

Agreement and the treatment of predicative complements*

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Summary. Predicative complements show number agreement with their target, not only in the Romance languages, but also in English, Dutch and German. In terms of the distinction between concord and index agreement, it sides with the latter, but the only detailed proposal to model it (Kathol (1999)) is mainly intended for the adjectival predicates of the Romance languages, and is far less adequate for nominal and prepositional predicates. There is an obvious way to repair it, but this way cannot be fitted in the canonical HPSG treatment of clauses with a predicative complement. It can be fitted, though, in a treatment of such clauses that was recently proposed in Van Eynde (2009). Adopting that treatment, the agreement will be modeld in terms of a constraint on the lexemes which select a predicative complement: the Number Agreement Constraint. This constraint not only avoids the problems with Kathol's version, it also provides an account of why certain combinations are exempt from the agreement requirement.

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1 Data

The prototypical and most often discussed instance of agreement in clauses with a predicative complement concerns the number and gender agreement between a predicative adjective and its target, as in the Italian (1).

- (1) Il tuo cane non mi sembra contento/*a/*i/*e.
the.SG.MAS your.SG.MAS dog.SG.MAS not me seems content.SG.MAS
'Your dog does not seem satisfied to me.'

This co-variation is typical of all of the Romance languages, but not of the Germanic ones. In English, Dutch and German, for instance, the predicative adjectives do not show any inflectional variation for number or gender. The predicate nominals, however, show inflectional variation for number and tend to show number agreement with the target, also in English.

- (2) a. His brother is an engineer / *engineers.
b. His brothers are both engineers / *an engineer.

The alternation also applies to nominals in predicative PPs which are introduced by an argument marking preposition, as in (3).

- (3) a. We regard Kim as an acceptable candidate / *acceptable candidates.

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- b. We regard his brothers as acceptable candidates / *an acceptable candidate.

At the same time, number mismatches are not ruled out, as illustrated by the following Dutch examples, quoted from LASSY-small, a treebank for written Dutch, described in Van Noord *et al.* (2012).¹

- (4) a. Hiervan zijn tevens zes Belgische Europarlementariërs lid.
 here-of are also six Belgian Europarlementarian.PL member.SG
 ‘Six Belgian Europarlementarians are members of this.’ [wiki-154.p.25.s.3]
- b. Politieke tegenstellingen zijn een wezenskenmerk van elke democratie.
 political contrast.PL are a defining-feature.SG of each democracy
 ‘Political contrasts are a defining feature of each democracy.’ [dpc-kok-001320-nl-sen.p.6.s.2]

In both clauses the combination of a singular predicate nominal with a plural target is wellformed. The objective of this paper now is to develop a treatment of agreement which simultaneously accounts for the illformedness of the starred variants in (2-3) and for the wellformedness of the mismatches in (4).

2 Two kinds of agreement

To pave the way let us take another look at the agreement between predicative adjectives and their target in the Romance languages. As the following examples show, the matter is more complex than the example in (1) suggests.

- (5) a. Su Majestad suprema/*o está contento.
 his majesty.FEM supreme.FEM is happy.MAS
 ‘His Majesty is happy.’
- b. Vous êtes/*es loyal.
 you.2PL be.2PL loyal.SG
 ‘You are loyal.’
- c. On a/*ont été loyaux.
 one.3SG have.3SG been loyal.PL
 ‘We have been loyal.’

In the Spanish (5a), quoted from Corbett (1991, 225), the attributive *suprema* shares the grammatical gender of the feminine *Majestad*, but the predicative *contento* does not: It takes the masculine form, reflecting the fact that the noun denotes a male monarch. Similarly, in the French examples, quoted from Wechsler and Zlatic (2003, 98,102), the finite verbs share the morphosyntactic number of the subject, which is plural for *vous* and singular for *on*, but the predicative adjectives do not: They are singular if the subject denotes an individual and plural if it denotes an aggregate, irrespective of the pronouns’ morphosyntactic number.

