

Adjective Agreement in Noon: Evidence for a Split Theory of Noun-Modifier Concord*

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1. Introduction

This paper is concerned with the following question: Are all instances of agreement in language derived by the same grammatical mechanism? I approach this question from the point of view of DP-internal head-modifier agreement, henceforth *nominal concord*. In the recent literature, there have been two broad approaches to nominal concord. Many researchers attempt to unify subject-predicate agreement and nominal concord under the umbrella of Agree in the syntax proper (Baker 2008, Carstens 2011, 2013, Danon 2011, Toosarvandani & van Urk 2012). Another position, advocated for recently by Norris (2014), takes concord to operate in the morphological component. His approach splits noun-modifier concord from subject-predicate agreement derived by Agree.

The accounts differ in the details of where the operation that derives nominal concord is located in the grammar and whether or not a single operation is responsible for both subject-predicate agreement and nominal concord. However, they do share a fundamental: all instances of nominal concord are derived by a single grammatical operation, be that Agree or something else.

I show that a view in which all instances of nominal concord are derived by a single mechanism is untenable. I do this by drawing on data from Noon, a Cangin language spoken in Senegal. Adjectives in Noon exhibit two types of agreement with the noun they modify. All adjectives take a concord prefix which reflects the class (gender and number) of the modified noun. In addition to this, a definite suffix occurs on attributive adjectives

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in definite DPs, and marks the deixis and class of the modified noun. This suffix cannot appear on adjectives in prsedicative position.

(1) **Attributive Position: Prefix + Suffix**

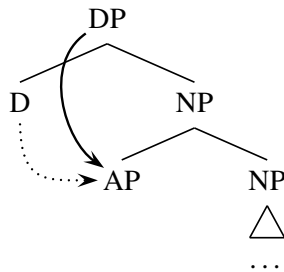
- a. kann-faa *(fi)-yak-*(faa)
 house-2S.DEF 2S-big-2S.DEF
 ‘the big house’

(2) **Predicative Position: Only Prefix**

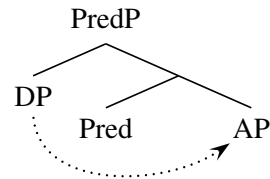
- a. kann-faa Ø *(fi)-yak-(*faa)
 house-2S.DEF COP 2S-big-2S.DEF
 ‘The house is big.’

The crucial observation is that these two types of agreement show an *asymmetrical distribution*. I argue that this is because the two agreement morphemes are subject to different forms of locality. The concord prefix occurs whenever the adjective is *c-commanded* by D(P). The definite suffix only surfaces when it is *dominated* by DP. These configurations are schematized in (3)-(4), where a solid arrow signifies dominance and a dotted arrow signifies c-command:

(3) Attributive:



(4) Predicative:



Because the concord prefix and the definite suffixes are subject to different locality restrictions, a single grammatical operation cannot be responsible for the derivation of both morphemes.

I argue for a split analysis of concord: Two mechanisms of agreement are active in deriving the pattern of nominal concord observed in Noon. Agree, sensitive to c-command, derives the concord prefix. Morphological Feature Copying (Norris 2014), sensitive to dominance, derives the definite suffix. This analysis supports the claim of Norris (2014) in that some instances of nominal concord are derived by an operation other than Agree. I differ from Norris, however, in arguing that some instances of nominal concord are in fact derived by Agree, and that both Agree and Feature Copying are active inside DPs.

The rest of the paper is structured as follows. In section 2, I give background on the Noon DP. Section 3 examines adjectival concord in Noon and develops a split analysis of the two agreement morphemes. Section 4 concludes.

