

Hybrid Agreement in English*

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1. Introduction

Agreement, generally referring to a systematic covariation between two separate elements such as noun and verb, can be found in most languages. As noted by Corbett (1994), the agreement rule can be commonly represented in the form of 'X agrees with Y in Z'. For example, the statement in (1) could be an English agreement rule:

- (1) The predicate verb (agreement target) agrees with the subject (agreement controller) in the agreement features (number and person).

English obeys such a simple agreement rule in general, but issues arise when the agreement features expressed by the morphology of the agreement source (e.g., subject) do not match those in the agreement target (e.g. verb). Examples like (2) contradict the rule in (1):

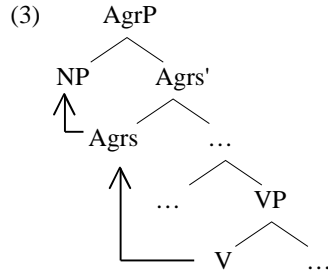
- (2) a. This government have broken their promises.
b. Five miles is a long distance to walk.

Here in (2a) the subject is in the singular, yet the verb is plural. (2b) is the opposite: we have a plural subject and a singular verb. In addition, we can observe that the number value on the determiner *this* and *five* in both cases mismatches the value on the verb. This paper aims to provide a constraint-based analysis for such mismatch cases where a noun requires one set of agreement features on the determiner whereas the NP headed by this noun triggers a different set of agreement features on verbs or co-referential pronouns (cf., Kathol 1999, Wechsler and Zlatic 2000).

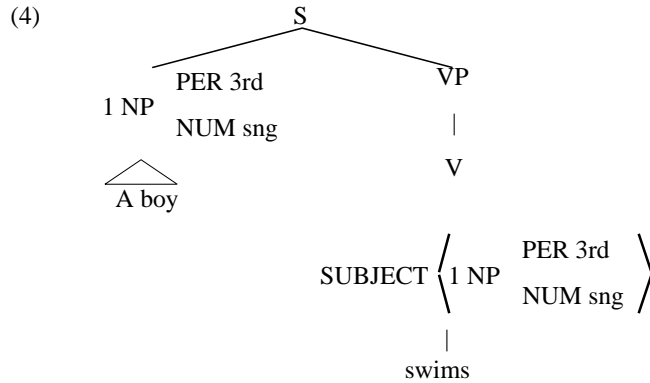
There exist two main accounts of agreement set forth so far: 'derivational' and 'constraint-based' approaches (cf., Pollard and Sag 1994). The derivational view accepts a directional process that either copies, or moves bundles of agreement features from the agreement controller onto the target. More specifically, within the framework of Principles and Parameters or Minimalism, subject-verb agreement comes out as the result of two operations as represented in (3): the

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agreement relation between the subject in Spec of Agr_sP and the Agr_s head, and then the realization of the features of Agr_s on the verb. This realization results either from incorporation of V into Agr_s in syntax or directly in lexicon with the features for a morphological checking process (cf., Belletti 2001).



Meanwhile, in the constraint-based view, the two elements in an agreement relation specify partial information about a single linguistic object. Consider the tree representation in (4):



The system in (4) requires that the agreement feature on the controller subject be compatible with the feature of the subject that the verb selects. Agreement is thus just nothing more than a system of constraints requiring token identities on the subject. In such a constraint-based view, there is no directional process between agreement source and target.

The common denominator of these derivational and constraint-based approaches is to view that English agreement is relevant to only one component of the grammar (e.g., either syntax, or semantics, or pragmatics). This paper argues that contrary to such autonomous approaches, interrelationships among different grammatical components play crucial roles in English agreement (cf., Kathol 1999 and Hudson 2000). In particular, we propose that English determiner-noun agreement is morphosyntax-based whereas both subject-verb and pronoun-antecedent agreement are reflections of index agreement, which is relevant to semantics (cf., Pollard and Sag 1994).