To model this HPSG employs a distinction between morphosyntactic agreement (aka concord) and index agreement, introduced in Pollard and Sag (1994) and further developed in a.o. Kathol (1999) and Wechsler and Zlatic (2003). The latter presents the following scheme (p. 30):

- (6) morphology \longleftrightarrow CONCORD \longleftrightarrow INDEX \longleftrightarrow semantics

¹ The identifiers of the sentences are taken from LASSY-small.

“We recognize two distinct grammaticalization ‘portals’, one each via semantics and morphology. These two sources of grammaticalization lead to two distinct bundles of agreement features for a given noun. The morphology-related agreement bundle will be called CONCORD (which includes case, number and gender) and the semantics-related agreement bundle which will be called INDEX (which includes person, number and gender).” (Wechsler and Zlatic, 2003, 28) For most nouns, the number and gender features in the two ‘portals’ match, but if there is a mismatch between morphology and semantics, as in the case of a grammatically feminine noun with a male referent, the INDEX|GENDER value may reflect the latter and deviate from the former. This is made explicit in the lexical entry that Kathol (1999, 248) assigns to *Majestad*.²

$$(7) \left[\begin{array}{l} \text{CAT | HEAD | AGR} \left[\begin{array}{l} \text{NUMBER } \boxed{1} \text{ sg} \\ \text{GENDER } \textit{fem} \end{array} \right] \\ \text{CONTENT | INDEX} \left[\begin{array}{l} \text{NUMBER } \boxed{1} \\ \text{GENDER } \textit{gender} \end{array} \right] \end{array} \right]$$

The gender value in AGR is unambiguously feminine, but its counterpart in the index is left underspecified, since the noun can denote a male as well as a female monarch. This accounts for (5a), if one assumes that the agreement between an attributive adjective and its nominal head is an instance of morphosyntactic agreement, whereas the agreement between a predicative adjective and the subject is an instance of index agreement, as spelled out in (8), quoted from Kathol (1999, 241).³

- (8) a. morphosyntactic: AGR(selector) \approx AGR(argument)
 b. semantic: AGR(selector) \approx INDEX(argument)

The number agreement in the French examples can be described along the same lines: If it is assumed that *on* and *vous* have a specific AGR|NUMBER value but an underspecified INDEX|NUMBER value, and if it is assumed that the agreement between subject and finite verb is an instance of morphosyntactic agreement while the agreement between a predicative adjective and its target is an instance of index agreement, one accounts for the data in (5b-5c).

Returning now to the predicate complements of English and Dutch, it is clear from the acceptability of the number mismatches in (4) that the agreement between the predicate nominals and their target is not an instance of morphosyntactic agreement. The assumption that it is an instance of index agreement is more plausible, but the way in which it is modeled in (8b) is not what we need.

One problem for (8b) concerns the number agreement in predicative PPs, as in (3), repeated in (9). A comparable example from Dutch is (10).

- (9) a. We regard Kim as an acceptable candidate / *acceptable candidates.
 b. We regard his brothers as acceptable candidates / *an acceptable candidate.
- (10) a. Ze houdt hem voor een idioot / *voor idioten.
 she holds him.SG for an idiot.SG / *for idiot.PL
 ‘She considers him an idiot.’

² Kathol’s AGR feature corresponds to Wechsler and Zlatic’s CONCORD feature.

³ The selector is the adjective; the argument is the head nominal in (8a) and the subject in (8b). “ \approx ” stands for something like “is structure-shared in its relevant parts with” (o.c.). Kathol’s characterization of (8b) as ‘semantic’ is misleading, especially in view of (6), but it is part of the quote.

- b. Ze houdt ons voor idioten / *voor een idioot.
 she holds us.PL for idiot.PL / *for an idiot.SG
 ‘She considers us idiots.’

Since (8b) requires the AGR|NUMBER value of the predicative PP to match the INDEX|NUMBER value of its target, it presupposes that prepositions have an AGR|NUMBER feature, contrary to standard practice.

Another problem for (8b) is exemplified by the number mismatch in (11).

- (11) Die politici_i zijn niet bepaald elkaars_i beste vriend.
 those politician.PL_i are not exactly each-other’s_i best friend.SG
 ‘Those politicians are not exactly each other’s best friends.’