2. The Noon DP

All nouns in Noon belong to a noun class. Class membership is expressed through concord, and not on the noun itself. There are six classes, each of which has a distinct noun class consonant. There are also two plural noun class consonants. The noun class consonant is used in concord morphemes. Singular exponents and plural exponents are paired, so that each singular class corresponded to one of the two plural exponent. The system is summarized in (5)¹:

(5) *Class morphemes*

	Definite		Concord		Animate	
CLASS	SG	PL	SG	PL	SG	PL
1	Ø	c-	w-	c-	y-	b-
2	f-	c-	f-	c-	y-	b-
3	m-	c-	m-	c-		
4	k-	t-	k-	t-	y-	b-
5	p-	t-	p-	t-		
6	j-	t-	j-	t-	y-	b-

Following Carstens (1991) for Bantu, I take ‘class’ to be the feature GENDER on nouns, though for the remainder of the paper, I will refer to it descriptively as ‘class’. The choice of concord exponent is thus conditioned by the features GENDER and NUMBER. I assume that gender is introduced on the nominalizing head *n* following Kramer (2010).

The Noon DP is head initial, as seen in (6). Morphemes expressing the class of the head noun are boxed:

- (6) a. kaan-fi fi-yoox-fi fi-yak-fi fi
house-2S.DEF 2S-red-2S.DEF 1S-big-2S.DEF 2S.DEM
‘this big red house’
- b. tedik-tii taay-tii ti-yak-tii tii
tree.PL-4P.DEF 4P.three-4P.DEF 4P-big-4P.DEF CL4PL.DEM
‘these three big trees.’

Definiteness is marked via a suffix on the head noun, shown in (7). The inventory of definite suffixes is given in (8).

¹There is also a cross cutting animacy distinction. Semantically animate nouns belong to one of basic classes, but concord with these nouns uses the ‘animate’ concord morphemes, which I take to be conditioned by the presence of a feature ANIMATE on these nouns.

- (7) a. kaan-fii
house-2S.DEF
'the house (near me)'
- b. kaan-fum
house-2S.DEF
'the house (near you)'
- c. kaan-faa
house-2S.DEF
'the house (over there)'

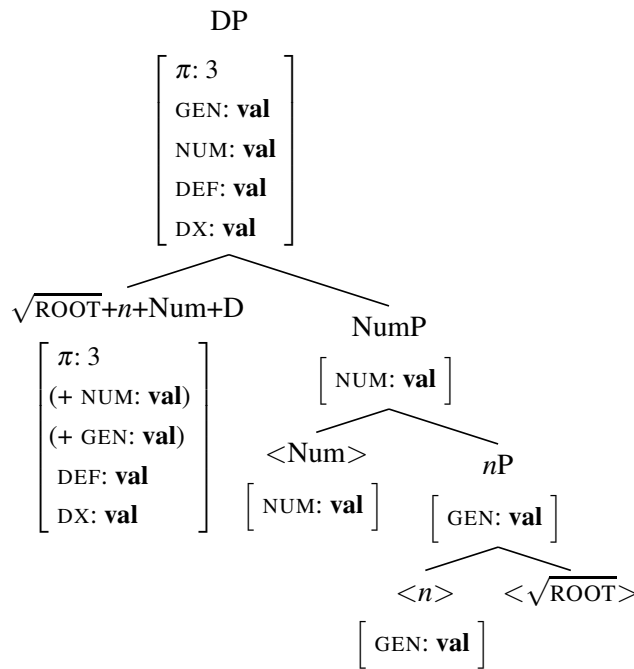
(8) *Definite suffixes*

Deixis	Suffix
Near Speaker	-Cii
Near Addressee	-Cum
Distant	-Caa

The definite suffix is composed of a initial consonant which agrees with the class/number of the head noun and a rhyme that indicates degree of deixis. There are three such rhymes, and therefore three possible definite suffixes for each noun².

The basic structure I assume for the DP in Noon, along with the distribution of nominal ϕ -features inside DP, is given in (9). Nouns are composed of an acategorical root and the categorizing head. Adjective and numerals are adjoined to *n*P and NumP, respectively. The root undergoes head movement through *n* and Num to D. This movement derives the initial word order of the DP. The definite suffix realizes the features that are located at D after this head movement. I assume that all the features of a head are projected to the XP level; for complex heads, all features of constituent heads are projected to the XP level³. This ensures that a complete ϕ -bundle at D and that it is accessible outside of DP.

(9)

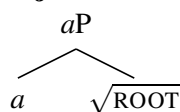


²For issues of space, deixis is not indicated in glosses.

