

Modifier-Head Person Concord¹

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1. Introduction

Several studies on the typology of grammatical agreement have stated that agreement features depend on the syntactic domain where the agreement relation holds. This has been one of the primary motivations for dividing agreement into two relations resulting from different grammatical processes: NP-internal agreement (modifier-head concord) and NP-external agreement (argument-predicate agreement). In typology this idea goes back to Lehmann (1982, 1988), who draws a critical distinction between these two types of agreement based on how the features are transmitted from the controller to the target.

According to Lehmann, NP-external agreement is pronominal and referential in nature. Its purpose is hypothesized to be the tracking of referents in the discourse by recording pronominal features on the target, hence it involves a pronominal Person feature. In contrast, for NP-internal agreement, a modifier does not contain a pronominal indication to the controller, because the target and the controller are constituents of the same NP. Therefore the modifier need not agree in Person. On the other hand, modifier-head agreement involves Case, which is semantically and syntactically a category of the NP. Speaking informally, the modifier agrees in Case with the NP rather than with the head noun. Therefore adnominal modification may exhibit Case agreement, while Person agreement is prohibited, and it is predicted that no target can agree in both Case and Person (Lehmann 1988: 58). These ideas are further confirmed by diachronic facts: according to Lehmann (1983), the markers of internal agreement sometimes come from deictic demonstratives, whereas the markers of external agreement normally go back to personal pronouns.

Lapointe (1988: 71) also observes that Person agreement on adjectival modifiers is unavailable, while Plank (1994) confirms this observation on the basis of data from a 45 language sample and formulates several universals on features involved in modifier-head concord. According to Plank, if a modifier agrees in one feature it will most likely be Number. If there is agreement in two features, they are most likely to be Number and Gender, other permissible combinations being Number and Case or Gender and Case. Lastly, if NP-internal constituents agree in more than two categories, the maximum being four, those will include Number and Gender, very likely also Case, and finally Definiteness, but Person, consistent with the claims of Lehmann, does not occur in this type of agreement.

These assumptions concerning the relevance of features for agreement relations have received the most explicit formal accounts within GPSG and HPSG, where the modifier-head concord is determined by feature compatibility between the head and its projection. According to Gazdar et al. (1985: 83–94), NP-internal agreement involves Case, Number and Gender. Case and Number belong to the category of HEAD features

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which if assigned to the NP are transmitted to its head noun. The feature Gender is a lexical property of a noun and is duplicated on the NP by the Head Feature Convention. These features are copied on the dependants via the Control Agreement Principle, which specifies possible controllers and targets. Anderson (1992) provides a similar account within the A-morphous Morphology framework, except that he eliminates the Control Agreement Principle and introduces the category of DEPENDENT features whose value is assigned to the phrase and transmitted to all its daughters.

HPSG explicitly encodes the notion that different principles and features are involved in NP-internal and NP-external agreement. For Pollard & Sag (1994: 60–99) agreement with the verb is a matter of the referential INDEX of the nominal that triggers it. Indices are part of the value of the CONTENT feature structure and therefore part of the semantic contribution of nouns. They are associated with referential expressions and have to be anchored to real world entities via anchoring conditions. Indices involve Person, Number and Gender. In contrast, Case is not an attribute of referential indices, but a purely syntactic property. It arises from language-specific constraints requiring structure sharing between a noun's Case value and that of a noun's dependent.

This particular account makes no explicit claims as to whether NP-internal concord can involve features other than Case. In particular, it does not make any predictions about Person. This has been modified in more recent HPSG accounts by Kathol (1999) and Wechsler & Zlatić (2000, 2003). Following Lehmann's conjectures, they exclude Person from modifier-head concord by explicitly specifying the allowable features for different agreement relations. In Kathol's proposal, NP-internal agreement information is expressed under a feature called AGR, represented as part of the HEAD specification. Modifier-head concord results from structure sharing with the noun's AGR specification. Person never plays a role in NP-internal agreement, because of the assumption that NPs in general do not have a Person attribute in their AGR. Instead, Person information is recorded in the noun's or pronoun's INDEX. Unlike modifier-head concord, subject-verb agreement typically refers to INDEX and therefore can include Person.

