denote a group, or collective nouns. We will thus assume that nouns like *committee*, *family*, *government*, etc. bear a [+collective] feature. To say that a noun bears a [+collective] feature is to say that the respective noun denotes (a set of) plural or collective individuals.

Given our assumptions above about the structure and feature content of DPs, the representation of the lower shell of a British English collective DP will look like the following:

(17)



The [coll] feature on the noun is set as [+coll], and the value of the lower Number feature is set as [–pl] in (17), since the nouns in these examples are marked as singular. The denotation of the lower DP is thus a set that contains one member (given that the Number feature on the lower DP is singular), and this unique member of the set in turn contains a plurality of members (given that the noun is collective).

(18) DP_{inner} = {{committee-member$_1$, committee-member$_2$, committee-member$_3$, ..., committee-member$_n$}}

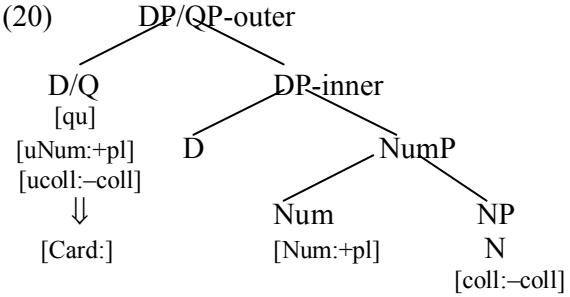
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Plural agreement is not obligatory, though, with collective nouns. In some instances, collective nouns trigger singular agreement:

(19) a. This committee-SG is-SG worse than the previous one.
b. The family-SG was-SG united on this question.
c. The enemy-SG is-SG suing for peace.

In order to account for the fact that the verb can bear either singular or plural agreement features we will make the following assumptions. The higher (quantificational) D bears an uninterpretable [u.coll:] feature and an uninterpretable [uNum:] feature that enter a checking relation with the interpretable [coll:+coll] and [Num:–pl] features in the lower DP and get valued accordingly. In addition, the higher D has a [Card] feature which provides a measure of the number of elements in the set that the higher D quantifies over. Crucially, the Card feature is calculated on the basis of the [coll] and [Num] features and the calculation proceeds within the feature matrix of the higher D. Depending on the valuation of the [coll] feature on the higher D, what will be assessed is the "inside" cardinality, i.e. how many members in the set denoted by the lower DP, or "outside" cardinality, i.e. how many sets correspond to the denotation of the lower DP. If the value of the [coll] feature on the higher D is [+coll], the set denoted by the lower DP will be seen as a "collection" of members, and Card will measure the number of the members in the set denoted by the lower DP. If the [coll] feature on the higher D is set as [–coll], the set denoted by the lower DP will be seen as a non-collective, atomic, set. Thus, a [–coll] feature on the higher D will always result in a singular value for the Card feature – [Card:sg].[2]

(20)



The Card feature on the higher D will be calculated as follows. Given that the value of the [coll] feature on the higher D is set as [+coll], the set over which the higher D quantifies (i.e. the set denoted by the lower DP) will be seen as a collection of members. The Cardinality of this set will be valued either as singular or as plural, depending on whether the "children" members are considered or whether the "grandchildren" members are considered. In the former case the collection of members in the lower DP set are considered, in the latter case, all the members of all the member sets (i.e. the generalized union of the DP set) are considered.

(21) Generalized union of a set X:
the set of all the members of all the members

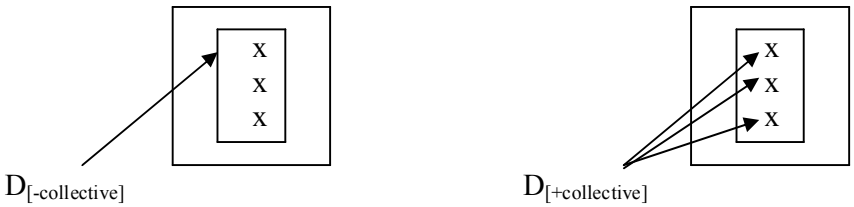
[2] This is not the same as having the singular as a default value for the Card feature, since the singular is deterministically related to the [–coll] feature on D.

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If a set X contains the members {{a, b}, {c, d}, {d, e}}, the union of the members of X is simply the set {{a, b}, {c, d}, {d, e}}, with a Cardinality of 3. The generalized union of X, on the other hand, will be the set {a, b, c, d, d}, and the Cardinality this time is 5. If a set X contains only one member of the type {a, b}, i.e. if X = {{a, b}}, then the union of members will be the set {{a, b}}, with Cardinality 1 (singular), and the generalized union of X will be the set {a, b}, with Cardinality 2 (plural).