2. Three Views of Agreement

2.1 Against a Purely Syntactic View

In a purely syntactic view, phrases inherit agreement information from their lexical heads just as they inherit information about case or verb form. It is not difficult to find cases where such a conventional wisdom runs a problem. For example, consider the examples in (5):

- (5) a. The hash **browns** at table nine are/*is getting cold.
 b. The hash **browns** at table nine is/*are getting angry.
 (Nunberg 1977)

When (5b) is spoken by a waiter to another waiter, the subject is referred to a person who ordered the hash browns. A similar case is found in (6):

- (6) King prawns cooked in chili salt and pepper was very much better, a simple dish succulently executed.
 (Biber et al. 1999: 187)

Here the verb form is singular to agree with the dish being referred to, rather than with the individual prawns in the subject position. If we simply assume that the subject phrase inherits the morphosyntactic agreement features of the head noun (*hash*) *browns* in (5b) and (*King*) *prawns* in (6) and require that these features match those of the verb, we would not predict the singular verb form in these examples.

Examples with singular plural subject also show a conflict between the morphosyntactic agreement features of the subject NP and those that the singular verb normally demands for its subject.

- (7) a. Cherry cokes is the most popular drink here. (Reid 1991:194)
 b. The professional ethics arises from the requirement that analysis be unbiased.
 (Biber et al. 1999)

In the examples (7), the subjects are morphologically plural whereas the verb is singular.

Another apparent exception to the syntactic rule is found with collective nouns. Examples in (8) display a mismatch of the morphosyntactic agreement features between the target and the source.

- (8) a. The government are planning new tax increases.
 b. The faculty are all agreed on this point.

When morphologically singular collective nouns such as *government* and *faculty* denote individual members of the group, they could be conceptualized as a plurality, thus agree with a plural verb. This agreement pattern could not be predicted if we simply rely on the morphosyntactic agreement features.

2.2 Against a Purely Semantic View

The examples we have seen so far may support a semantic based view of agreement. That is, one could argue that agreement is determined by the properties of a nominal referent rather than by the formal or morphological properties of the nominal itself (cf., Dowty and Jacobson 1988). In addition to the previous examples, cases supporting a semantic view seem to be prevalent. Consider the examples in (9):

- (9) a. John and only John is allowed in here. (Corbett 1994: 58)
 b. This bomber and its cargo probably weighs over a hundred tons.
 (Biber et al. 1999: 180)

The conjoined NP in (9a) and (9b) has a single referent in terms of semantics and so the verb is in the singular form. In a semantic view, this is simply so because the subject refers not to a single individual but to plural individuals.

However, a semantic view also suffers from problems because of cases that require to make an appeal to syntactic factors too (as noted in Corbett 1994 and Barlow 1988: 227). Consider the examples in (10):¹

- (10) a. I am parked on the hill.
 b. You are the only one that can do this job.

The intended referent of the subject *I* in (10a) is clearly a car, a third singular individual in terms of semantics, yet the verb isn't in the third person verb form. Similarly, the verb form in (10b) that goes with the pronoun *you* always has to be plural in spite of the clear singularity of the subject in terms of semantics.

A similar problem arises from cases with pronoun-antecedent agreement. In the semantic view, the noun *family* would denote either an aggregate entity or a nonaggregate entity and thus can combine with either a singular or a plural verb as illustrated in (11):

- (11) a. His family are/*is all overweight.
 b. His family is/*are moving to Seoul.

This view would then possibly predict cases like (12) where the speaker changed the individuation mode of the collective noun *Senate*:

- (12) **The Senate** just voted **itself** another raise. Most of **them** were already overpaid to begin with.
 (Pollard and Sag 1994: 72)

Nothing will block the referent of the Senate from being changed from singular to plural entities. As noted in P&S-94, however, such a change is subject to syntactic conditions. As illustrated in (13), we can observe that once the mode of individuation is decided, it is immutable within the intrasentential domain.

- (13) a. That dog is so ferocious, it even tried to bite itself.
 b. That dog is so ferocious, he even tried to bite himself.
 c. *That dog is so ferocious, it even tried to bite himself.
 d. *That dog is so ferocious, he even tried to bite itself.
 (P&S-94)

The reflexive noun in (13) has to agree in gender with the matrix subject, the controller of the VP. This implies that we cannot simply resort to the denotational possibilities when syntactic

¹See footnote 4.

constraints (such as the Binding Principle) determine the antecedent for the agreeing element. This implies that English agreement needs to make an appeal to syntax also.