Since the AGR|NUMBER value of the predicate nominal is singular, (8b) requires the subject to have a singular index, but since the subject is also the antecedent of the inherently plural anaphor *elkaars* ‘each other’s’ it must have a plural index. In spite of this clash, the sentence is wellformed.

A more plausible candidate for modeling the agreement is based on the assumption that the INDEX|NUMBER value of the target is shared with the INDEX|NUMBER value of the predicative complement, rather than with its AGR|NUMBER value. In terms of Kathol’s notation, this looks as in (12).

- (12) INDEX(selector) \approx INDEX(argument)

Interestingly, this is the way in which index agreement is canonically modeled in HPSG. An anaphoric pronoun and its antecedent, for instance, share their index and the associated person, number and gender features. The mixture of morphosyntactic agreement and index agreement in (8b) is, hence, not the norm but the exception. Before elaborating (12) into a more comprehensive treatment it is therefore useful to understand why Andreas Kathol employed (8b) instead of something like (12).

3 Two ways of treating predicative complements

To understand the motivation for (8b) we need look into the canonical HPSG treatment of clauses with a predicative complement. In that treatment the predicative complement is taken to denote a state-of-affairs while its target denotes a scope-object. These are objects with radically different feature structures. In Ginzburg and Sag (2000), for instance, they are defined as follows.

- (13) $\left[\begin{array}{l} soa \\ \text{QUANTS } list \text{ (quant-rel)} \\ \text{NUCLEUS } relation \end{array} \right] \quad \left[\begin{array}{l} scope-object \\ \text{INDEX } index \\ \text{RESTR } set \text{ (fact)} \end{array} \right]$

In words, a state-of-affairs consists of list of quantifiers and a relation, whereas a scope-object consists of an index and a set of constraints on its denotation. The relation between the predicative complement and its target is modeled in terms of subject raising: The subject of a clause with *be* or *seem* is treated as the understood subject of the predicative complement. This is made explicit in the AVMS of the English *be* and the German *erscheinen* ‘seem’, quoted from respectively Pollard and Sag (1994, 147) and Müller (2002, 104-9).⁴

⁴ These are not exact copies of the originals. I have replaced the SUBCAT feature with ARG-ST in both AVMS and I have omitted the existential *there* from the ARG-ST list in (14), which is intended to subsume the existential *be*, as used in *there is a unicorn in the garden*.

- (14)
$$\left[\begin{array}{l} \text{PHON } be \\ \text{ARG-ST } \left\langle \boxed{1}, \text{XP} \left[+ \text{PRD}, \text{SUBJ } \langle \boxed{1} \rangle \right] : \boxed{2} \right\rangle \\ \text{SYNSEM} \mid \text{LOCAL} \mid \text{CONTENT } \boxed{2} \text{ } soa \end{array} \right]$$
- (15)
$$\left[\begin{array}{l} \text{PHON } erscheinen \\ \text{ARG-ST } \left\langle \boxed{1}, \text{NP}[\textit{dative}]_{\boxed{3}}, \text{XP} \left[+ \text{PRD}, \text{SUBJ } \langle \boxed{1} \rangle \right] : \boxed{2} \right\rangle \\ \text{SYNSEM} \mid \text{LOCAL} \mid \text{CONTENT} \left[\begin{array}{l} \textit{erscheinen-rel} \\ \text{EXPERIENCER } \boxed{3} \text{ } index \\ \text{SOA-ARG } \boxed{2} \text{ } soa \end{array} \right] \end{array} \right]$$

Given this analysis, it is impossible to model the agreement in terms of (12), since the predicative complement does not have an index.

The canonical treatment of clauses with a predicative complement has been challenged in Van Eynde (2008) and Van Eynde (2009), amongst others because it has problems with gerundial and various types of nominal predicative complements.

- (16) The greatest pleasure on earth is eating oysters and drinking champagne.
- (17) a. Kim is somebody with good taste.
b. That bag is mine.
c. Cicero is Tully.

The understood subject of the gerund in (16) is not *the greatest pleasure on earth* but PRO with arbitrary reference, and the pronouns and proper nouns in (17) are fully saturated NPs rather than nominals which lack a subject. Moreover, they do not denote a state-of-affairs.

