

Formal and Semantic Agreement in Syntax: A Dual Feature Approach Susie Wurmbrand

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Abstract: This paper surveys the distribution of formal and semantic agreement in German, using three types of trigger nouns (gender mismatch nouns, pluralia tantum nouns, and polite pronouns) in four syntactic contexts (attributive, predicate/T, pronouns, and nominal ellipsis). The distribution of agreement is shown to be dependent on the properties of the controller and the target, as well as the type of agreement dependency. The paper provides new evidence for the existence of two types of nominal ellipsis, and establishes a context in which predicative agreement can be tested in German. The findings lead to a refined Agreement Hierarchy, and a dual feature system is proposed which derives the basic tendencies of the Agreement Hierarchy and leaves room for language-specific deviations.

Keywords: Semantic Agreement; Agreement Mismatches; Agreement Hierarchy; Nominal Ellipsis; Phi-Features

1. Introduction

The phenomenon of *formal* (=morphological) vs. *semantic agreement* is wide-spread cross-linguistically. Formal agreement is used to refer to agreement with the formal features of the controller/trigger, whereas semantic agreement refers to agreement with semantic features of the controller. In most cases, formal and semantic agreement look the same, however, configurations involving controllers with mismatching formal and semantic features allow us to tease apart the two forms of agreement. If an agreement target realizes a feature value that is different from the morphological feature value expressed by the controller, we speak of an agreement mismatch. In this paper, I summarize the distribution of agreement mismatches in German and provide new data from nominal ellipsis showing that when agreement is not determined NP-internally, predicate agreement must be semantic agreement. I will show how the new observations can be aligned with Corbett's (1979; 2006) *Agreement Hierarchy* and sketch a feature approach to derive the patterns.¹

2. German Agreement Mismatches and the Agreement Hierarchy

German is a language with grammatical gender, which means that nouns are lexically specified for a particular (formal) gender, which cannot always be related to the semantic properties of the noun (e.g., there are two nouns corresponding to 'car', *Wagen* and *Auto*,

¹ This paper does not offer room to discuss other languages. In addition to German, so far, the paradigms presented in this paper have been tested and replicated in Dutch, Slovenian, Czech, and Greek, and similar effects have been observed in these languages. For an account covering the similarities and differences, see Wurmbrand (2016b).

however they differ in formal gender—the first one is masculine whereas the second one is neuter). An example of a noun which shows mismatching formal and semantic gender is *Mädchen* ‘girl’, which is formally neuter but semantically feminine. Such nouns allow either formal or semantic agreement when they control agreement on a pronoun. As shown in (1), a pronoun bound or co-referent with an NP headed by the noun *Mädchen* can occur either as neuter (formal agreement, (1a)) or feminine (semantic agreement, (1b)).

- (1) (a) Das Mädchen genießt seinen Urlaub.
 the.N.SG girl enjoys its.N.SG vacation
 “The girl is enjoying her vacation.”
- (b) Das Mädchen genießt ihren Urlaub.
 the.N.SG girl enjoys her.F.SG vacation
 “The girl is enjoying her vacation.”

Agreement mismatches are not possible in every agreement configuration, and languages differ regarding which dependencies can display semantic agreement. The cross-linguistic distribution follows the *Agreement Hierarchy* in (2) (Corbett 1979, 204; Corbett 2006, 207), an implicational hierarchy which states that the further right an element is on this hierarchy the more likely it is to allow semantic agreement. Furthermore, if in a language an element (anywhere on the scale in (2)) allows semantic agreement, all elements to the right of that element also allow semantic agreement, and, conversely if an element does not allow semantic agreement, all elements to its left also do not allow semantic agreement.

- (2) [formal] ←-- attributive — predicate — relative — personal PRON → [semantic]

Relative pronouns differ from personal pronouns in German in not allowing semantic agreement, which is illustrated in (3). A relative clause modifying an NP headed by the noun *Mädchen* must occur with neuter—i.e., formal—agreement on the relative pronoun, and feminine is impossible. Note however that, as shown in (3a), a possessive pronoun within the relative clause is still free to choose semantic agreement.