2.3 A Purely Index Agreement Approach

2.3.1 How This System Works

In solving the problems within the syntactic view and the semantic view, P&S-94 provides an appealing analysis of index agreement. Index agreement involves sharing of referential indices, closely related to the semantics of a nominal as represented in (14):

(14)

{boy}			
			PER 3rd
CONTENT	INDEX 1	NUM	sing
		GEN	masc

In the interpretation of a nominal, the index must be anchored to an individual in the context of utterance, to make sure of its proper usage in the real world. The index of *boy* in (14) thus must be anchored to an individual with the properties of singular masculine.

Meanwhile, a verb lexically specifies information about the index value of the subject it selects, as represented in (15):

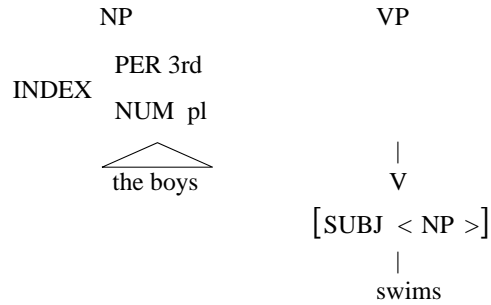
(15)

{swims}			
			verb
HEAD		VFORM	fin
SUBJ	{NP [nom] 1}		
		RELN	swim
CONTENT		SWIMMER 1	PER 3rd
			NUM sing

In this system, subject-verb agreement is the structure-sharing between the index values of the subject and those of the NP that the verb selects. For example, the verb *swims* in (15) selects a subject with the index value of 3rd singular. Thus, if this verb combines with a subject with the incompatible index value, we generate an ungrammatical example like *The boys swims*, as illustrated in (16).

(16)

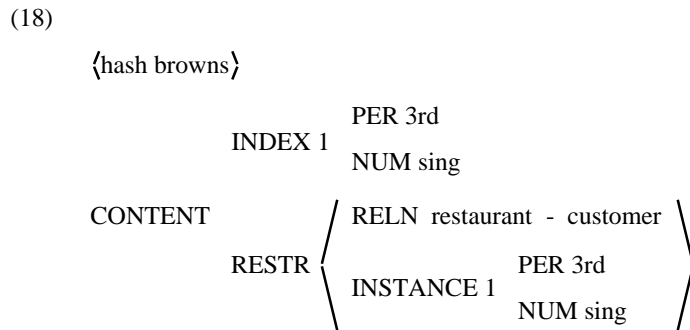
	*S	
	SUBJ	$\left\{ \begin{array}{l} 2 \text{ NP} \\ \text{PER 3rd} \\ \text{NUM sng} \end{array} \right\}$



Such an index agreement analysis could account for the problematic cases within a purely syntactic or semantic analysis. For example, in cases with reference transfer repeated in (17), the relevant NP will introduce the transferred referent by anchoring conditions.

- (17) a. The hash **browns** at table nine are/*is getting cold.
 b. The hash **browns** at table nine is/*are getting angry.

Unlike the situation in (17a), the referent of *hash browns* in (17b) has been transferred from vegetables to one restaurant customer who ordered them. This will allow the subject NP to be anchored to a third singular individual, as represented in (18):



In the same manner, we could account for the singular plurals cases in (19).

- (19) Eggs is my favorite breakfast.

The index value of the noun *eggs* here is anchored to an entity that bears a singular number value. Thus the singular verb *is*, selecting a 3rd singular subject, can combine with the singular plural subject.

Collective nouns can refer to either the group as a whole or individual members of the group, depending on context, as in (20):

- (20) a. The family has suffered the anguish of repossession.
 b. The family are absolutely devastated. They are coping as well as possible.
 (Biber et al. 1999)

The index value that the noun *family* in (20a) and (20b) anchors to can be either singular or plural as represented (21a) and (21b), respectively. The analysis, combined with the independent principle of the grammar, also explains the matching condition on the agreement features between the verb and a reflexive pronoun as given in (22).