As an alternative, Van Eynde (2009) proposes to treat the predicative complements as denoting a scope-object and to treat the verbs as denoting a relation between their respective indices, as in (18) and (19).

- (18)
$$\left[\begin{array}{l} \text{PHON } be \\ \text{ARG-ST } \left\langle \text{NP}_{\boxed{1}}, \text{XP}_{\boxed{2}} \right\rangle \\ \text{SYNSEM} \mid \text{LOCAL} \mid \text{CONTENT} \mid \text{NUCLEUS} \left[\begin{array}{l} \textit{be-rel} \\ \text{THEME } \boxed{1} \text{ } index \\ \text{ATTRIBUTE } \boxed{2} \text{ } index \end{array} \right] \end{array} \right]$$
- (19)
$$\left[\begin{array}{l} \text{PHON } erscheinen \\ \text{ARG-ST } \left\langle \text{NP}_{\boxed{1}}, \text{XP}_{\boxed{2}}, \text{NP}[\textit{dative}]_{\boxed{3}} \right\rangle \\ \text{SYNSEM} \mid \text{LOCAL} \mid \text{CONTENT} \mid \text{NUCLEUS} \left[\begin{array}{l} \textit{erscheinen-rel} \\ \text{THEME } \boxed{1} \text{ } index \\ \text{ATTRIBUTE } \boxed{2} \text{ } index \\ \text{EXPERIENCER } \boxed{3} \text{ } index \end{array} \right] \end{array} \right]$$

In this analysis the relation between a predicative complement and its target is not defined in terms of a syntactic operation like subject raising but rather in terms of the thematic relations

which the verbs assign to their arguments. This analysis avoids the problems with gerundial and (pro)nominal predicative complements, and has a number of other advantages, described in Van Eynde (2009). In the context of this paper, its main asset is that it provides a way to express the number agreement in terms of the indices.

4 The number agreement constraint

Adopting the alternative way of treating predicative complements, the agreement can be expressed in terms of a constraint on the predicate selecting lexemes, as in (20).

(20) Number Agreement Constraint:

$$\left[\begin{array}{l} \text{ARG-ST } \boxed{A} \oplus \langle \text{NP}_{\boxed{1}}, \text{XP}_{\boxed{2}} \rangle \oplus \boxed{B} \\ \text{SS} \mid \text{LOCAL} \mid \text{CONTENT} \mid \text{NUCLEUS} \left[\begin{array}{l} \text{THEME} \quad \boxed{1} \left[\text{NUMBER} \quad \boxed{3} \textit{number} \right] \\ \text{ATTRIBUTE} \quad \boxed{2} \left[\text{NUMBER} \quad \boxed{3} \right] \end{array} \right] \end{array} \right]$$

In words, lexemes which select a predicative complement, such as *be*, *seem* and *consider*, require token-identity of the number value in the index of the argument which supplies the ATTRIBUTE role, and the number value in the index of the argument which supplies the THEME role; this is the subject if \boxed{A} is the empty list, and the direct object otherwise.

This solves the problem with the predicative PPs in (3) and (10), since argument marking prepositions are canonically assumed to inherit the index of their NP complement, amongst others to account for binding and control relations (Sag *et al.*, 2003). The binding facts in (21), for instance, show that NPs which are introduced by an argument marking preposition behave in the same way as NP complements, and the control data in (22) confirm this.

- (21) a. They_i washed themselves_i / *them_i.
 b. They_i talk to themselves_i / *them_i.
- (22) a. They_i asked us_j [PRO_j to behave ourselves_j / *themselves_i].
 b. They_i appealed to us_j [PRO_j to behave ourselves_j / *themselves_i].

Besides, (20) paves the way for a treatment of number mismatches, as those in (4) and (11). Predictably, the mismatches can be treated as the result of a discrepancy between the AGR|NUMBER and the INDEX|NUMBER values of the same nominal.