- (3) (a) Das Mädchen, das ihren Urlaub genießt...
 the.N.SG girl that.N.SG her vacation enjoys...
 “The girl that is enjoying her vacation.”
- (b) * Das Mädchen, die ihren Urlaub genießt...
 the.N.SG girl who.F.SG her vacation enjoys...

The impossibility of semantic agreement on relative pronouns leads to the expectation that predicate and attributive agreement can also only realize formal agreement in German. This is shown to be the case for attributive adjectives and determiners in (4a, b) and for verb (i.e., T-) agreement in (4c, d). Collective nouns such as ‘committee’ allow semantic plural agreement in certain languages, however, this is not possible in German, (4c). Similarly, polite pronouns are formally plural, even when they are used to address a single person. As shown in (4d), the polite pronoun *Sie* ‘you.polite’ can only trigger

plural agreement on the finite verb in German and using semantic singular agreement (to indicate a single addressee) is not possible.

- (4) (a) ein nettes Mädchen / *Frau
a.N.SG nice.N.SG girl.N / *woman.F
“a nice girl/woman”
- (b) eine nette *Mädchen / Frau
a.F.SG nice.F.SG *girl.N / woman.F
“a nice girl/woman”
- (c) Das Komitee hat / *haben getagt
the committee has.3.SG / *have.PL met
“The committee has/*have met”
- (d) Sie haben / *hat gewonnen.
ADDRESSEE.POL have.3.PL / *has.3.SG won
“You (pol.) have one.”

The split between semantic and formal agreement in German is thus between relative and personal pronouns as indicated in (5).

- (5) [formal] ← attributive — predicate — relative || personal pron → [semantic]

In addition to the agreement hierarchy in (2), the category ‘predicate’ involves a set of elements, which also follow an implicational hierarchy, namely: verb » participle » adjective » noun (Comrie 1975). Above, we have seen examples of verb/T-agreement. Since participles and predicative adjectives do not agree in German, these categories cannot be tested for agreement mismatches. Predicative NPs/DPs, on the other hand, can be shown to not require formal agreement. In (6a), a 2nd person pronoun is in a predicative relation with a 3rd person DP, thus there is a person mismatch. In (6b), we find a gender mismatch, since a masculine pronoun is in a predicative relation with a neuter DP. Finally in (6c), when addressing a single person, the polite plural pronoun can only be associated predicatively with a singular DP, thereby yielding a number mismatch between the subject (controller) and the target predicate (see Wechsler 2011; Wechsler and Hahm 2011).

- (6) (a) Du bist das Mädchen, das...
you.2.SG are.2.SG the.N.SG girl who.N...
- (b) Er ist das Opfer.
he.M.3.SG is.3.SG the.N.SG victim.

- (c) Sie sind der Verlierer / *die Verlierer.
 3.PL (POL) are.3.PL the.M.SG loser / *the.PL loser
 “You (addressing a single person politely) are the loser.”

In the next section, I turn to another predicative DP configuration, one in which the predicate DP involves nominal ellipsis. We will see that an interesting agreement pattern arises, which will lead to two observations. First, agreement in predicate nominal contexts exists in German. Second, confirming the suspicion noted in Corbett (2006, 233), the relative ranking of the predicate hierarchy is to some extent independent of the non-predicate elements of the agreement hierarchy in that predicate nouns undergo semantic agreement more frequently than personal pronouns.

3. Agreement in Nominal Ellipsis

3.1 Two Types of Nominal Ellipsis

Before looking at the details of agreement, we need to have a brief look at the properties of nominal ellipsis. Nominal ellipsis, like verbal ellipsis, comes in two types—surface and deep anaphora (Hankamer and Sag 1976, Merchant 2014; see also Merchant To appear, Saab To appear for overviews). Surface ellipsis involves deletion, possibly at PF, of an N, NP, or *nP* in the presence of a parallel antecedent. In this form of ellipsis, the elided part thus contains a specific noun during the syntactic derivation, and this noun feeds into the interpretation. This is illustrated in (7). If the configuration contains an elided N(P) as in (7a), the sentence is interpreted as in (7b)—i.e., the *the only* phrase singles out one boy from a group of boys.

- (7) a. This boy is the only ~~boy~~ who is nice. ~~boy~~ → one
 b. This boy is the only boy who is nice.