Returning to collective nouns, the set denoted by the lower DP is exactly of this latter type. The cardinality of the set in (18) is one (singular) if the union of members is considered and plural if the generalized union of the set is considered.[3]

(22)



Given the algorithm described above, if the values of the Num feature and the coll feature on the higher D are set as [~~uNum~~:–pl] and [~~ucoll~~:+coll], the value of the Cardinality feature on the higher D is either singular or plural. The verb will agree with the Card feature on the higher D and will hence be marked either as singular or as plural.

This system makes the correct predictions for British English collective nouns, whether they occur in the singular, or in the plural. In this latter case, the set denoted by the lower DP is a set of sets. Since the coll feature is valued as [+coll], the set denoted by the lower DP will be seen as a "collection" of members, and Card will measure the number of the members in the set denoted by the lower DP. If the "union" of members is considered, the cardinality of the set is plural, since the set consists of several committees, and if the generalized union of the set is considered, the cardinality of the set is again plural, since the set will consist of all the committee members of all the committees. Hence the value of the Card feature is set as plural.

The resulting picture for British English collective DPs is summed up below:

(23)

N	**Num**	**D**
[coll:+coll]	[Num:±pl]	[uNum:]
		[ucoll:]
		⇓
		[Card:]

As to non-collective plural nouns, they never trigger singular agreement with the verb, so they must have different properties. In order to account for these differences, we propose that the [coll] feature in the case of non-collective nouns is not an intrinsic feature of nouns, but of the functional head Num.

[3] One might think that similar results can be obtained by assuming that British English nouns are ambiguous – [+coll] and [–coll]. However, this would lead to wrong predictions. Given that both singular and plural collectives will have to be ambiguous in this way, the prediction is that a noun like *committees* would possibly be [[–coll], [+pl]], in which case the value of the Card feature would be singular, contrary to fact.

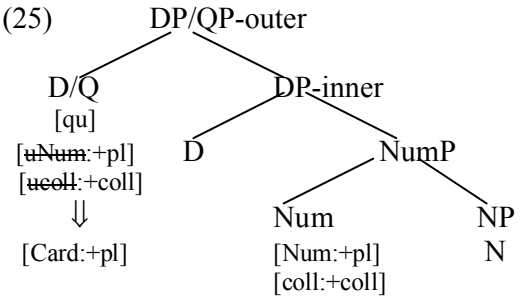
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(24)

N	**Num**	**D**
	[Num:±pl]	[uNum:]
	[coll:+coll]	[ucoll:]
		⇓
		[Card:]

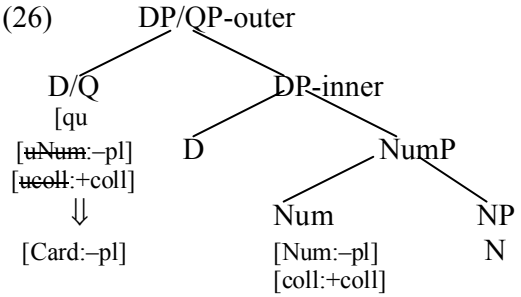
The higher D has the same feature specification as the higher D that merges with collective nouns, the only difference will be that [+coll] value is inherited from the Num head, rather than from the noun itself. This will allow us to capture the agreement pattern with the verb in the following way: A [+coll] higher D that quantifies into a plural set retrieves the members of that set. Since there are several members in that set (the Num feature is plural), the value of the Card feature of the higher D will thus be set as [+pl].

(25)



On the other hand, a [+coll] higher D that quantifies into a singular set retrieves the members of that set. Since there is only one member in that set, the value of the Number feature of the higher D will thus be set as [–pl].

(26)



Thus, the proposal is that British English nouns can be either [+coll] or unspecified for collectivity, and Num heads can similarly be either inherently marked as [+coll] or be unspecified for collectivity. Higher Ds, on the other hand, have a unique (yet structured) lexical entry. The Card feature that will finally enter an agreement relation with the verb is computed internally to the feature matrix of the higher D on the basis of the value of the Num feature and the [coll] features which are both "inherited" (by feature checking) from the noun of the Num head. Verbal agreement is thus always sensitive to the [coll] feature in the subject DP. The [coll] feature can be expressed either on the Num head or on the noun itself. Interestingly, cases of apparent dis-agreement occur when collectivity is marked on the noun.[4]

[4] Notice that there is nothing that guarantees that the right combination between the various N, Num and D heads in (23) and (24) occurs. The only potential problem would be if the N which is unspecified for [coll]

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4.2 Classical Greek

Let us move on the next set of problematic cases for agreement between the subject and the verb – Classical Greek.