The most significant evidence for separating INDEX and AGR comes from the fact that a noun can trigger different features on two classes of agreement targets. This has been richly exemplified in the recent book by Wechsler & Zlatić (2003), who argue that INDEX agreement is more semantically driven than NP-internal concord (in their terminology, CONCORD), because it is a morphosyntactic reflex of anchoring conditions and plays an important role in the semantic interpretation. INDEX features are grammaticalizations of the constraints on anchoring in a discourse and include Person, Number and Gender. In contrast, the CONCORD relation is simply a sharing of morphosyntactic features between certain designated elements. For example, adjective-noun concord follows from the fact that subcategorization of a noun specifies that its modifier's features must match its own features. CONCORD features are Case, Number and Gender. Person is not involved because it is not dependent on local syntactic relations, but has a purely pronominal motivation. Consequently, the analysis reflects the belief there are no languages that list Person under their CONCORD features.²

The primary goal of this paper is to challenge some of these assumptions concerning the distributions of particular features across different types of agreement

²A possible exception is provided by a rather restricted Swahili example where the quantifier 'all' shows agreement with the 1st and 2nd Plural pronouns. However, it is unclear what kind of syntactic relation holds between the two.

relations. I will demonstrate that Tundra Nenets (Samoyed branch of Uralic) exhibits fairly regular, albeit optional, Person concord between an adjectival modifier and its head. However, this occurs in a special context: the Person feature comes from the possessor which is recorded on the head noun via a suffixal head marking strategy. I will argue that this kind of modifier-head concord is in fact expected in some languages that have head marked possessives, if we assume Wechsler & Zlatić's theory of agreement. Plank (1994) explains the absence of adjective-noun Person agreement by the simple fact that all nouns are 3rd Person. The situation in Nenets is more complex because possessed nouns are marked for two Person features simultaneously: they are 3rd Person by virtue of being a noun and additionally carry Person/Number features that come from their possessor. Crucially, I will show, the latter are encoded as part of their CONCORD specification and therefore copied on the adjectival modifier via modifier-head concord. This provides an additional argument for separating morphosyntactic features of a noun into two sets, along the lines suggested by Kathol and Wechsler & Zlatić.

In the next section I cite the basic data on Tundra Nenets agreement. Section 3 presents my analysis, and section 4 provides conclusions.

2. Internal Agreement and the Tundra Nenets NP

2.1. Possessive Agreement

The basic NP in Nenets is head-final. Within nominal possessive constructions a pronominal possessor triggers Person/Number marking on the head noun. Although an independent pronoun is optional, when it is overt it stands in the Nominative (1a). A lexical possessor, in contrast, stands in the Genitive and normally shows no Person/Number agreement on the head (1b).

- (1)³
- a. (pidø^o) te-r^o
 you.SG.NOM reindeer-2SG
 'your (SG) reindeer'
- b. Wata-h ti
 Wata-GEN reindeer
 'Wata's reindeer'

The possessive affixes simultaneously express the Person and Number of the possessor and therefore I will refer to them as Person/Number affixes. They are shown below for a Singular possessor and Nominative possessed noun.

(2)

	SG	DU	PL
1	-w ^o /-myi	-myih	-waq
2	-r ^o	-ryih	-raq
3	-da	-dyih	-doh

³ The Nenets data comes from my own fieldwork supported by an ELDP grant. I use the transcription of Salminen (1997). The glossing for the Nominative will be omitted in further examples.

In non-Nominative cases and with non-Singular possessed nouns, affixes cumulatively express several features: the Case and Number of the possessed and the Person/Number of the possessor. I will not cite the relevant paradigms here for reasons of space.

After Kathol (2001), I will assume that possessed nouns are formed by means of a lexical rule that maps a lexeme to a word inflected for possessive Person/Number.⁴ The possessed head noun can be viewed as selecting for a possessor argument. It corresponds to a two-place relation \mathfrak{R} whose specifier is identified with the possessor. The possessive affix is associated via identically numbered tags with the specifier and therefore with the possessor. A representation for *ter*^o ‘your reindeer’ below follows Kathol (2001).

$$(3) \left(\begin{array}{l} \text{PHON} \quad F_{\text{poss}} \langle te_{[1]}, r^o_{[4]} \rangle \\ \text{ARG-ST} \quad \langle [6] \text{ NP } [nom] [4] : [5] \rangle \\ \\ \text{SEM | CONT} \quad \left[\begin{array}{l} \text{INDEX } [2] \\ \text{RESTR } [3] \end{array} \right] \cup \left\langle \left[\begin{array}{l} \text{RELATION } \mathfrak{R} \\ \text{POSSESSOR } [4] \\ \text{POSSESSED } [2] \end{array} \right] \right\rangle \\ \text{SPR } [3] \langle \langle [6] \rangle \rangle \end{array} \right)$$

Where [5] *pro* if [3] = $\langle \rangle$

In (3) the specifier requirement is optional, as indicated by parentheses. In the absence of the overt possessor phrase the possessor is interpreted pronominally. *F_{poss}* is a morphological spell-out function that specifies the exponence for particular values associated with Person/Number features. The possessive affix is the realization of the features associated with the INDEX of the possessor argument.