- (21) a. *family* (in 20a)
- | | | |
|------|---------|----------|
| | | PER 3rd |
| CONT | INDEX 1 | |
| | | NUM sing |

- b. *family* (in 20b)
- | | | |
|------|---------|---------|
| | | PER 3rd |
| CONT | INDEX 1 | |
| | | NUM pl |

- (22) a. The faculty is voting itself/*themselves a raise.
 b. The faculty are voting *itself/themselves a raise.

What we observe in (22) is that the number value of the anaphor matches that of the verb. The matching condition between the index value of the subject and the anaphor is conditioned by the Binding Principle stating that a reflexive pronoun must be bound by a preceding argument of the same verb². (23) is the argument structure of the verb *vote*.

- (23)
- ⟨vote⟩
- AGR - ST⟨NP_i, NP[ana]_i / *_j, NP⟩

The coindexation indicates that the two NPs denote the same entity, thus they exhibit a form of agreement with the same values for PERSON, NUMBER, and GENDER (cf. Sag and Wasow 1999:152).

2.3.2 Problems

Attractive as it may seem, such an index agreement approach suffers from problems in examples like (24):

- (24) a. [Five pounds] is/*are a lot of money.
 b. [Two drops] deodorizes/*deodorize anything in your house.
 c. [Fifteen dollars] in a week is/*are not much.

²This could be reformulated as ‘a reflexive pronoun in the argument-structure must be outranked by a coindexed element’ (see Sag and Wasow 1999).

- d. [Fifteen years] represents/*represent a long period of his life.
- e. [Two miles] is/*are as far as they can walk.

In all these measure noun examples, the plural subject combines with a singular verb. An apparent conflict arises from the agreement features of the head noun. For the proper agreement with the determiner, the head noun has to be plural, but for subject-verb agreement the noun has to be singular. We cannot simply reclassify nouns such as *pounds*, *drops*, *dollars*, *years*, *miles*, etc. as singular, since this would then result in the mismatch with the determiner. There is no doubt that such nouns select plural determiners since we cannot have phrases like **a pounds*, **this years* or **one dollars*.

A similar conflict is also found in cases with social organization collective words like (25) (data from Radford 1988).

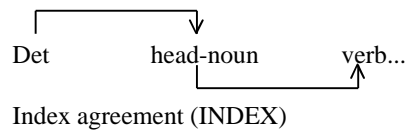
- (25) a. [This/*these government] dislike(s) change.
 b. [This/*these England team] have put themselves in a good position to win the championship/has put itself in a good position to win the championship.

Here, the head noun has to be singular so that it can combine with a singular determiner. But the conflicting fact is that the singular noun phrase can combine even with a plural verb as well as a singular verb. Since the only possible number value of the determiner is singular for the head noun, the head noun cannot be anchored to plural entities unless we allow the mode of individuation to be changed even within the same sentence domain.

3. Proposal: A Hybrid Analysis

To solve such a mismatch, we claim that English determiner-noun agreement is simply a reflection of morphosyntactic agreement features between determiner and noun, whereas both subject-verb agreement and pronoun-antecedent agreement are index-based agreement as represented in (26):

(26) Morpho-syntactic agreement (AGR)



To be more precise, adopting the idea of Kathol's (1999) and Wechsler and Zlatic's (2000), we assume that a noun has two distinct features relevant to agreement: AGR and INDEX. The feature AGR is morpho-syntactic feature specifications encoded both on the source (noun) and on the target (verb) under the HEAD feature whereas the INDEX is semantic-based features on nominals.

As for determiner-noun agreement in English, the only relevant information would thus be morphosyntactic NUMBER value as shown in (27).³

³ To be more precise, we also need to specify the feature COUNTABLE on nouns and determiners to predict data such as *much furniture*/**many furniture*, *many apples*/**much apples*, etc.