Following Merchant (2014), deep ellipsis, on the other hand, involves an abstract null noun, which does not correspond to a specific noun but is only specified as [\pm ANIMATE] (see Saab To appear for a similar proposal). I provide further motivation for this proposal in section 4. In a context such as (8) where there is only a single boy in the comparison group, the interpretation corresponding to N(P) ellipsis in (8a) is infelicitous since the comparison set triggered by *the only* does not include any boys. Instead, the interpretation is as in (8b) where ellipsis is best understood as ‘the only person’.

- (8) Context: a group of women and one boy
 The boy is the only one who is nice.
 a. #The boy is the only ~~boy~~ who is nice.
 b. The boy is the only $\emptyset_{[+ANIM]}$ who is nice.
 This boy is the only person <animate/human entity> who is nice.

The two interpretations are available in German as well. A sentence such as (9a) can refer to either context given above (for the N(P) ellipsis situation an element indicating contrastive focus is necessary, e.g., a demonstrative, modifier of ‘boy’ etc.). Thus, both structures in (9b) are available.

- (9) (a) Der Bub ist der Einzige, der nett ist.
the.M.SG boy is the.M.SG only.SG who.M.SG nice is
“The (this) boy is the only boy who is nice.”
“The boy is the only person who is nice.”
- (b) Der Bub ist der Einzige, ~~Bub~~/Ø_[+ANIM] der...
the.M.SG boy is the.M.SG only.SG ~~boy~~/Ø_[+ANIM] who.M.SG...

German nominal ellipsis raises an interesting question regarding agreement. As shown in (9b), agreement on the remnants is obligatory in both cases (no other feature combination is possible). For an N(P)-ellipsis derivation, agreement is easily achieved via the elided noun. However, for the deep ellipsis configuration, something else needs to be at work to equip the ellipsis remnant with the necessary features. In the next section, we will see that associating the nominal deep anaphor with a (personal) pronoun is not sufficient for nominal ellipsis.

3.2 Mismatches in Nominal Ellipsis

In this section, we will consider agreement in predicate ellipsis constructions of the ‘the only’ type with three kinds of trigger nouns in the antecedent—mismatching nouns, pluralia tantum nouns, and polite pronouns—in deep and surface ellipsis. The conclusion will be that the generalization in (10) holds.

- (10) In German predicate constructions, formal agreement between the subject and the ellipsis remnant is only possible when the interpretation is compatible with N(P) ellipsis.

The first situation is given in Figure 1: the context group for the sentence includes a single girl who is dressed entirely in blue, and all other individuals are male and not dressed in blue. In this context, ellipsis cannot be interpreted as N(P) ellipsis (the girl is the only girl that is dressed in blue), but only as deep ellipsis (the girl is the only person that is dressed in blue).

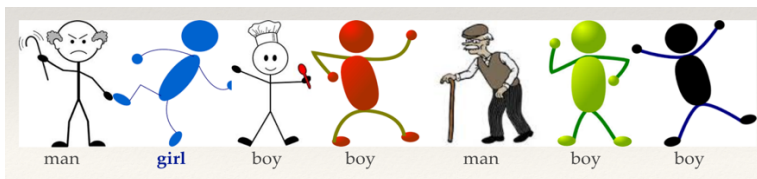


Figure 1. Deep ellipsis with animate mismatch noun

As shown in (11), in this context it is not only possible to use semantic agreement, (11a), but it is necessary; formal agreement, an option that is otherwise always available with mismatch nouns, is excluded, (11b).

- (11) (a) Das Mädchen ist die Einzige,
the.N.SG girl is the.F.SG only.SG

die blau angezogen ist.
 who.F.SG blue dressed is
 “The girl is the only one who is dressed in blue.”

- (b) * Das Mädchen ist das Einzige,
 the.N.SG girl is the.N.SG only.SG
 das blau angezogen ist.
 who.N.SG blue dressed is
 “The girl is the only one who is dressed in blue.”

The agreement pattern changes if a context as in Figure 2 is considered where the group used as a comparison set for ‘the only’ consists of only girls and only one girl, the second one, is dressed in blue.



Figure 2. N(P) ellipsis with animate mismatch noun

As shown in (12a), the formal agreement option is now the preferred option. Semantic agreement, (12b), is also still available, due to the entailment that in the context in Figure 2 the second girl is also the only person who is dressed in blue. Thus this situation is also compatible with a deep ellipsis configuration, however, the N(P) ellipsis interpretation is more informative and may therefore be preferred.