One point that remains unclear from Kathol’s analysis of head-marked possessives is the distribution of features. According to the representation in (3), the possessed noun has its own INDEX represented as [2]. It is further passed to the phrasal category, due to the Semantic Inheritance Principle (Sag & Wasow 1999: 116). This principle ensures that the INDEX value of the NP is identical to that of its head daughter. For example, the word *ter*^o has the 3rd Person INDEX feature and triggers the 3rd Person agreement on the main verb.

$$(4) \quad te-r^o \quad x\text{o}ya \quad / *x\text{o}ya-n^o \\ \text{reindeer-2SG} \quad \text{leave.3SG} / \text{leave-2SG} \\ \text{‘Your reindeer left’}$$

The subject-verb agreement in this language may refer to INDEX since, first, it is pronominal in nature, and second, it allows semantically motivated feature mismatches, as is typical of INDEX agreement. The pronominality of subject agreement is seen from the fact that overt subjects are not required and in fact overt pronouns in the subject function are very rare. Semantically motivated feature mismatches are illustrated in (5).

⁴ See Ackerman and Nikolaeva (forthc.) for a detailed exposition of Tundra Nenets possessive constructions.

- (5) nyax^or serako/*serako-q ti / *ti -q to^o-q / to^o
 three white/white-PL reindeer/reindeer-PL come-3PL/come.3SG
 ‘Three white reindeer came’

Nouns quantified by numerals must be in the Singular, although they refer to Plural entities. As shown in (5) such nouns must trigger Singular agreement on NP-internal modifiers. Accordingly, they have the Singular CONCORD feature. On the other hand, their INDEX specification includes the Plural feature, which reflects a true semantic property of the expression’s referent. Unlike modifier-head concord, the subject-verb agreement refers either to CONCORD or INDEX, as follows from the variations shown in (5). In the former case the Singular agreement on the verb is a pure reflection of morphosyntactic features of the subject. In latter case the Plural agreement is more semantically motivated.

So, the INDEX of the possessive NP comes from the INDEX of the possessed head noun. On the other hand, in Kathol’s account, the INDEX of the possessor is identical to the INDEX of the specifier and is realized as a Person/Number affix by the morphological spell-out function. In representation (3) these features are not shown. Given the binary typology of Wechsler & Zlatić, the question is then whether they are INDEX or CONCORD features.

Notice that by either analysis we end up with two conflicting values of the same feature. If possessive features are specified in the head noun’s INDEX, then the word *ter^o* has two conflicting values for the attribute Person: the 3rd Person from the possessed nominal and the 2nd Person from the possessor. On the contrary, if possessive features are CONCORD, the possessed noun may have conflicting values of the Number feature. This is shown in (6).

- (6) (pidø^o) serako-q tí-d^o
 you.SG white-PL reindeer-PL.2SG
 ‘your (SG) white reindeer (PL)’

In (6) the Plural head noun triggers Plural agreement on its modifier via CONCORD. But it is also marked as 2nd Person Singular by virtue of being a possessed noun in the possessive relation where the possessor is the 2nd Person Singular. The CONCORD Plural feature and the possessive Person/Number features have a cumulative exponence as the suffix *-d^o*. If possessive features are registered in the CONCORD attribute of the head, this suffix expresses two conflicting values of the CONCORD feature Number: Singular and Plural.

In the next section I will show that this second alternative is in fact correct, that is, possessive Person/Number belongs to the CONCORD specification of the head noun.

2.2 *Agreement on Modifiers*

Nenets shows modifier-head concord in Number and Case. Modifiers include adjectives, modifying nouns and participial relative clauses, but I will only concentrate on adjectives in this paper. (7) shows the attributive concord in Number and Case in non-possessive NPs.

- (7) serako-xøt° te-xøt°
 white-ABL.PL reindeer-ABL.PL
 ‘from white reindeer (PL)’

Number concord is obligatory, while Case concord is highly optional and in fact infrequent.