- (27) a. every man/*every men
- b. *all man/all men
- c. this boy/*these boy

The matching conditions of the agreement features on the determiner and the head are enforced by the lexical selection of the head noun (cf. Sag and Wasow 1999). For example, the noun *man* will have the lexical information given in (28):

- (28)
 - ⟨man⟩
 - SPR ⟨DetP [AGR 1]⟩
 - noun
 - HEAD AGR 1 [NUM sing]
 - SPR ⟨DetP [AGR 1]⟩

As in (29), the noun *man* is morphologically singular and selects a determiner phrase whose morphological agreement information is compatible with its own. This lexical entry will then allow us to generate a structure like (29):

- (29)
 - NP
 - DetP

[HEAD [AGR 1 [NUM sng]]]

|

this

N

[SPR < 2 DetP [AGR 1] >]

|

man

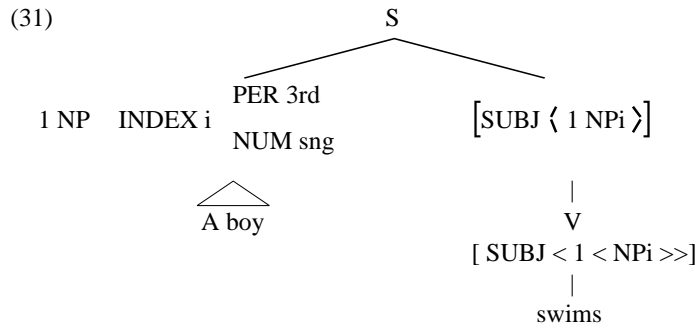
Though a singular determiner such as *a* and *this* is lexically specified with a singular NUMBER value, determiners such as *the*, *his* and *no* have no specification on the value. This will allow expressions like *the boy* and *the boys*, *his book* and *his books*.

Unlike determiner-head noun agreement, subject-verb agreement is based on the semantic features of the nominal, INDEX, rather than on the morphosyntactic features, AGR. The feature structure in (30) represents the lexical information of the verb *swims*.

- (30)
 - INDEX
 - NUM sing

<swim>
 verb
 HEAD PER 3rd
 AGR NUM sing
 SUBJ { NP 1 }
 RELN swim
 CONTENT SWIMMER 1 PER3rd
 NUM sing

The lexical entry in (30) tells us that the agreement target, verb, contains the information that covaries with the information specified on the selected category, which is the index value of the agreement source, subject. The lexical information given in (30) will then project the structure in (31):



As represented in (31), the only requirement on subject-verb agreement is the identity on the index value, unlike determiner noun agreement.

In the normal case, morphosyntactic AGR features and INDEX features are identical. But nothing blocks mismatches between them as long as all the other constraints are compatible. Basically, English allows such a mismatch with a restricted set of nouns that can be anchored either to a singular or a plural individual as we can observe from the following contrast:

- (32) a. Five books *is/are all I need.
 b. Five dollars is/*are all I need.

Armed with this view of English agreement, we are now ready to account for mismatch cases. First, consider cases with measure nouns repeated here in (33).

- (33) a. [Five pounds] is/*are a lot of money.
 b. [Two drops] deodorizes/*deodorize anything in your house.

The nouns *pounds* and *drops* here are morphologically plural and thus can select a plural determiner as argued so far. But when these nouns are anchored to the group as a whole, its index value has to be singular, as represented in (34):

- (34)
- ⟨pounds⟩
- noun
- HEAD AGR 1 [NUM plur]
- SPR ⟨DetP [AGR 1]⟩
- CONT | INDEX [NUM sng]

This explains why the verb needs to be singular. This analysis also could account for the mismatch in collective nouns one of whose examples is repeated in (35):

- (35) [This/*these government] dislike(s) change.

More precisely, we could represent the relevant information of the expressions participating in these agreement relationships as in (36):

- (36) a.
- ⟨this⟩
- det
- HEAD AGR [NUM sng]
- b.
- ⟨government⟩
- noun
- HEAD AGR [NUM sng]
- CONT | INDEX 1 [NUM plur]
- c.
- ⟨dislike⟩
- noun
- HEAD AGR [NUM plur]
- VAL | SUBJ ⟨NP [INDEX 1 [NUM plur]]⟩

As represented in (36a) and (36b), *this* and *government* agree each other in terms of the morphosyntactic agreement number value whereas the index value of *government* is token-identical with that of the subject that the verb *dislike* in (36c) select.

Such an analysis will also capture the variation of the verb depending on the context.