- (12) (a) Das zweite Mädchen ist das Einzige,
 the.N.SG second girl is the.N.SG only.SG
 das blau angezogen ist.
 who.N.SG blue dressed is
 “The second girl is the only one who is dressed in blue.”
- (b) ? Das zweite Mädchen ist die Einzige,
 the.N.SG second girl is the.F.SG only.SG
 die blau angezogen ist.
 who.F.SG blue dressed is
 “The second girl is the only one who is dressed in blue.”

The effect that formal agreement disappears when the interpretation is not compatible with N(P) ellipsis (i.e., generalization in (10)) is also observable when the ellipsis antecedent contains an inanimate noun. The situation in Figure 3 describes a context in which waiter trainees need to set a table with all the items given. The items (*Kerze*, *Serviette*, *Gabel*, *Vase*, *Flasche*) are all feminine nouns in German. The numbers indicate

how many trainees put the relevant item on the table, thus none of the trainees forgot to put the fork on the table.



Figure 3. Deep ellipsis with inanimate mismatch noun

In this situation, the remnants of (deep) ellipsis must occur with neuter agreement as in (13a), and it is not possible to realize formal agreement (i.e., feminine) matching the gender of *Gabel* ‘fork’ (and all the other items in the context). In section 4, I will suggest that (13a), like the example in (11a) with *Mädchen*, involves semantic agreement and that neuter is the default realization of nominal elements lacking semantic gender (i.e. all [−ANIMATE] entities including events and actions).

- (13)

(a)

Die

Gabel

ist

das

Einzige,

the.F.SG

fork.F

is

the.N.SG

only.SG

das/was

niemand

vergessen

hat.

that.N.SG/what

nobody

forgotten

has

“The fork is the only one/thing that nobody forgot.”
- (b)

*

Die

Gabel

ist

die

Einzige,

the.F.SG

fork.F

is

the.F.SG

only.SG

die

niemand

vergessen

hat.

that.F.SG

nobody

forgotten

has

Turning to an N(P) ellipsis context, consider the situation depicted in Figure 4. In this case, waiter trainees have to name different types of forks. A checkmark above a fork indicates that the trainees recognized the fork, whereas a cross mark shows that they could not name that type of fork.

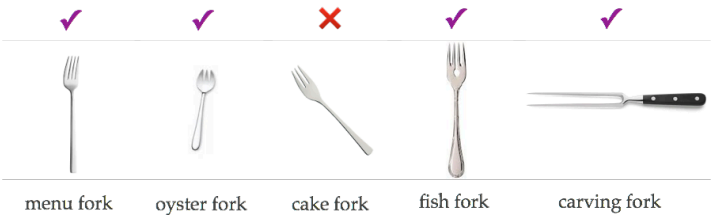


Figure 4. N(P) ellipsis with inanimate mismatch noun

In this context, formal feminine agreement as in (14a) is possible (and preferred) since the interpretation is compatible with an N(P) ellipsis interpretation. As before, semantic neuter agreement in (14b) is not excluded but marked.

- (14) (a) Die Kuchengabel ist die Einzige,
the.F.SG cake.fork.F is the.F.SG only.SG
die niemand erkannt hat.
that.F.SG nobody recognized has
“The fork is the only one that nobody recognized.”
- (b) ? Die Kuchengabel ist das Einzige,
the.F.SG cake.fork.F is the.N.SG only.SG
das/was niemand erkannt hat.
that.N.SG/what nobody recognized has

Another type of noun that can be described as involving a feature mismatch are pluralia tantum nouns like *Augengläser* ‘glasses’ which are formally plural but can refer to a single item. In the situation in Figure 5, someone is looking for all the items displayed but he found only the glasses.



Figure 5. Deep ellipsis with pluralia tantum noun

Since there is only a single pair of glasses in the context, the sentence in (15) is not compatible with an N(P) ellipsis configuration. As in the other deep ellipsis cases above, formal agreement is impossible and only the default neuter singular form can be used on the ellipsis remnants. Note that the finite verb, on the other hand, obligatorily shows plural agreement in (15a).