Crucially, possessive NPs where the possessed noun bears a possessive suffix show another type of NP-internal feature matching: the adjective may take the same possessive affix as the head. Unlike the regular Number concord which exists in all varieties of Tundra Nenets, possessive agreement on adjectives seems to be limited to the Eastern dialectal area. Although it is mostly typical of the archaic language of folklore, it may occasionally occur in everyday speech, and the speakers have clear intuitions on the grammaticality of such constructions. As indicated in (8), possessive agreement is optional.

- (8) a. (møny) serako(-myi) te-myi
 I white-1SG reindeer-1SG
 ‘my white reindeer’
- b. (pidør°) serako(-r°) te-r°
 you.SG white-2SG reindeer-2SG
 ‘your white reindeer’
- c. (pidør°) serako-q / serako-d° tí-d°
 you.SG white-PL / white-PL.2SG reindeer-PL.2SG
 ‘your (SG) white reindeer (PL)’

These examples demonstrate that the head noun and its modifier exhibit matching Person/Number features. Example (8c) also demonstrates an important behavior pattern concerning number agreement, namely, that when the possessed head noun is Plural, the modifier must also show Plural agreement. Additionally it can show possessive agreement in Person and Number, and all these features are expressed in (8c) with the cumulative affix *-d°*. As illustrated in (9), possessive agreement can also accompany Case concord.

- (9) (pidør°) serako-m-t° te-m-t°
 you.SG white-ACC-2SG reindeer-ACC-2SG
 ‘your white reindeer (ACC)’

(9) violates the universal statement mentioned above that disallows agreement in Case and Person on the same target.

Although the data reviewed thus far suggests the existence of an agreement relation between a modifier and its head, the fact that the Person/Number of the possessor participates in this relation raises the question as to whether the agreement is actually between a syntactically independent, albeit optional, possessor and modifier. In other words, what controls possessive agreement on the adjective? The following evidence definitively shows that we are dealing with the true modifier-head concord

here, by demonstrating that the Person/Number features on the adjective are not interpretable as simply reflecting the features of a syntactically expressed possessor.

Consider possessive NPs where the possessor corresponds to a lexical noun. As was shown in the previous subsection, the lexical possessor does not normally trigger possessive agreement. However, a discourse marked lexical possessor can in fact be cross-referenced by a 3rd Person possessive affix on the head. The notion of discourse markedness will be explained later in the paper. At this stage it is important to indicate the contrast between example (1b), without possessive agreement, and example (10), with possessive agreement.

- (10) Wata-h te-da
 Wata-GEN reindeer-3SG
 ‘Wata’s reindeer’

With lexical possessors possessive affixes on the adjective are only possible in the presence of possessive agreement on the head. This is illustrated below. When the adjective bears no possessive marking, the head noun either takes the 3rd Person possessive affix or not (11a). However, when the adjective is marked for Person/Number, the possessive affix is obligatorily present on the head (11b).

- (11) a. Wata-h serako ti / te-da
 Wate-GEN white reindeer / reindeer-3SG
 ‘Wata’s white reindeer’
- b. Wata-h serako-da te-da /* ti
 Wate-GEN white-3SG reindeer-3SG /reindeer
 ‘Wata’s white reindeer’

Thus, when the possessor is lexical the possessive marking on the head is optional. Crucially, adjectival possessive marking is only available in the presence of nominal possessive marking, as in (11b). This indicates that the relationship of feature matching obtains between the adjective and the head noun rather than between the adjective and the possessor. Therefore it is an instance of true modifier-head concord.

Since we can conclude that attributive concord in Tundra Nenets involves Person, it provides a counterexample to proposals that exclude Person from this kind of agreement. It also presents a challenge to representation (3) because, as was discussed at the end of the previous subsection, the feature structure of the head noun accommodates two conflicting values for the same feature.

3. An Analysis

3.1. Pronominality of Person/Number Affixes

In Kathol’s analysis of Luiseño possessive constructions, as presented previously, Person/Number affixes are pronominal, if an independent pronominal possessor is not overt. This is represented as a disjunction on the value of the possessor argument: the possessor either corresponds to an overt specifier NP or is expressed as a Person/Number

affix with a pronominal interpretation. Basically the same situation can be assumed for Nenets as well, as was represented in (3). As in Luiseño, possessive affixes are interpreted pronominally in the absence of the possessor, but in Nenets this can also hold even when the possessor is overt. The claim of this subsection is that the modifier-head possessive concord obtains when possessive affixes on the head are pronominal.