- (37) a. Five boys count the money.
 b. Five boys counts as one team.
 (Reid 1991: 331)

The head noun has a morphologically plural AGR value but could either be anchored to multiple boys conceived as discrete entities or a group of five boys as a whole.⁴

One immediate consequence of this analysis is that it solves the contrast between *faculty*-type collective nouns (e.g. *staff*, *clergy*, *nobility*, *peasantry*, *aristocracy*, etc) and *family*-type collective nouns (e.g. *committee*, *government*) in a straightforward manner. The clear difference between the these types is signalled by the contrast between (38b) and (39b) (data from P&S-94):

- (38) a. Every faculty meets/*meet on a monthly basis.
 b. All faculty *is/are required to submit midterm grades.
 c. All faculties *meets/meet on a monthly basis.
- (39) a. Every family gets/*get together for the holidays.
 b. All family *is/*are asked to bring a dessert or a salad.
 c. All families are asked to bring a dessert or a salad.

As pointed out in P&S-94, one could argue that *faculty*-type nouns can be anchored to either a singular index or plural indices, whereas *family*-type nouns denote entities that are individuated as nonaggregate. This would account for the contrast. But then an issue arises from examples like (40), which the P&S-94 analysis left unresolved.

- (40) John's family are/*is destroying themselves.

P&S-94 hints that *John's family* might be transferred from a nonaggregate to the aggregate entity. But then a question arises why we couldn't apply the identical reference transfer for *all family*, allowing examples like (39b).

But notice that our hybrid analysis provides a straightforward solution. In terms of the morphosyntactic AGR feature, [*every faculty*] and [*all faculty*] are both acceptable since [*faculty*]

⁴This analysis raises questions for examples like : *I am parked on the hill*. In such so-called predicate transfer examples, subject-verb agreement is solely based on the morphosyntactic agreement features, as can be seen from the ungrammaticality of **I is parked on the hill*. No semantic factors work here. One putative solution we adopt is that pronouns are peculiar in that when a verb selects a pronoun as its subject, the verb's morphosyntactic AGR value should agree with the INDEX value of the pronouns: no mismatch is allowed. The existence of such a constraint could be supported from the illformedness of examples like **Dana was parked on the hill and wouldn't turn over*. See PS-94 for some discussion.

can have either plural or singular morphosyntactic number AGR feature. But the situation is different in *family*: this noun can bear only the singular morphosyntactic AGR feature. The expression **[all family]* is thus simply unacceptable because of the mismatch in the morphosyntactic number value of the AGR between *it all* and *it family*. Examples like (40a) are acceptable since there is no mismatch in the morphosyntactic AGR value between *John's* and *family*: *John's family* has a plural index value and thus combines with the plural verb.

This analysis also provides a proper treatment of pronoun-antecedent agreement which is also index-based, rather than morpho-syntax-based.

- (41) a. This England team has put itself/*themselves in a good position to win the championship.
 b. This England team have put themselves/*itself in a good position to win the championship.

In accordance with the Binding Principle, the reflexive has to be bound by a preceding argument of the same verb in the argument structure. This in turn means that the binder and the reflexive are coindexed.

- (42)
- $$\langle \text{put} \rangle$$
- $$\text{ARG} - \text{S T} \langle \text{NP}_i, \text{NP} [\text{ana}]_i^* j, \text{P} \rangle$$

In (41a) the head noun *team* has to have a singular index value for subject agreement. This requires any reflexive noun in the same argument structure to have the singular index value too. Meanwhile in (41b), the verb is plural, implying that the subject is anchored to individuals of the group. This mode of individuation cannot be changed, thus requiring a 3rd person plural reflexive pronoun.

4 Conclusion

In sum, I have claimed that English employs morphosyntactic agreement for determiner-head noun agreement and index agreement for subject-verb and antecedent-pronoun agreement. This approach, based upon a constraint-based grammar, allows agreement targets such as head noun and verb to contain the information that covaries with the information specified on the selected category. This way of agreement makes explicit what kinds of features are involved for each agreement pattern.

This paper shows that the interaction of different components of the grammar plays a crucial role in English agreement phenomena. In particular, once we allow morphology tightly to interact with the system of syntax and semantic knowledge, we can provide a solution to some puzzling English agreement phenomena. This results in a more principled theory of English agreement.

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