- (15) (a) Die Augengläser sind das Einzige,
the.PL glasses.PL are.PL the.N.SG only.SG
das/was er gefunden hat.
that.N.SG/what he found has
“The glasses are the only thing he found.”
- (b) * Die Augengläser sind die Einzigen,
the.PL glasses.PL are.PL the.PL only.PL
die er gefunden hat
that.PL he found has
“The glasses are the only thing he found.”

Once again the situation changes when the context leads to an N(P) ellipsis interpretation as in Figure 6, where an optometrist is looking for several pairs of glasses.



Figure 6. N(P) ellipsis with pluralia tantum noun

In this context, formal plural agreement, (16a), is the preferred option to refer to a specific pair of glasses and the default neuter version in (16b) is infelicitous and marked.

- (16) (a) Die grünen Augengläser sind die Einzigen,
the.PL green.PL glasses.PL are.PL the.PL only.PL
die er gefunden hat.
that.PL he found has
“The green glasses are the only ones he found.”
- (b) ? Die grünen Augengläser sind das Einzige,
the.PL green.PL glasses.PL are.PL the.N.SG only.N.SG
das/was er gefunden hat.
that.N.SG/what he found has
“The green glasses are the only ones he found.”

The last controller type is polite pronouns. As shown in (17), when referring to a single person, the polite pronoun must trigger singular agreement on the ellipsis remnant and plural agreement is only possible when addressing several people.

- (17) (a) Sie sind der Einzige, der gelacht hat.
you.PL are.PL the.M.SG only.SG who.M.SG laughed has
“You (pol.) are the only one who laughed.”
- (b) Sie sind die Einzige, die gelacht hat.
you.PL are.PL the.F.SG only.SG who.F.SG laughed has
“You (pol.) are the only (female) one who laughed.”
- (c) Sie sind die Einzigen, die gelacht haben.
you.PL are.PL the.PL only.PL who.PL laughed have.PL
* “You (pol.) are the only one who laughed.” (single addressee)
OK “You (pol.) are the only ones who laughed.” (multiple addressees)

3.3 Summary

Table 1 summarizes the distribution of formal and semantic agreement in German. Gender mismatches cannot be tested in verb/T-agreement configurations, since verbs do

not inflect for gender in German. Pluralia tantum nouns do not allow semantic agreement for referential pronouns. By definition, these nouns do not have singular forms, and since gender is only distinguished in the singular in German, pluralia tantum nouns are not specified for gender. I tentatively assume that the lack of gender is the reason for why referential pronouns associated with a DP antecedent headed by a pluralia tantum noun cannot realize singular agreement but instead use the other (formal) agreement option. In deep ellipsis contexts, on the other hand, formal agreement is not available (see the next section), and hence a default option kicks in which yields the neuter singular form.

	attributive	predicate (T)	relative	personal pronoun	\emptyset_N
mismatch noun	formal	N/A	formal	formal or semantic	semantic
pluralia tantum	formal	formal	formal	formal, semantic N/A (no gender)	semantic
polite pronoun	N/A	formal	N/A	formal, semantic N/A (no polite SG form)	semantic

Table 1. Formal and semantic agreement with different N controllers

The last row shows the agreement options for polite pronoun controllers. Pronouns generally do not occur with other elements in the noun phrase and thus agreement with attributive elements and relative pronouns cannot be tested. The only elements that may be considered modifiers of pronouns are affective adjectives (Wechsler and Hahm 2011) such as *Sie Armer/Arme!* ‘You.POL poor.M.SG/F.SG/*PL’ (‘Poor you!’). As indicated, the form used on the adjective reflects semantic agreement and formal agreement is impossible. However, it is not clear that such constructions involve a single DP structure in German. Adjectives must occur pre-nominally in German, but the word order in these PRON+ADJ examples cannot be changed (i.e., **Arme Sie!*). I therefore assume that these constructions are not single DPs but involve an elliptical appositive DP modifying the entire pronominal DP. Semantic agreement is then expected since these constructions fall under the \emptyset_N category. Lastly, referential pronouns associated (bound by or co-referent) with a polite pronoun antecedent can only show formal agreement since there is no honorific singular pronoun that could be used to refer back to a politely addressed participant.