The morphosyntactic number value of a common noun is mainly determined by the morphology of the noun itself. A Dutch common noun, for instance, is plural if it contains a plural affix (-en, -s, -eren, ...) and singular otherwise. Its morphosyntactic gender value is neuter if the singular form takes *het* as the definite article, and non-neuter if it takes *de*, as in *het water* ‘the water’ vs. *de olie* ‘the oil’. The form of the pronominal adjectives co-varies with the morpho-syntactic number and gender values of the noun: The adjective takes the base form in a nondefinite NP if the modified noun is singular neuter, as in *zuiver water* ‘pure water’, and the declined form otherwise, as in the singular nonneuter *zuivere olie* ‘pure.DCL oil’ and the plural *zuivere bronnen* ‘pure.DCL wells’. This alternation also applies to the adjectival determiners, as shown by the contrast between the singular neuter *elk boek* ‘each book’ and the singular nonneuter *elke kast* ‘each.DCL cupboard’. For a detailed treatment of this type of agreement and for arguments that it is indeed an instance of morphosyntactic agreement, see Van Eynde (2006).

The number value in the index of a common noun, by contrast, is underspecified, no matter what its morphosyntactic number value is. The underspecification can be resolved if there is some other element that puts constraints on the index, such as a determiner, a finite verb or an anaphoric pronoun.

The indefinite article and the quantifying *each* and *every*, for instance, are only compatible with nouns with a singular index, while the quantifying *several* and *both* are only compatible with nouns with a plural index. Not all determiners impose such constraints. The quantifying *no*, for instance, is compatible with both singular and plural nouns, and so are the possessive determiners and the pronominal genitives. For arguments that it is indeed the number values in the indices which are constrained in this way and for an application to English, see Pollard and Sag (1994, 83-84). For an application to Dutch, see Van Eynde (2006).

The diambiguating potential of the finite verb is illustrated in (23), quoted from Pollard and Sag (1994, 86-87).

- (23) a. Unleashed dogs on sidewalks threaten the health of law-abiding citizens.
 b. Unleashed dogs on sidewalks threatens the health of law-abiding citizens.

Assuming that the agreement between subject and finite verb is an instance of index agreement in English, as argued in Pollard and Sag (1994, 86-87), the finite verb in (23a) requires a subject with a plural index, while its counterpart in (23b) requires a subject with a singular index. The interpretations of the two sentences differ accordingly: (23a) has a distributive interpretation, in the sense that the denotation of the VP applies to the individual members of the set of unleashed dogs, whereas (23b) has a non-distributive interpretation: The subject is understood to denote the phenomenon of having unleashed dogs on sidewalks, rather than some aggregate of canine creatures.

The underspecification may also be resolved by an anaphoric pronoun, as in (24), also quoted from Pollard and Sag (1994, 86-87).

- (24) a. John's family is destroying itself.
 b. John's family are destroying themselves.

In (24a) the INDEX|NUMBER value of the subject is resolved to singular, triggering the interpretation in which the noun stands for a collective. By contrast, in (24b) it is resolved to plural, triggering the interpretation in which the noun stands for the members of the collective. That both types of agreement concern the same values is clear from the fact that they cannot be mixed, as in (25).

- (25) a. * John's family is destroying themselves.
 b. * John's family are destroying itself.

Summing up, while the AGR|NUMBER feature of a nominal canonically receives some specific value within the NP, the INDEX|NUMBER feature canonically receives an underspecified value. This may get resolved by the interaction with certain determiners or with elements outside the NP, such as anaphoric pronouns or finite verbs, but it may also be left underspecified.

Let us now return to the number mismatches between predicate nominals and their target in Dutch, exemplified above and repeated in (26).

- (26) a. Hiervan zijn tevens zes Belgische Europarlementariërs lid.
 here-of are also six Belgian Europarlementarian.PL member.SG
 'Six Belgian Europarlementarians are members of this.' [wiki-154.p.25.s.3]
 b. Politieke tegenstellingen zijn een wezenskenmerk van elke democratie.
 political contrast.PL are a defining-feature.SG of each democracy
 'Political contrasts are a defining feature of each democracy.' [dpc-kok-001320-nl-sen.p.6.s.2]

- c. Die politici_i zijn niet bepaald elkaars_i beste vriend.
 those politician.PL_i are not exactly each-other's_i best friend.SG
 'Those politicians are not exactly each other's best friends.'