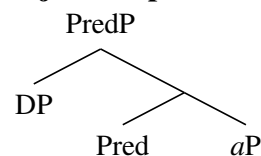
³See Norris (2014) for a detailed account of feature percolation/projection that is line with these principles.

Finally, with regards to adjectives, I assume that they are derived from an acategorical root via the categorizing head *a*. In the syntax, adjectives therefore have the form in (10). I assume that adjectives in predicative position are the complement of the head Pred, as shown in (11). The subject of such a predicate is introduced in Spec-PredP.

(10) **Adjective**



(11) **Adjectival predicate**



Given these background assumptions, I now turn to examining the adjectival concord data from Noon in the next section.

3. Noun-Adjective Agreement in Noon

Adjectives in Noon always agree with the noun they modify for class and number and in certain contexts, for definiteness. Both types of agreement are exhibited in (12)⁴:

- (12) otu-caa ci-seti'-caa ci-yak-caa
 car-1P.DEF 1P-clean-1P.DEF 1P-yak-1P.DEF
 'the big clean cars'

Example (12) shows a definite DP with two attributive adjectives, *seti* 'clean' and *yak* 'big'. Both adjectives have a prefix, *ci-*, which marks the class of the modified noun. I will refer to this prefix as the 'concord prefix'. Both adjectives also have take the suffix *-caa*, which agrees with the class, definiteness and deixis of the head noun. I will refer to this morpheme as the definite suffix.

These two forms of agreement have an asymmetrical distribution. The concord prefix is obligatory on adjectives both in attributive position and in predicative position. On the other hand, the definite suffix is obligatory on attributive adjectives in definite contexts, but is disallowed on adjectives in predicative position. This distribution is shown in (13)-(14):

(13) **Indefinite Nouns**

- a. oomaax *(yi)-jowi'
 child 1AN.S-good
 'a good child'
- b. oomaax Ø *(yi)-jowi'
 child COP 1AN.S-good
 'A child is good.'

⁴As noted in section 2, numerals and demonstratives also agree with the head noun for class/number. Numerals display prefixal and suffixal agreement like adjectives, while demonstratives only show class/number agreement. I will leave these two categories to further work, and focus on adjectives here.

(14) **Definite Nouns**

- a. oomaan-aa yi-jowi'-(*)yaa
 child-1S.DEF 1AN.S-good-1AN.S.DEF
 'the good child'
- b. oomaan-aa Ø yi-jowi'-(*)yaa
 child-1S.DEF COP 1AN.S-good-1AN.S.DEF
 'the child is good'

A summary of the distribution of the distribution of the two types of concord on adjectives is given in (15):

(15) *Distribution of adjectival agreement*

	ATTR	PRED
INDEFINITE	<i>Ci</i> -ADJ	<i>Ci</i> -ADJ
DEFINITE	<i>Ci</i> -ADJ- <i>Cii/aa/um</i>	<i>Ci</i> -ADJ

In the remainder of this section, I develop a split analysis of Noon nominal concord that accounts for the distribution in (15). Section 3.1 provides an analysis of the concord prefix based on Agree. Section 3.2 provides an analysis of the definite suffix based on Feature copying.

3.1 The Concord Prefix

The concord prefix has the form *Ci*-, where *C*- agrees with the class/number of the modified noun. When there are multiple attributive adjectives in the same DP, every adjective must take a concord prefix, as can be seen in (16):

(16) **Concord prefix on multiple attributive adjective**

- a. otu wi-yak wi-seti' wi-séedí'
 car 1S-big 1S-clean 1S-expensive
 'a big, clean, expensive car'
- b. *otu [Ø]-yak wi-seti' wi-séedí'
- c. *otu wi-yak [Ø]-seti' wi-séedí'
- d. *otu wi-yak wi-seti' [Ø]-séedí'
- e. *otu wi-yak [Ø]-seti' [Ø]-séedí'

Omission of or multiple concord prefixes results in ungrammaticality. This suggests that presence of a concord prefix is a condition on the morphological well-formedness of adjectives. This is often the case in languages with nominal concord.