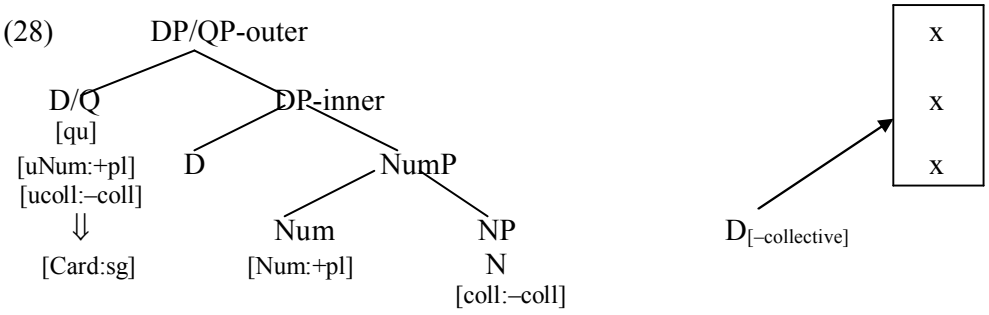
The class of Classical Greek nouns that trigger singular agreement with the verb even though they are marked as plural is traditionally described as *neuters*.

(27) Ta tekna graphei ta grammata. (Classical Greek)
the children-PL write-SG the letters
'The children write the letters.'

In our view, *neuters* are definable in terms of the same [collective] feature that we used to account for the British English agreement mismatches. In particular, we will assume that the relevant Classical Greek nouns bear a [–collective] feature. This goes against the common characterization of these nouns as actually being [+collective], but what we need to capture is the fact that these nouns behave exactly opposite from British English collective nouns as far as agreement with the verb goes: in British English a singular noun triggers plural agreement, whereas in Classical Greek a plural noun triggers singular agreement. If we call the British English nouns [+collective], then the Classical Greek nouns should be [–collective].

Under this assumption, Classical Greek "neuter" nouns will have their uninterpretable [ucoll:] feature on the higher D valued as [–coll] and the uninterpretable [uNum:] feature valued as plural. The Card feature will be derived in the following way: given that the higher D is valued as [–coll], the set denoted by the lower DP will be seen as an atom (its membership will be ignored) and the Card feature will be valued as singular.

(28)



The verb will agree with the Card feature on the higher D and will hence be marked as singular.

Thus, the features of the lexical and functional nominal heads involved in the agreement with the verb in Classical Greek, for "neuter" DPs, are as follows:

(29)

N	**Num**	**D**
[coll:–coll]	[Num: ±pl]	[uNum:]
		[ucoll:]
		⇓
		[Card:]

combines wih the Num that is also unspecified for [coll]. In this case, the derivation would crash because the uninterpretable [ucoll:] feature of the higher D would remain unchecked. If, on the other hand, the NP headed by N[+coll] merges with the [+coll] Num, no problem would arise, since the two values are compatible and moreover the [ucoll:] feature of the higher D can be checked and valued.

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For the rest of the DPs we clearly need different assumptions. We will adopt the same analysis as we proposed for British English "normal" cases, namely:

(30)

N	**Num**	**D**
	[Num: ±pl]	[uNum:]
	[coll:+coll]	[ucoll:]
		⇓
		[Card:]

Just as with British English, what ends up being relevant for verbal agreement in Classical Greek is the collectivity feature of the DP. Again, similar to British English, collectivity can be marked either on the noun or on the Num head and the funny agreement situations arise when collectivity is marked on the noun. Unlike British English however, nouns can be inherently marked as [–coll], rather than [+coll] and in this sense, Classical Greek is the mirror image of British English: in Classical Greek a plural subject can trigger singular agreement with the verb, whereas in British English a singular subject can trigger plural agreement with the verb.

4.3 Turkish

There are two types of problematic examples in Turkish. One type involves examples with cardinals like *two*, in which the noun is not marked for plurality, and which always trigger singular agreement on the verb.