First, I will demonstrate that the Nenets NP has two structural positions for the possessor. The regular possessor is presumably a specifier of the possessive phrase, but there is another possessor position located at its very left periphery. I will refer to this kind of possessor as the peripheral possessor. We have seen in the previous section that a lexical possessor optionally triggers possessive agreement. Agreement correlates with the position of the possessor: while the regular possessor does not trigger agreement, a peripheral one does. The evidence for this claim comes from the position of the possessor with respect to a determiner.⁵ Cf. (12a) and (12b).

- (12) a. tyuku° Wata-h ti / *te-da
 this Wata-GEN reindeer / reindeer-3SG
 ‘this reindeer of Wata’
- b. Wata-htyuku° te-da / *ti
 Wata-GEN this reindeer-3SG / reindeer
 ‘this reindeer of Wata’

If the possessor follows the determiner as in (13a), agreement on the head is impossible. In contrast, when the possessor precedes the determiner as in (13b), it must trigger possessive agreement. A pronominal possessor triggers agreement independently of its position, i.e. whether it precedes or follows the determiner, so it is impossible to determine its position based on the surface form alone.

There is additional syntactic evidence for two types of loci for possessors. What I referred to as the peripheral possessor seems to have some effect on the clausal syntax, although it remains NP-internal. In particular, it participates in switch-reference. Nenets has a so-called Modal Gerund which is used in same-subject adverbial manner clauses. However, as shown by example (13), in the presence of a peripheral possessor subject coreferentiality may be violated. As can be seen, the Gerund is controlled not by the main clause subject (*ngæwada*) but by the peripheral possessor (*Watah*) that triggers possessive agreement. The regular possessor that does not trigger agreement on the head cannot control the Modal Gerund.

- (13) [Ø_i tol°-h tyax°na ngamtyo°] Wata-h_i (*yetryi) ngæwa-da/*ngæwa ye°
 table-GEN at sit.GER Wata-GEN always head-3SG/head hurt.3SG
 ‘When he sits at the table, Wata’s head (always) hurts’

This example also demonstrates that the peripheral possessor remains a subconstituent of the NP. While in some cases it can be fully extracted out of the host phrase, this is not necessarily so. In (13) the possessor cannot be separated from the rest of the NP by other clausal constituents, for example, the adverbial ‘always’. Other constituency tests, such as questioning and coordination, also point towards its NP-internal position.

⁵ The so-called demonstrative pronouns in this language function as determiners.

So the peripheral possessor differs from the regular possessor in that it triggers possessive agreement when lexical, can control switch-reference and precedes the determiner. This indicates that the NP has an additional possessor position located “higher” than the regular possessor. The status and the syntax of this position is the matter of a separate discussion, which is outside the scope of this paper.⁶ What is important is that the peripheral possessor is in non-local, or at least “less” local configuration with the head noun on which it triggers agreement.

This suggests that possessive agreement between the peripheral possessor and the head is anaphoric in the sense of Bresnan & Mchombo (1987) and Bresnan (2000). In their theory, grammatical agreement obtains with elements selected by an argument-taking predicate. Such arguments must be expressed by syntactically independent elements within the phrase structure headed by the predicate or be marked on the predicate itself, so grammatical agreement is structurally local. If the latter situation obtains, the agreement marker itself can satisfy the selectional requirement of the head, functioning as an incorporated pronoun. When an overt antecedent is independently expressed as well, a feature matching relation between the antecedent and the incorporated pronoun is referred to by Bresnan and Mchombo as anaphoric agreement. This relation can occur outside a local domain, because there is no requirement for non-arguments to be local. So, non-local agreement is unambiguously anaphoric and acts in tandem with pronominal incorporation.

An additional argument for the anaphoric nature of agreement between the head and the peripheral possessor comes from the clausal function attributed to the latter. In Bresnan & Mchombo’s original analysis of Chicheŵa the antecedent of an incorporated pronominal has the discourse function of topic and is generated as some kind of adjunct. This is argued to follow from the independent assumption within Bresnan’s Lexical Functional Grammar that only a single argument can serve to satisfy each of the selectional demands of a predicator (the LFG’s principle of Functional Uniqueness). Since the incorporated pronominal satisfies the demands of the predicate, the overt independent element cannot do this as well. So if possessive affixes are pronominal, an overt co-referring peripheral possessor is predicted to fail to satisfy the selectional requirement of the head. This prediction turns out to be true.