The overall agreement pattern in German can thus be summarized as in Table 2 which will be the empirical basis for the account sketched in the next section.

attributive	predicate (T)	relative	personal pronoun	\emptyset_N
formal	formal	formal	formal or semantic	semantic

Table 2. Formal and semantic agreement in German

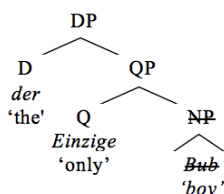
4. Deriving the Distribution of Formal and Semantic Agreement

4.1 Ellipsis Structures and Agreement

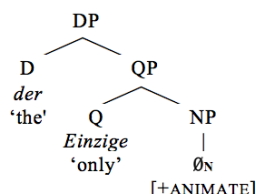
Before providing an account of the distribution of formal and semantic agreement in Table 2, I lay out simplified structures for the two types of ellipsis. As illustrated in (18), the main difference is that in the N(P) ellipsis configuration the syntactic structure involves an actual noun which contributes the lexical, syntactic and semantic properties

associated with that noun (except its phonological properties) to the remnant DP. In deep ellipsis, on the other hand, there is no actual noun but an abstract zero N head (see also Merchant 2014) which is only equipped with the feature $[\pm\text{ANIMATE}/\text{HUMAN}]$.

(18) a. N(P) ellipsis



b. Deep ellipsis



What I refer to as a zero noun in (18b) is often treated as a null pronoun (see among others Lobeck 1995, Kester 1996, Corver and van Koppen 2011, Saab To appear). Since pronouns cannot occur with determiners and modifiers (cf. **the only he*), but the null element in deep ellipsis does, such a null pronominal would have to be of a different nature than personal pronouns or argumental *pro*. Furthermore, as we have seen in German, the remnants of both N(P) ellipsis and deep ellipsis obligatorily agree, which goes against the observation made by Corver and van Koppen (2011), that the pronominal variant of ellipsis typically occurs without agreement of the remnant. Lastly, as Table 2 has shown, pronouns and the null element in deep ellipsis show different agreement properties: clear cases of pronouns always allow formal agreement (or require it in case of relative pronouns), whereas deep ellipsis only allows semantic agreement.

I propose further that the agreement properties of \emptyset_N reflect genuine agreement rather than simply a semantic property. There are two pieces of motivation for the claim that there is agreement in deep ellipsis contexts. First, as shown in (19) ((19a) is repeated from (11)), semantic agreement, which is the required form in a deep ellipsis context in (19a) (Figure 1 above), becomes unavailable when the antecedent DP does not c-command the deep ellipsis \emptyset_N , as is the case in the inverted order in (19b).

- (19) (a) Das Mädchen ist die Einzige,
 the.N.SG girl is the.F.SG only.SG
 die blau angezogen ist.
 who.F.SG blue dressed is

“The girl is the only one who is dressed in blue.”

- (b) ?* Die Einzige, die blau angezogen ist,
 the.F.SG only.SG who.F.SG blue dressed is
 ist das Mädchen
 is the.N.SG girl

“The only one who is dress in blue is the girl.”

Second, following a similar argument provided in Corbett (2006, 233), there are languages that allow either formal or semantic agreement in deep ellipsis contexts. This is the case in Greek and possibly also in one variety of Czech. In these languages, there

is a general preference for formal agreement, however, in exactly the deep ellipsis configurations, semantic agreement is allowed as well. Below I will suggest that the choice of agreement type is subject to a preference condition which favors semantic agreement in deep ellipsis contexts. However, if a language also has a preference condition for formal agreement (such as the *Agreement Marking Principle* in Wechsler 2011, Wechsler and Hahm 2011), the tension between these two choices can be resolved by making available both options. In light of the cross-linguistic distribution of agreement in deep ellipsis contexts, relying solely on semantic properties is insufficient, but a uniform account is possible if the constructions in Tables 1,2 all involve agreement.

4.2 Dual Feature System

The account of agreement mismatches I propose follows feature systems in which noun phrases involve two sets of ϕ -features (see Pollard and Sag 1994, Wechsler and Zlatić 2000, 2003, Wechsler 2011, Wechsler and Hahm 2011, Wurmbrand 2012, Smith 2015). The two feature types co-exist in syntax but are split at Spell-Out and sent to different interfaces. The specific approach I adopt is that a DP/NP has formal $u\phi$ -features which feed (only) into PF and carry the values realized in morphology; and semantic $i\phi$ -features which feed (only) into LF and carry the values interpreted in semantics. In contrast to DPs/NPs, ϕ -features on adjectives and verbs/T do not express semantic information on APs and T; these elements therefore only carry $u\phi$ -features.