The concord prefix is also obligatory on adjectives in predicative position, regardless of definiteness of the subject DP, as shown in (17):

(17) **Concord prefix on predicate adjective**

- a. otu enee *(wi)-seti'
car COP.PST 1S-clean
'a car was clean'
- b. otu-ii enee *(wi)-seti'
car-1S.DEF COP.PST 1S-clean
'the car was clean'

Again, we see that the concord prefix is a requirement for a morphologically well formed adjective. I take these data to support the conclusion that the concord prefix found on adjectives is agreement with the class of the modified noun.

The question is how the gender/number features of the modified noun that are expressed by the concord prefix end up on the adjective. The operation responsible for the transmission of features must be able to do so in different structural configurations. In attributive position, the adjective is adjoined to *nP*. In predicative position, the adjective is the complement of the head Pred. In both of these positions, the adjective is c-commanded by a node which contains the features under consideration⁵. In attributive position, *aP* is c-commanded by D, and in predicative position, *aP* is c-commanded by DP.

Since Chomsky (2000), agreement has been assumed to be derived by the operation Agree, in which a probe, with unvalued features, enters into a relationship with a goal, with valued features. By way of this relationship, the value of the goal's features are transferred to the probe. Agree is sensitive to c-command: in most formulations, the probe must c-command the goal.

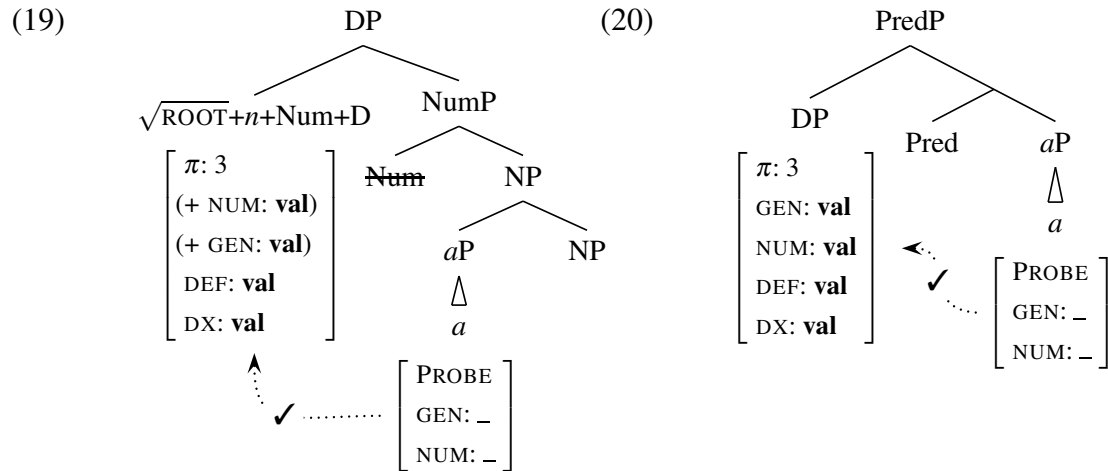
However, the head *a* does not c-command the source of valued features (D or DP, respectively) in either of the relevant configurations. Therefore, I will adopt the slightly modified version of Agree in (18), adapted from Baker (2008) and Toosarvandani & van Urk (2012):

(18) **Bidirectional Agree:**

A probe with an unvalued feature F on head H with Agrees with a goal G with a valued feature F only if H c-commands G or G c-commands H.

With (18) in mind, we are in a position to analyze the concord prefix as a reflex a probe-goal relationship in the syntax. I propose that the concord prefix on adjectives is derived in the following way: All *a* are merged with a syntactic probe unvalued for GENDER features and NUMBER features. In the case of attributive adjectives, this probe will find matching features on the complex D, as shown in (19):

⁵See (3) and (4) for schematic representation of these environments.



In the case of predicate adjectives, the probe again finds matching features on the DP in subject position. These features c-command the probe in the complement of Pred. This configuration is shown in (20).

Given Bidirectional Agree, the probe on *a* will always be in the correct structural relation with the GENDER and NUMBER features on D or DP to enter into Agree with those features. Thus, the probe on *a* will always be valued.