The Nenets peripheral possessor normally functions as topic, as demonstrated by the next example.

- (14) a. What about this girl?
 b. tyuku^o nye ngøcyeki-h bantø-da / *bant^o ngarka
 this woman child-GEN ribbon-3SG / ribbon big
 ‘This girl’s ribbon is big’

After Gundel (1988) and others, I assume here that the context ‘what about X?’ establishes the topical role of the element X in the answer. As can be seen from (14b), the topical possessor must trigger possessive agreement and therefore is characterized as peripheral. Consider now (15).

⁶ Under the DP analysis this position can correspond to the Spec DP, as in fact was suggested by Szabolsci (1987, 1994, and other works) for Hungarian, a language distantly related to Nenets, where a similar, though not identical, situation is observed. Alternatively, it may be associated with a functional projection on its own or adjoined to a minimal NP.

- (15) a. Whose ribbon is big?
 b. tyuku° nye ngöcyeki-h bantø / *bant°-da ngarka
 this woman child-GEN ribbon / ribbon-3SG big
 ‘This girl’s ribbon is big’

The context (15a) ensures that the possessor in (15b) cannot be interpreted topically. In fact, it has a focus function. In this situation possessive agreement and therefore the peripheral possessor are ungrammatical. So when the possessor is peripheral, it has some kind of discourse marked function comparable to topic, rather than an argument possessor function.⁷ This is expected if the possessive affix is pronominal. The relationship between the two can be characterized as a non-local anaphoric agreement.

Crucially, it is exactly in this situation when the modifier-head Person concord can occur. First, we have seen in (11) that with lexical possessors a possessive affix on the modifier is available when there is a possessive affix on the head. As I have just argued, the agreeing lexical possessor is peripheral. Second, agreement does not disambiguate between the regular and peripheral pronominal possessors. However, (16) demonstrates that possessive concord depends on the position of the possessor.

- (16) a. pidø° tyuku° serako / serako-r° te-r°
 you this white / white-2SG reindeer-2SG
 b. tyuku° pidø° serako / *serako-r° te-r°
 this you white / white-2SG reindeer-2SG
 ‘this white reindeer of yours’

In (16a) the possessor precedes the determiner and so is peripheral. The pronominal possessive affix stands in a non-local configuration with its antecedent. In this situation the possessive concord on the modifier is available. In contrast, in (16b) the regular possessor follows the determiner and therefore must be in the local specifier position. It satisfies the argument requirement, while the possessive affix is simply a grammatical agreement marker. Possessive concord is here ungrammatical.

This data shows that possessive concord correlates with the pronominal interpretation of possessive affixes on the head noun, which satisfy its possessor requirement. The possessor is either absent or structurally non-local to the head and has a non-governable discourse function. So if possessive affixes are present both on the possessed noun and its modifier, their status is different. In the former case they are incorporated pronouns, while in the latter case they are simply affixes of grammatical concord.

⁷ It should be noted that in some cases the NP-internal peripheral possessor is an unlikely clausal topic. Instead it is interpreted as an element prominent in the interpretation of the respective NP. That is, its discourse status is still marked compared to the regular possessor. I will not address such cases here (more discussion on this can be found in Nikolaeva, *forthc.*), but they seem to demonstrate that the inventory of discourse functions is larger than was originally thought, cf. more recent LFG publications, for example, Butt & King (1996).

3.2 Index-to-Concord Principle

If possessive affixes on the head are analyzed as incorporated pronouns, we are dealing with a kind of mismatch between morphology and function. On the one hand, possessive affixes are pronouns and therefore have referential indices. For example, the incorporated pronoun *-r^o* in the word *ter^o* in (4) has the features [PERS 2, NUM sg] in its INDEX anchored to the addressee of the respective utterance. On the other hand, they are bound morphemes. The lexical rule of possessive formation creates a complex morphological object where two entities each with its own set of INDEX features are combined within one morphological word. A noun associated with a referent cannot have multiple INDEX values, since referential indices are reflections of the anchoring conditions. As we have seen, the INDEX of the NP comes from the INDEX of its head noun rather than the incorporated pronoun.