Syntactic agreement, I assume, is established via the operation Agree, and, in principle, an agreement target can copy either the values of the $u\phi$ or the ones of the $i\phi$ -features from the controller. If the $u\phi$ -features of the controller are used, the target shows formal agreement; if the $i\phi$ -features of the controller are used, the target shows semantic agreement. However, both types of agreement can be established in syntax (I continue to use the descriptive term ‘semantic’ agreement, even though this relation is treated as a syntactic relation here).²

If both formal and semantic agreement can be established syntactically, the obvious question is how to restrict the system. Consider again the distribution of formal and semantic agreement in German as given in Table 3. If we add the feature types of the target elements, we see that there is a clear match. APs and T only require $u\phi$ -feature values (ϕ -features are not interpreted on AP and T, only on the agreeing DP), and these elements only show formal agreement. Pronouns, being independent DPs, require both $u\phi$ values and $i\phi$ values, and pronominal targets can show either formal or semantic agreement. Lastly, the anaphoric \emptyset_N in ellipsis is only visible semantically (it is phonetically zero and not visible at PF), hence it only requires $i\phi$ values, and these elements only show semantic agreement.

	attributive	predicate (T)	personal pronoun	\emptyset_N
German	formal	formal	formal or semantic	semantic
Features of target	$u\phi$	$u\phi$	$u\phi$ and $i\phi$	$i\phi$

² Note that this does not mean that agreement has to apply in syntax. The claim is only that both formal and semantic agreement can be triggered in syntax. I assume that post-syntactic agreement is also an option. However, if agreement takes place at PF, only the formal features are available and only formal agreement will be triggered (see Bhatt and Walkow 2013, Wurmbrand 2012, 2016a for evidence for PF-agreement).

Table 3. Target feature types

To implement the generalization observable in Table 3, but to also leave room for variation (see Wurmbbrand 2016b), I assume that the choice between formal ($u\phi$ values of the controller) and semantic ($i\phi$ values of the controller) is subject to the preference condition in (20). The match condition in (20) yields, as a default, formal agreement for target elements with only formal $u\phi$ -features, semantic agreement for targets with only semantic $i\phi$ -features, and either form of agreement for targets with both types of features. As laid out in (20), A and B undergo Agree, which is subject to c-command and involves establishing a link between the ϕ -features of A and B, if at least one of the feature sets is unvalued. At that point, the controller choice condition in (20) comes into play and temporarily inactivates the non-matching feature type on the controller (indicated as grey features in (20)). Feature copying then applies between B and the chosen feature of A. Feature inactivation is temporary and defined for each dependency separately. This is important for cases where one and the same controller triggers different types of agreement on different targets (e.g., T-agreement vs. agreement with pronouns).

(20) *Match preference for feature type of controller:*

Match the feature type of the target with the feature type of the controller.

$A_{\text{controller}} [y\phi: \text{val}, \quad x\phi: \text{val}]$	\longleftrightarrow	Agree	$B_{\text{target}} [x\phi: \text{ ____ }]$	Agree
$A_{\text{controller}} [y\phi: \text{val}, \quad x\phi: \text{val}]$	\rightarrow		$B_{\text{target}} [x\phi: \text{val}]$	Controller choice

As for German, the match condition in (20) is all that is required since, as shown in Table 3, the preferred feature type is exactly the feature type triggering agreement. This is, however, not the case in all languages. Interesting cross-linguistic variation can be found in the distribution of agreement on predicative adjectives and the agreement properties of polite pronouns (see also Comrie 1975, Corbett 1983, Corbett 2000, 2006, Hahm 2010, Wechsler 2011, Wechsler and Hahm 2011, among others). In Wurmbbrand (2016b), I suggest that the more nuanced differences found cross-linguistically are attributed to the specific feature specifications of the different types of nominal elements, together with the concept that the $i\phi/u\phi$ preference yielded by (20) can be overturned if the less preferred feature type constitutes a better source of features (similar to Wechsler 2011, Wechsler and Hahm 2011's *Agreement Marking Principle*).