(31) Iki çocuk-lar ev-e gidiyor. (Turkish)
two- PL child- SG home- DIR is-going- SG
'Two children are going home.'

The other type of problematic examples involves plural subjects. If the subject is [+human], it can trigger both plural and singular agreement on the verb. If, however, the subject noun is [-human], only singular agreement on the verb is possible.

(32) a. Öğrenci-ler bahçe-ye gir-di. (Turkish)
student-PL garden-DAT enter-pst-3rd SG
'The students enters the garden.' (Kornfilt 1997: 386, ex. 1343)

b. Öğrenci-ler bahçe-ye gir-di-ler.
student-PL garden-DAT enter-pst-3rd PL
'The students enter the garden.' (Kornfilt 1997: 386, ex. 1343)

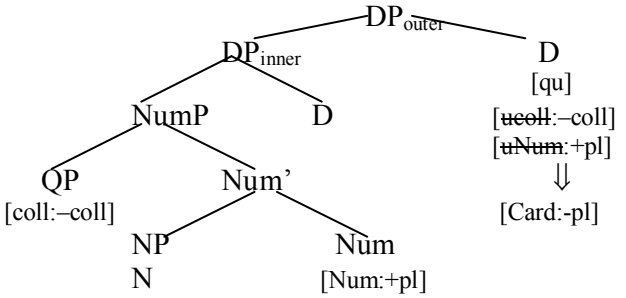
(33) ??Köpek-ler bahçe-ye gir-miş-ler.
dog-PL garden-DAT enter-REPPST-3rd PL
'They say that the dogs enters the garden.' (Kornfilt 1997: 387, ex.1345)

Linguists working on Turkish disagree as to whether or not Turkish has a DP projection. Öztürk (2005), for example, proposes that Turkish lacks DPs altogether, while Kornfilt (1997) argues that Turkish nominal constituents do have a DP layer. Here, we will assume that Turkish nominals are DPs for the sake of offering a unified analysis across all cases of "disagreements" that we consider in this paper. However, our analysis can easily be "translated" in terms of a view in which nominal constituents in Turkish have a reduced, truncated structure (i.e. no DP).

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In order to account for the first type of examples, we propose that Cardinals in Turkish are inherently [–coll]. What this means is that whenever a Cardinal quantifier like *two* or *many* quantifies into a set, it outputs a group which is an atomic individual whose membership is not visible anymore for further computation. The higher D inherits the [–coll] feature from the weak Q by feature checking, and as a result, the Card feature on the higher D is valued as singular.

(34)



One question that arises is why nouns that occur with weak Qs like *two* cannot be overtly marked for the plural. A possible answer could be something along the lines of the Doubly Filled Comp Filter – either the head or the Spec of the lower DP can host phonologically overt material. Since cardinals like *two* are plural, plurality cannot be expressed "doubly" in the head of DP as well.

In order to account for the examples in (32) and (33), we propose that the [coll] feature can be hosted either by the Num head[5] or by the noun, and moreover that Turkish nouns bear a [human] feature which plays a role in morpho-syntactic computation and which can be valued as [+] or as [–], i.e. a [human] feature which is not a semantic feature but a morpho-syntactic one. If [coll] is a feature of the Num head, its value is calculated on the basis of the Number feature and of the human feature, as follows: the value of the [human] feature on the noun is transmitted by feature checking to the uninterpretable [uhuman:] feature on Num and a [+human] value determines a [+coll] value, while a [–human] value for the [human] feature determines a [–coll] value on Num.

We thus end up with two possible Num heads:

(35)

Num$_1$	**Num$_2$**
[Num:±pl]	[Num:±pl]
[~~uhuman~~:-human]	[~~uhuman~~:+human]
⇓	⇓
[–coll]	[+coll]

The dependency between the [+human] feature and the [+coll] feature in the Num head is similar to the dependency that we discussed above for British English, between the [coll] feature and the [Number] feature on D on the one hand, and the [Card] feature on the same D. In particular, we assume that the feature matrix of the Turkish Num head is structured in the

[5] Positing an underspecified [coll] feature in a phonologically empty Q, rather than in Num, would be another possible analysis, but it would fail to capture examples like the following:

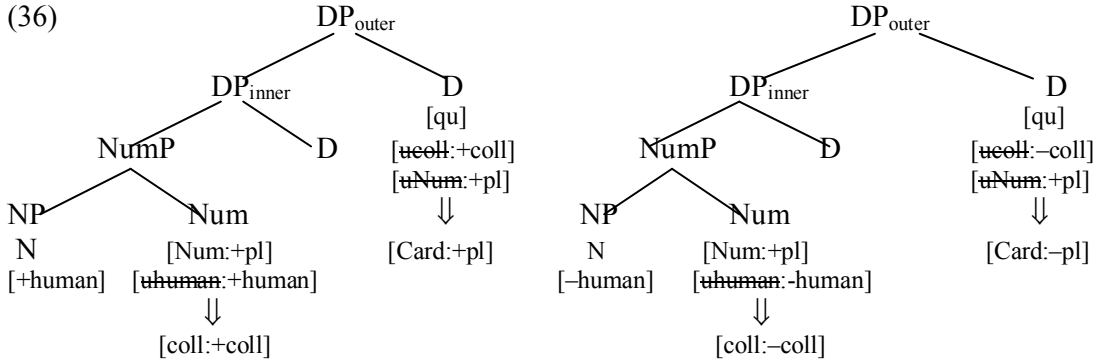
a. teyzem b. teyzelar
my-aunt my-aunt-and-her-family

which lack an overt QP, and in which the plural morpheme seems to clearly have a collective interpretation.

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sense that there is a dependency relation between the value of the [+human] feature and the value of the [+coll] feature, a dependency which is internal to the lexical entry of the Num head.

(36)

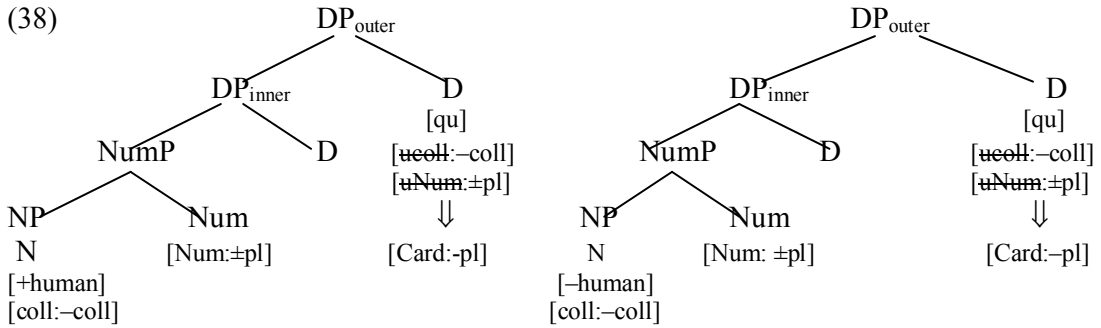


In order to capture the fact that [+human] nouns can also trigger singular agreement, we propose that collectivity can alternatively be marked on the noun, pretty much in the same spirit as the analysis we suggested for British English and Classical Greek. When marked on the noun, the collective feature is set as [–coll], and the Num head is unspecified for collectivity. Notice that when collectivity is marked on the noun, it is [–coll], and never [+coll]. This predicts that Turkish will not show an agreement pattern analogous to British English, where singular, [+collective] nouns can trigger plural agreement with the verb. This prediction is borne out.

(37) Komite yanlış bir karar ver-di.
committee wrong a decision give-PAST
'The committee made a wrong decision.' (Kornfilt 1997:267)

Having a [–coll] feature on the noun will eventually translate into a singular value for the Card feature on the higher D and hence into singular agreement on the verb, regardless of whether the number feature on the DP is singular or plural.

(38)



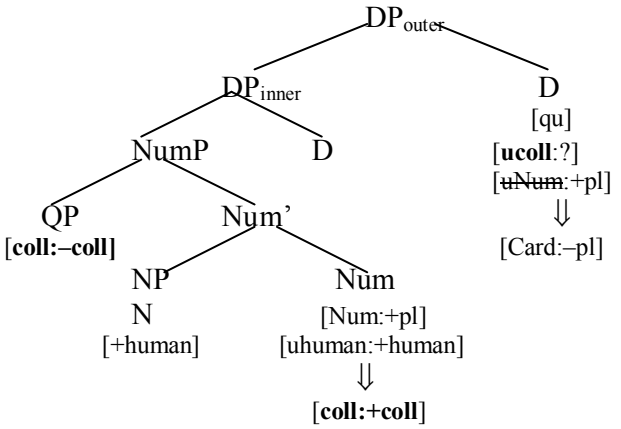
This will capture the fact that [–human] plural nouns will always trigger singular agreement with the verb, and that only [+human] plural nouns can trigger plural agreement. If the noun is [–human] the Card feature on the higher D ends up valued as singular, regardless of whether collectivity is marked on the noun, as [–coll], or on the Num, as dependent on the [–human] feature. What this means is that the cardinality of a [–human] set is always assessed globally,