I therefore suggest that the INDEX features of incorporated pronouns are specified in the head noun's CONCORD attribute. CONCORD is a pure result of structure sharing and has little, if any, semantic motivation, so stacking several CONCORD features does not lead to a collapse of the semantic interpretation. In principle, this situation should arise each time a single lexical head contains multiple values for distinct arguments, e.g. when a verb agrees with two or more arguments. NP-internally a similar situation is demonstrated by double case constructions, as represented in some languages of Australia. The idea that a single noun can have two or more conflicting values of the CONCORD Case feature has been formalized in Malouf (2000). He suggests a Case Concord Principle that ensures that a dependent NP copies the Case of the head, so that its Case value consists minimally of the Case value of its head and another locally assigned Case. The Case Realization Principle then maps the morphosyntactic Case feature onto a morphological realization and the resulting word can take more than one Case affix.

The situation in Nenets is partly reminiscent of this in the sense that a noun can carry two conflicting Number features, and they both belong to the attribute CONCORD. This is because CONCORD includes the INDEX of the incorporated possessive pronoun in addition to the Number feature that comes from the head. Since both CONCORD and INDEX make reference to Number, the possessed head noun may have two conflicting values of the Number feature.⁸ For example, the word *tíd^o* in (6) bears the Plural and the 2nd Person Singular CONCORD features. The Plural comes from the CONCORD value of the head, while the 2nd Person Plural comes from the INDEX of the incorporated pronominal. As was shown in (8c), both Number features participate in the NP-internal concord and can be copied on the modifier.

This situation can be represented as a constraint on heads. I will refer to it as the Index-to-Concord Principle and represent it as follows.⁹

$$(17) \left[\begin{array}{c|c} \text{HEAD} & \text{CONCORD [1]} \\ \text{SPR} & \textit{pro} [2] \langle \rangle \end{array} \right] \rightarrow \left[\text{HEAD} \mid \text{CONCORD} \langle [1] \oplus [2] \rangle \right]$$

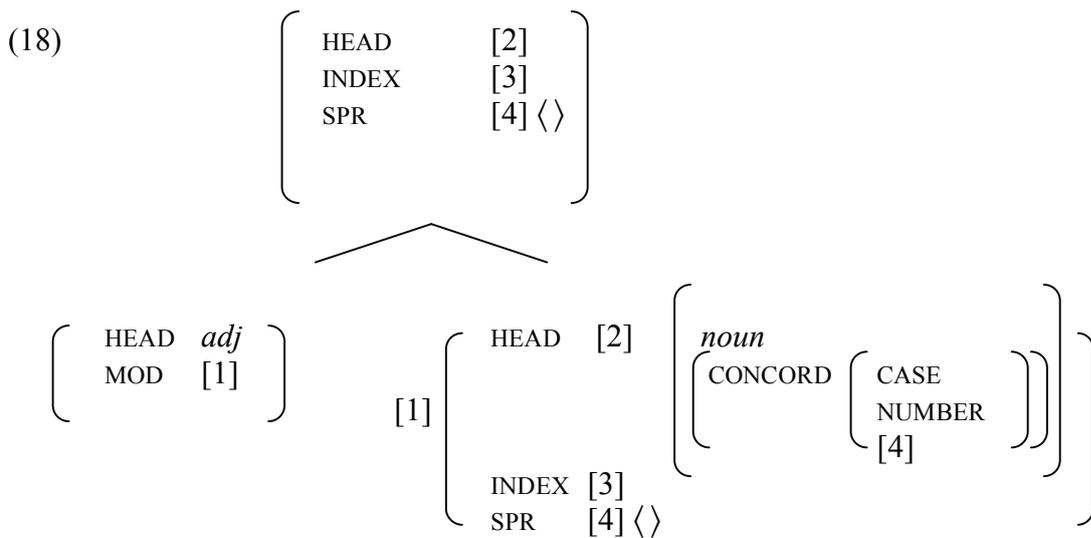
⁸ I assume after Kathol (1999) that non-possessed nouns do not have Person as part of their CONCORD specification.

⁹ I use the list addition sign \oplus to indicate that the value of the CONCORD feature is a list of features: CONCORD values of the head are added to the INDEX values of the dependent, which results in multiple values for the same feature.

This principle ensures that the CONCORD value of the possessed nominal consists of the CONCORD value of the head noun with the addition of INDEX features associated with the specifier. This has two consequences: first, the attribute CONCORD has multiple values for the feature Number; second, it includes the feature Person.