In all three of these sentences, the predicative complement is morphosyntactically singular, while its target is morphosyntactically plural. The number values in the respective indices are underspecified, unless there is an agreement constraint which resolves it. The predicate nominal in (26b), for instance, has a singular index because of the presence of the indefinite article and the subject in (26c) has a plural index since it is the antecedent of an inherently plural reciprocal pronoun.

Given the Number Agreement Constraint in (20), this implies that the subject of (26b) must have a singular index, despite its plural form. The conflict is resolved by the assignment of a non-distributive interpretation: It is not every single political contrast that is claimed to be a characteristic of democracy, but rather the phenomenon of having political contrasts. In that respect, it is comparable to the English (23b). At the same time, what differentiates the English example from (26b) is the form of the finite verb. In Dutch the finite verb shares the morphosyntactic number of the subject, rather than the number value in the index.⁵

By the same token, the Number Agreement Constraint in (20) implies that the predicative complement of (26c) must have a plural index, despite its singular form. This in turn implies that the VP has a distributive interpretation, meaning that not being each other's best friend is attributed to each member of the aggregate of politicians.

If the indices of both the predicative complement and its target have an underspecified number value, as in (26a), the Number Agreement Constraint does not resolve it either. Still, since it requires token-identity of the respective values, it leaves two of the four possible combinations: Either the indices are both plural, and in that case one gets the distributive interpretation that each of the six parliamentarians is a member, or the indices are both singular, and in that case one gets the non-distributive interpretation that the group of six parliamentarians is a collective member. Another example of this kind is (27).

- (27) Zijn vijftien goals van vorig seizoen waren dan ook geen toeval.
 his fifteen goal.PL of last season were then also no accident.SG
 'His fifteen goals of last season were no accident.' [dpc-rou-000360-nl-sen.p.4.s.1]

Both the subject and the predicate nominal have an underspecified INDEX|NUMBER value, since the possessive determiner and the quantifying *geen* 'no' do not constrain it. The resulting combination is, hence, ambiguous, allowing both the distributive interpretation, in which each of his fifteen goals was no accident, and the non-distributive interpretation, in which it is the totality of his fifteen goals that is no accident.

Having shown how the treatment deals with mismatches as those in (26) and (27), we still need to account for the illformedness of the starred variants in (28).

- (28) a. Zijn broers zijn schurken / *een schurk.
 his brother.PL are crook.PL / *a crook.SG
 'His brothers are crooks.'
 b. Ze houdt ons voor idioten / *voor een idioot.
 she holds us.PL for idiot.PL / *for an idiot.SG
 'She considers us idiots.'

⁵ In this respect, Dutch sides with French and German, which have been demonstrated to require morphosyntactic number agreement between subject and verb in Kathol (1999).

Since the predicate nominals contain the indefinite article they have a singular index, which — given the Number Agreement Constraint— implies that the respective targets must have a singular index as well. In the case of (28a) this yields a discrepancy with the plural morphology of the noun. In principle, this could be overcome by the assignment of a non-distributive interpretation, but in (28a) this interpretation is highly implausible: The claim that the totality of his brothers forms one crook is nonsensical. A similar account applies to (28b): The claim that some aggregate which includes the speaker forms one idiot is nonsensical.

Summing up, the Number Agreement Constraint in (20) is sufficiently flexible to accept well-formed instances of number mismatches, but it is also sufficiently restrictive to discard illformed instances.

5 Exemptions

Another asset of the Number Agreement Constraint concerns the inclusion of an explicit link between agreement and thematic role assignment: Predicative complements and their target are only required to show index agreement if their indices are assigned a thematic role. If either one of them has no such role, the constraint does not apply. This accounts for the lack of agreement in (29) and the Dutch (30).

(29) It is the details that matter in such negotiations.

- (30) a. Denk je echt dat zij het zijn?
 think you really that they.PL it.SG are
 ‘Do you really think it is them?’
 b. Hij zegt dat het mussen zijn.
 he says that it.SG sparrow.PL are
 ‘He says that they are sparrows.’

The impersonal pronouns *it* and *het* have a singular index, but since it is a nonreferential index, it cannot be the value of a thematic role, and this implies that the Number Agreement Constraint does not apply. A similar account applies to the predicate nominals in (31) and the Dutch (32).