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from the outside, and the membership of the set is practically invisible. On the other hand, if the noun is marked as [+human], two possibilities arise, depending on whether collectivity is marked on the noun itself or on the Num head. If collectivity is marked on the noun, as [–coll], the Card feature on the higher D ends up valued as singular. If, on the other hand, collectivity is marked on the Num head, its value will depend on the value of the human feature, and since the latter is [+human], the [coll] feature will be set as [+coll]. In this case, the Card feature on the higher D will end up valued as [+plural]. Crucially, the two locations of the [coll] feature correspond to two different values of the [coll] feature: [–coll], when collectivity is marked on the noun, and [+coll], when collectivity is marked on the Num head. This means that the cardinality of [+human] sets can be assessed in two different ways: collectively, in which case the group is perceived as a whole and no individuality is bestowed on the members of the set, or collectively, in which case the members of the set are visible as individuals. Only human individuals can be 'seen' in a group, whereas non-human ones cannot.

Before we close the discussion on Turkish nouns, let us go back to examples like (31), which contain a Cardinal QP in the Spec of NumP. Given our assumptions about Turkish nouns, the question arises how Cardinal QPs interact with the [human] feature on nouns. If the noun is [–coll] intrinsically, the [coll] value agrees with the [–coll] feature that we posited on Cardinal QPs. The prediction is that Cardinals applied to [±human] nouns intrinsically marked as [–coll] should result in a DP that is consistently [–coll], which would trigger singular agreement with the verb. However, if collectivity is expressed on the Num head, the [coll] feature will be valued as [+coll], as we have seen, and a clash will result between the [+coll] feature on the Num head and the intrinsic [–coll] feature on the Cardinal QP, and the derivation will crash.

(39)



It follows that Cardinal quantifiers in Turkish are compatible only with [–coll] Num heads. Notice that plurality is not overtly marked on the noun in Turkish when a Cardinal quantifier is present. This suggests that the Doubly filled XP filter has a PF explanation: when the two [coll] features – the one on the QP and the one on the Num head – are compatible (i.e. valued the same), PF has a choice of spelling out either one or the other. If the Num head is spelled out, the QP cannot occur, and conversely, if the QP is spelled out, the Num head must be null. Thus, only Num heads whose features duplicate the features of the QP can remain null.

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5. Conclusions

(i) The main proposal defended in this paper is that subject-verb agreement is syntactic in nature but the relevant feature that the subject and the verb agree in is not Number but Cardinality.
(ii) The value of the Cardinality feature on the DP is ultimately dependent on the interaction between the collectivity feature of the DP and the Number of the DP.
(iii) Collectivity can be marked either on nouns or on the Num head and the dis-agreement cases arise when collectivity is marked on the noun.

(40) a. British English: [+coll] on singular nouns leads to possible plural agreement with the verb
b. Classical Greek: [–coll] on plural nouns leads to singular agreement with the verb
c. Turkish: [–coll] on plural nouns leads to singular agreement with the verb

When collectivity is expressed in the functional domain (with the value +), we get regular agreement with the verb.
(iv) Turkish resembles Classical Greek in having nouns that are intrinsically marked as [–coll] which trigger singular agreement with the verb even when they are marked as plural. The only difference between Turkish and Classical Greek in this respect is the additional dependency of the collective feature on the [human] feature on the noun in Turkish. This dependency is relevant only for cases in which collectivity is marked on the Num head, and not on the noun.
(v) The feature matrix of lexical items can be structured in the sense that the value of some features is calculated on the basis of the value of other features in the same lexical entry. Thus, the proposal is that there is a dependency relation between features that are part of the same bundle which goes beyond feature checking. The two lexical items discussed in this paper that can have such features are the higher D (the relevant feature, whose value is deduced from the values of other features is Cardinality) and Num (the relevant feature here is collectivity).
(vi) Distributive readings depend not only on the properties of the subject DP, but also on the properties of the verb. One of the claims we made about British English, for example, was that collective DPs are intrinsically "ambiguous" in the sense of always being open to both a distributive and a collective interpretation. Whether a verb is compatible or not with both of these interpretations is an independent issue that deserves its own consideration.

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