3.2 The Definite Suffix

The definite suffix on adjectives is identical to the determiner (suffix) on the head noun. In both cases the suffix is composed of an initial consonant marking the class of the head noun and a rhyme which marks one of three degrees of deixis.

There is good evidence that the definite suffix on adjectives is a form of agreement, and not recursion of a D head or close apposition of multiple DPs. Both approaches have been applied to Greek polydefinites, another type of multiple definiteness marking in DP (Alexiadou & Wilder 1998 and Lekakou & Szendroi 2011, respectively). Thus, it is important to establish that such an analysis is not available for Noon.

The first argument favoring the agreement analysis comes from the fact that the suffix is obligatory on all adjectives in a definite DP:

- (21)
- a. baay-faa fi-jowi'-faa fi-yaak-faa
dog-2S.DEF 2S-good-2S.DEF 2S-big-2S.DEF
'the good big dog'
 - b. baay-faa fi-jowi'-∅ fi-yaak-faa
 - c. baay-faa fi-jowi'-faa fi-yaak-∅
 - d. baay-faa fi-jowi'-∅ fi-yaak-∅

If the suffix were actually a determiner, we might expect there to be a semantic effect of omitting one or more of the suffixes. This is not the case; omission of even one definite suffix leads to ungrammaticality.

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The second argument comes from the fact that a definite suffix on an adjective alone does not give rise to a definite interpretation of the DP. In fact, it is ungrammatical to have a definite suffix on an adjective in an indefinite DP, as shown in (22):

- (22) a. baay-faa fi-suus-faa
 dog-2S.DEF 2S-black-2S.DEF
 ‘the black dog’
 b. *baay fi-suus-faa
 dog 2S-black-2S.DEF
 Intended: ‘the black dog’

Finally, the deixis features on the adjectival definite suffix must match the deixis features on the head noun exactly.

- (23) a. *baay-faa fi-suus-fii
 dog-2S.DEF 2S-black-2S.DEF
 Intended: ‘the black dog’
 b. *baay-fii fi-suus-faa
 dog-2S.DEF 2S-black-2S.DEF
 Intended: ‘the black dog’

Again, if the definite suffix on adjectives were its own D head, we might expect a semantic effect from mixing deixis features. Instead, non-matching deixis features are ungrammatical. Taken together, the data in (21)-(23) rule out an analysis of the definite suffix on adjectives as recursion of a D or close apposition of multiple DPs, and direct us towards an agreement approach.

Furthermore, the definite suffix on adjectives should not be analyzed as a type of *ezafe* or linker construction. This is because it only occurs on adjectives and numerals. No other nominal modifier, such as possessors or PP modifiers, takes the definite suffix in a definite DP:

- (24) a. *baay-fi-n [Kodu]_{POSS}-fii
 dog-2S.DEF-POSS Kodu-2S.DEF
 Intended: ‘Kodu’s dog’.
 b. *kaan-fii [ga Caañaak]-fii
 house-2S.DEF [PP P.LOC Thies]-2S.DEF
 Intended: ‘the house in Thies’.

If the definite suffix on adjectives were a type of predication linker required in nominal modification structures, as argued by Den Dikken & Singhapreecha (2004) for *ezafe* constructions, we would expect to find it with all types of nominal modifiers, not just a subset.

Taken together, these facts, I argue, strongly privilege the analysis of the definite suffix

on adjectives as *definiteness agreement* with the head noun. As we have already seen above, however, definiteness agreement is *disallowed* when an adjective is in predicative position (see (14), above). This makes the distribution of definiteness agreement strikingly different from the distribution of the concord prefix, which is always obligatory in both attributive and predicative positions, as we saw in section 3.1.

The question is why the features that are realized by the definite suffix cannot be transmitted to the adjective when it is in predicate position, but those features are successfully transmitted when the adjective is attributive. The generalization is that the definiteness suffix only surfaces when the relevant features dominate *aP*. Attributive adjectives are contained within DP, and therefore DP dominates *aP*. DP does not dominate *aP* when *aP* is the complement of Pred, and therefore the definiteness suffix cannot appear⁶.