As an example, in many languages, predicate APs show formal agreement with controllers headed by mismatch nouns, but semantic agreement when the controller is a polite pronoun, which is illustrated in (21) for Czech (see the references above).

- (21) (a) To děvče je mile / *milá
 this.N.SG girl.N.SG is nice.N.SG / *nice.F.SG
 ‘‘This girl is nice.’’ [I. Kučerová, p.c.]
- (b) Vy jste čestný / čestná
 you.2.PL be.2.PL honest.M.SG / honest.F.SG
 ‘‘You (pol.) are honest.’’ [Piotr Biskup, p.c.]

In both cases, the match condition in (20) would favor formal agreement since APs only have $u\phi$ -features. This is what we find in (21a), but not in (21b), and I propose that when the controller is a polite pronoun, the $i\phi$ -features are a better match for the AP's $u\phi$ -features due to a deficiency in the $u\phi$ -feature structure of polite pronouns.³ Polite pronouns do not show morphological gender distinctions but they do involve person marking [3 (German), 2 (other languages)]. Assuming a markedness filter which prevents the combination of participant and gender features (cf., Calabrese 2011), the $u\phi$ -feature structure of a polite pronoun in Czech would be [2.PL]. The semantic features, on the other hand, do not include specific person features but rather a semantic property ADDRESSEE (which is then realized as either 2nd or 3rd person morphologically, depending on the language). Since markedness then does not apply, the $i\phi$ -feature structure of a polite pronoun is [ADDRESSEE (POLITE).SG/PL.M/F], depending on the gender and number of the addressee. Since AP targets require a gender value, we can now see why the $i\phi$ -features of polite pronouns are a better match than the $u\phi$ -features—the former contain a gender value, whereas the latter don't. I assume that this overrides the preference given by (20) and hence yields the difference in agreement for predicative APs in (21).⁴

As for the distribution of agreement in deep ellipsis contexts, I cannot review the various data and options here but only point out the generalizations I have encountered so far in testing agreement in ellipsis contexts (some details can be found in Wurmbrand 2016b). First, predicative DPs/NPs always allow (often require) semantic agreement, independent of the agreement properties in other constructions. Second, if a predicative DP/NP allows formal agreement with a particular controller, that controller (obligatorily) triggers formal agreement on predicative AP targets. While each language of course deserves its own special attention, these generalizations can nevertheless be taken as support for the feature system proposed here and the match condition in (20).

5. Conclusions

This paper has surveyed the distribution of formal and semantic agreement in German for three types of trigger nouns (gender mismatch nouns like *Mädchen* 'girl', pluralia tantum nouns and polite pronouns) in four syntactic contexts (attributive, predicate/T, pronouns, and nominal ellipsis). The findings have led to the refined Agreement Hierarchy in (22).

(22) F \leftrightarrow attributive — predicate — relative — personal PRON — \emptyset_N /predicate DP \rightarrow S

We have seen that the choice between formal and semantic agreement depends on the properties of the target (formulated as a preference condition for the feature type of the

³ An alternative (J. Bobaljik, p.c.) would be to assume that predicate AP contexts are sometimes hidden NP/DP constructions involving a silent noun which undergoes semantic agreement like in deep ellipsis contexts. This is suggested in Wurmbrand (2016b) for the different agreement options arising in Russian predicative APs with long vs. short form adjectives. It remains to be seen whether a hidden N structure could be the source of all cases with semantic agreement.

⁴ This account is similar in spirit to the proposal in Wechsler (2011) and Wechsler and Hahm (2011), where it is proposed that polite pronouns are not specified for Concord features but do involve a plural Index feature. This feature structure is somewhat unintuitive since the Index feature represents semantic properties, however, polite pronouns are not plural semantically. The current proposal provides a more transparent morphology–semantics mapping.

target to match the feature type of the controller), the feature structure of the trigger (e.g., underspecification, markedness effects), and possibly other language specific preferences such as a general preference for formal agreement. I have proposed a dual feature system that captures the basic tendency of the Agreement Hierarchy in (22) and leaves room for encoding differences attested across languages.

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