Additionally, the Index-to-Concord principle indicates that the specifier is interpreted pronominally. The pronominal specifier is realized as a bound possessive affix on the head by the morphological spell-out function, as shown in (3). The question of the morphological expression of the stacked CONCORD features is, strictly speaking, independent of the analysis of agreement patterns and therefore is left outside the scope of this paper. I simply assume a list of realizational relationships that obtain between the morphosyntactic characteristics of the head and their cumulative morphological exponence, as described in Salminen (1997). For instance, the combination of the Plural, the 2nd Person Plural and the Nominative Case is realized as the suffix *-d°*.¹⁰

On the proposed account, attributive concord is ensured via the usual mechanism within HPSG. The combination of a noun and its adjectival modifier into a well-formed constituent structure is licensed by the Head-Adjunct Schema which specifies structure-sharing between the head daughter and the MOD value of the adjunct daughter (Pollard & Sag 1994: 56). For Nenets possessed nouns where the adjective shows Person/Number concord with the head it is represented by the following structure.



As indicated in this representation, there is no phrasal specifier. By the lexical rule introduced in (3) the specifier is associated with the possessor argument and is realized as a pronominal affix on the head. The specifier's INDEX is registered in the CONCORD attribute of the head together with the other CONCORD features present in the noun's HEAD field, due to the Index-to-Concord principle (17). As a result, the adjectival modifier shares the value of the stacked CONCORD features of its head.

As follows from this analysis, the Index-to-Concord Principle is applicable to those languages that have head-marked possessives and attributive concord, and where possessive affixes on the head are interpreted pronominally. This combination of

¹⁰ This realization perspective is further developed in Ackerman and Nikolaeva (forthc.).

properties does not seem to be widespread, which may explain why previous research has excluded the possibility of modifier-head Person concord across languages.¹¹

4. Conclusion

The purpose of this paper was to contribute to the cross-linguistic profile of attributive concord. Tundra Nenets provides a counterexample to previous claims that Person never participates in this type of agreement. This is important for two reasons. First, this bears on the more general question of whether agreement can be split into two different relations based on the syntactic domain in which it holds. NP-external and NP-internal (modifier-head) agreement have been said to involve different features: the former cannot be based on Case, while the latter cannot involve Person. However, there are examples of NP-external Case agreement (e.g. Comrie 1997), and the Nenets data cited in this paper shows that NP-internal Person concord is also available. This means that at least with respect to the relevant features no principled difference exists between NP-internal and NP-external agreement.

A noun can bear different (sometimes conflicting) sets of agreement features which participate in different agreement processes referred to as INDEX and CONCORD in recent HPSG publications. Subdividing agreement into these two relations is orthogonal to the question of domains, because at least CONCORD can hold both within an NP and NP-externally. The present treatment has also shown that, contrary to the conventional claims implemented most recently in Weschler & Zlatić (2003), these two types of agreement do not necessarily involve different features: while Case is excluded from the INDEX relation, nothing prevents Person from participating in CONCORD. Thus, syntactic domain, morphosyntactic feature inventories, and the grammatical processes that ensure agreement appear to be independent parameters, although we might be able to talk about some frequent cross-linguistic correlations between them. This conclusion argues for a gradient approach to agreement where the notion of domain plays no essential role (cf. Corbett *forthc.* a, b).

Second, the paper has touched on pronominal incorporation. The modifier-head concord in Nenets involves some features that come from the referential index associated with incorporated pronouns. That is, at first glance incorporated pronouns are fully functionally identical to free standing pronouns in that they seem to be able to function as agreement controllers, in violation of lexicalist assumptions. However, the paper has introduced the Index-to-Concord Principle, which suggests that the referential features of incorporated pronouns are “passed” to the host word and can participate in the concord relation triggered by it.¹² In other words, incorporated pronouns do not control pronominal index agreement, unlike their free standing counterparts.

¹¹ However, Tundra Nenets is not unique. Modifier-head Person concord exists in the related Samoyed languages Nganasan and Enets, but evidence about them is scarce. Outside Samoyed it is attested in Evenki (Tungus), but in this language it is only available on relative clauses. This has some interesting consequences for the analysis, but I leave them for another occasion.

¹² This principle may have a wider application, not necessarily NP-internally. Nenets seems to provide another example: it has a class of adverbials which match in features the pronominal subject agreement affixes on the verb even in the absence of an overt subject.

Abbreviations

ACC – Accusative, DU – Dual, GEN – Genitive, GER – Gerund, NOM – Nominative, PL – Plural, PRET – Preterit, SG – Singular.

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