I adopt the analysis of concord developed by Norris (2014), in which nominal concord is a post-syntactic operation. I propose that the definite suffix on adjectives is an AGR-node inserted onto *a* in the morphological component. AGR-node insertion is triggered by lexical categories, here taken to be *a*, *v* and *n*, and is governed by a rule like (25)⁷. The AGR-node enters the morphology unvalued for certain features. The AGR-node for *a* in Noon carries unvalued GENDER, NUMBER, DEFINITENESS and DEIXIS features, as shown in (26):

- (25) **AGR-node insertion:**
 $[X \ X] \rightarrow [X \ [X \ X] \ AGR]$
- (26) AGR-node on *a* = $\begin{bmatrix} \text{GEN: } _ \\ \text{NUM: } _ \\ \text{DEF: } _ \\ \text{DX: } _ \end{bmatrix}$

After AGR-node insertion takes place, there is an operation, Feature Copying, that copies the values of dominating, matching features to AGR-nodes in the structure, shown in :

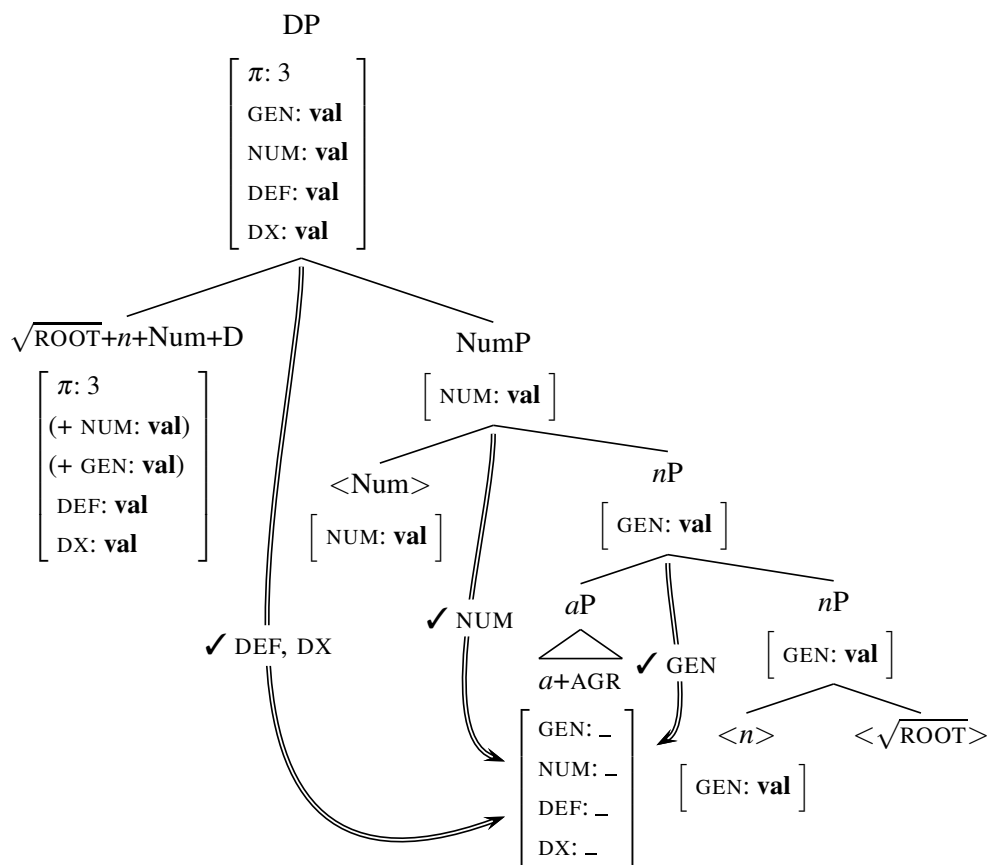
- (27) **Feature Copying** (Norris 2014): For every unvalued feature $[F:_]$ on an AGR-node Z_{AGR} , copy the value from a projection XP iff...
- XP has a value for $[F:_]$ ($[F:\alpha]$)
 - XP includes Z_{AGR}
 - There is no YP such that YP has a value for $[F:_]$, YP dominates Z_{AGR} , and XP dominates YP (i.e., copy the closest value)

The result of this process for an attributive adjective is shown in (28), on the next page.