- (31) He is nuts.
 (32) a. Zij zijn de pineut.
 they.PL are the dupe.SG
 ‘They are the dupe.’
 b. Wij zijn de klos.
 we.PL are the victim.SG
 ‘We are the victim.’

The plural *nuts* does not show agreement with the singular *he*, but this is not necessary anyway, since it is part of an idiom (*be nuts*) so that its index is nonreferential.⁶ The same account applies to the Dutch examples: Since *de pineut* and *de klos* form a fixed phrase in combination with the copula, their index is nonreferential and, hence, exempt from the agreement constraint.

Finally, since the NAC only subsumes combinations in which the predicative complement is assigned the ATTRIBUTE role, the number mismatches in (33) and (34) do not invalidate the analysis.

(33) If we were Prandelli, we would put Cassano on the left.

⁶ For evidence that the nominal parts of idioms have a nonreferential index, see a.o. Sag *et al.* (2003).

- (34) Als ik jullie was, zou ik in de lente trouwen.
if I.SG you.PL were, would I in the spring marry
'If I were you, I would marry in spring.'

The predicative complement in (33) has a singular index, but is compatible with the plural *we*, since it does not have the role of ATTRIBUTE: *Prandelli* does not denote a property or quality which is attributed to the subject, but rather an individual which is —counterfactually— identified with some aggregate that includes the speaker. The same applies m.m. to the plural *jullie* and the singular *ik* in (34).

6 Summing up

Predicative complements show number agreement with their target, not only in the Romance languages, but also in English, Dutch and German. In terms of the distinction between concord and index agreement, it sides with the latter, but the only detailed proposal to model it, which is due to Andreas Kathol, is inadequate: It cannot deal with predicative PPs, and it erroneously excludes wellformed instances of number mismatch. There is an obvious way to repair it, but this way cannot be fitted in the canonical HPSG treatment of clauses with a predicative complement. It can be fitted, though, in a treatment of such clauses that was recently proposed in Van Eynde (2009). Adopting that treatment, the agreement can be modeled in terms of a constraint on the lexemes which select a predicative complement: the Number Agreement Constraint. This constraint not only avoids the problems with Kathol's version, it also provides an account of why certain combinations are exempt from the agreement requirement. In future work, I will extend the treatment to gender agreement.

References

- Corbett, G. 1991. *Gender*. Cambridge: Cambridge University Press.
- Ginzburg, J. and I. Sag. 2000. *Interrogative Investigations*. Stanford: CSLI Publications.
- Kathol, A. 1999. Agreement and the syntax-morphology interface in HPSG. In R. Levine and G. Greene, eds., *Studies in Contemporary Phrase Structure Grammar*, pp.223-274. Cambridge University Press.
- Müller, S. 2002. *Complex Predicates*. Stanford: CSLI Publications.
- van Noord, G., G. Bouma, F. Van Eynde, D. de Kok, J. van der Linde, I. Schuurman, E. Tjong Kim Sang and V. Vandeghinste 2012. Large Scale Syntactic Annotation of Written Dutch: Lassy. In P. Spyns and J. Odijk, eds., *Essential Speech and Language Technology for Dutch: resources, tools and applications*. Berlin: Springer.
- Pollard, C. and I. Sag. 1994. *Head-driven Phrase Structure Grammar*. Stanford: CSLI Publications and Chicago: The University of Chicago Press.
- Sag, I., Th. Wasow and E. M. Bender. 2003. *Syntactic Theory: A Formal Introduction*. Stanford: CSLI Publications.
- Van Eynde, F. 2006. NP-internal agreement and the structure of the noun phrase. *Journal of Linguistics*, 42, 139-186.
- Van Eynde, F. 2008. Predicate complements. In S. Müller, ed., *On-Line Proceedings of HPSG 2008*, 253-273. CSLI Publications.
- Van Eynde, F. 2009. On the copula: from a Fregean to a Montagovian treatment. In S. Müller, ed., *On-Line Proceedings of HPSG 2009*, 359-375. CSLI Publications.
- Wechsler, S. and L. Zlatic. 2003. *The Many Faces of Agreement*. Stanford: CSLI Publications.