⁶See (3) and (4) for schematic representation of these environments.

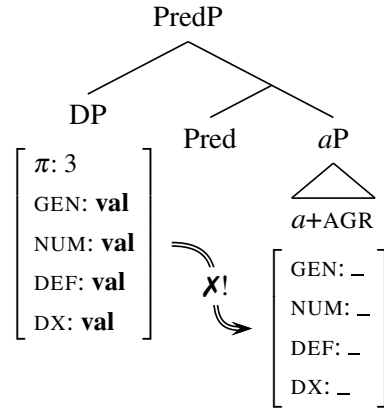
⁷See Kramer (2010) and Norris (2014) for discussion of AGR-node insertion rules of this type.

(28) Feature Copying values AGR-node on *a*



The attributive adjective in (28) is adjoined to *nP*, and is therefore dominated by the features on the *nP*, NumP, and DP nodes. After AGR-node insertion has taken place, Feature Copying copies the values of features from those dominating nodes to the unvalued features on the AGR-node. The labels on the arrows in (28) show where each feature is copied from.

When the adjective is in predicative position, the dominance relation required by (27) is not present, and therefore, no features can be copied to the value-less AGR-node adjoined to *a*. This is shown in (29), on the next page.

(29) **Feature Copying cannot value AGR-node on *a***

The configuration in (29) results in the AGR-node not having any values. I assume that the node is given a *default value* for all its features when this is the case. Here, I will only speculate that the default value for [DEF] is indefinite: [DEF: -]⁸.

I argue that the adjoined AGR-node can only be spelled out when the [DEF] feature is valued as definite: [DEF: +]. If the node is valued as indefinite, [DEF: -], then it is not spelled out. This second outcome occurs when the adjective is in predicative position (via default valuation) or when it is contained in an indefinite DP. Thus, the process of default valuation of the AGR-node ensures that the [DEF] value of AGR-nodes in predicative position are identical to the [DEF] value of AGR-nodes in indefinite DPs.

Crucially, this analysis makes the prediction that we should find phonologically overt indefinite concord on adjectives in predicative in languages that have such concord. This is indeed what we find. In Classical Arabic, adjectival predicates take overt indefinite agreement, even when the subject is definite:

- (30) **al-mu'allim-u** **jadiid-u-n**
 DEF-teacher.MASC.SG-NOM new.MASC.SG-NOM-INDEF
 'The teacher is new.' (Barlow & Ferguson 1988:11)

Thus, crosslinguistic evidence supports the idea that the default value of [DEF] is actually indefinite.

4. Conclusions

In this paper, I have argued that data from the Cangin language Noon provide evidence that a unified account of nominal concord is untenable. There are two forms of agreement on adjectives in Noon that, crucially, are subject to different locality constraints. I have developed an analysis in which there are two grammatical operations responsible for deriving nominal concord. First, Agree is responsible for valuing features in the syntax, and derives the Noon concord prefix. There is another operation, Feature Copying, adopted from Norris (2014), which values features of AGR-nodes in the morphological component. Agree is sensitive to c-command, and Feature Copying to dominance.

⁸I do not take a position on the default values for [GEN], [NUM], and [DX]

If both morphemes were the result a single operation, we would expect a different distribution. Under a unified Agree-based analysis, it would be unclear why the definite suffix does not appear in predicative position. The probe that derives the concord prefix always succeeds in predicative position, and therefore we would also expect the definite suffix to surface in that environment. Under a unified feature copying analysis, we would not expect to see any (non-default) agreement on adjectives in predicative position. This is because neither morpheme would be dominated by matching features, and thus would receive default values.

The data from Noon, therefore, contribute to the ongoing debate in the literature as to whether a single operation, such as Agree, should be deployed to derive all instances of agreement (cf. Chung 2012 and Preminger & Polinsky 2015). The analysis advocated for here leads to a split, non-unified view of agreement in which different instances of agreement within the same utterance may not be derived by the same mechanism, and therefore casts doubt on whether a truly unified account of agreement is possible.

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