Unifying Nominal and Verbal Syntax: Agreement and Feature Realisation[1]

Peter Ackema (University of Edinburgh) and Ad Neeleman (UCL)

1. Introduction

Remarks on Nominalization argues that the parallel syntax of nominal and verbal projections originates in abstract principles that generalise over the two domains. This line of analysis gave rise to the development of X-bar theory (Jackendoff 1977) and the theory of extended projection (Grimshaw 1991). In this chapter we will pursue this theme, but instead of focusing on the internal structure of NP and VP, we will consider agreement phenomena. This is of interest, because it is arguably the case that there are two distinct phenomena, one which appears to be common in the VP and one which appears to be common in the NP. We refer to the two phenomena as agreement and concord, respectively. (For a discussion of terminology, see Corbett 2006:5-7; for an overview of the typology of and approaches to concord, see Norris 2017.)

Agreement is one of the most studied phenomena in Minimalism and its predecessors. While theories differ in details, it is not controversial that agreement is a syntactic dependency, and as such subject to syntactic conditions on such dependencies. It is a relation between two elements that is established under c-command. One of the elements (the controller, or in the terminology of Chomsky 2000 the Goal) carries features that are interpretable, while the other (the target, or in Chomsky's terminology the Probe) carries features that are uninterpretable. Agreement between the verb and an argument is common in TPs.

Many instances of what looks like agreement within DP are difficult to analyse in the same way as verb-argument agreement. Consider (1), which shows that the form of attributive adjectives in German reflects various nominal features, in particular case, gender and number.

(1)   mein klein-**er**   Hund

        my   small-NOM.MASC.SG *dog*(MASC)

        'my small dog'

The features reflected in the adjective originate in multiple positions in the DP. Gender is a lexically determined property of the noun, number is located higher, and case is a property of the entire DP, possibly encoded through a Kase Phrase (Lamontagne and Travis 1987). This implies that concord cannot be modelled as a one-to-one relationship between c-commanding nodes (see Norris 2014). If it is to be modelled in terms of c-command, it must be a many-to-one relationship in the sense that a single element collects features from multiple controllers and realizes these in a single ending. If it is to be modelled as a one-to-one relationship, c-command cannot be maintained, because the only node that plausibly contains all the features reflected in the adjective is the top node of the DP, assuming features in an extended projection percolate. However, the DP dominates, rather than c-commands, the AP.

In this paper, we defend two claims. First, concord is not itself an instance of agreement. Rather, following Norris (2014), we assume that it consists of the spell-out of features of an XP on terminals contained in that XP. These features can be present on XP because they are inherited from one or more heads contained in XP. These heads may have these features because they partake in agreement, or because they are inherent to the head. Second, neither agreement nor concord is unique to the category of the phrase in which it is found (see also Norris 2014:240-243). Following the agenda set in *Remarks*, we argue that both agreement and concord occur in nominal as well as verbal domains. For agreement, this is not a controversial

assumption. We therefore primarily consider concord. We first show, on the basis of examples from the nominal domain, how concord works, and how it is restricted. We then show that various instances of apparently unusual agreement in TP, such as agreement in which adverbs are targets, are better analysed as straightforward cases of concord. No conditions on concord specific to TP are required for this. Hence, the general syntax of agreement and concord does not need to refer to nominal or verbal status.

2. Concord in the nominal extended projection

2.1 How concord works

Unquestionably, there are instances of agreement within DPs. It is common, for example, for a possessor to agree with the head of the DP (the possessum) (see, for example, Corbett 2006:47). There are other instances where the form of one element in the DP depends on the features of another, but where an agreement analysis seems less plausible. A straightforward example is provided by Bantu. Modifiers in Bantu DPs are marked for the noun class of the head noun, as in the following Swahili example (Welmers 1973:171, cited from Corbett 2006:87):

(2)   **ki**-kapu **ki**-bubwa **ki**-moja ki-li-anguka

        *7-basket 7-large   7-one   7-*PST-*fall*

        'one large basket fell.'

The head noun carries an overt class marker, here for class 7. The appearance of the same class marker on the verb is plausibly the result of agreement. The appearance of class markers on the adjective and the numeral could in principle also be accounted for through agreement (see Carstens 2000 for a proposal). However, an alternative account could be based on the assumption that the class feature of the noun is inherited by DP and spelled out on all modifiers within it.

Typically, features located on a maximal projection cannot be spelled out on that maximal projection itself. With few exceptions, affixes require morphological hosts that are words rather than phrases. We postulate that categories within a maximal projection can be recruited as hosts for features of that maximal projection. In this, we essentially follow the analysis of concord in Norris 2014, although some of the analytical details below are different.

The general idea is stated in (3i). The additional rule in (3ii) is necessary because some hosts are themselves maximal projections.
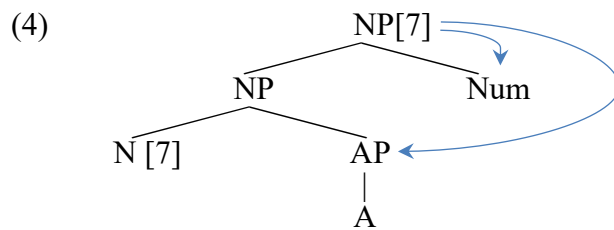
(3)   i. γ is a potential host for the spell-out of the features on an extended projection XP if γ is dominated by XP and there is no extended projection YP such that XP dominates YP and YP dominates γ.

     ii. If γ is a host for spell-out of features on a dominating category and γ is an extended maximal projection, then spell-out is on the lexical head of γ.

We use the term 'potential host' in (3i), because not all elements dominated by XP may be able to morphologically combine with an affix that realises a particular feature of XP.

Concord as in (3) could indeed explain the appearance of class markers on Bantu modifiers. The class feature of the noun is inherited by its (extended) maximal projection, the DP. (Inheritance of features by dominating nodes within an extended projection is a basic mechanism of syntax, also used to express headedness at least since *Remarks*.) In accordance with (3i), potential hosts for the realization of this feature are demonstratives, numerals, and attributive APs. Bantu languages are morphologically rich in that all these potential hosts are actual hosts. Therefore, class markers are found on demonstratives, and numerals.[2] Given (3ii), a class marker should also be attached to the head of AP, though not to any other elements within AP. This seems a fair description of the Bantu data (see Mpofu 2009:120 for an example

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[2] We assume here that, like demonstratives, numerals have no internal structure. However, if they head a NumP modifier or specifier within DP, we would still expect a class marker to be attached to the head of this NumP.

showing the lack of a class marker on adverbials within AP). If there is more than one AP, a class marker shows up on all adjectives. This indicates that concord is subject to a maximalization principle, according to which every suitable host must realize relevant features of the dominating category. (Maximal realization is a general property of inflection; Schütze 1997, Ackema and Neeleman 2018). Thus, concord results in the class feature of the noun being reflected on terminals contained within the DP, as in (4).

(4)

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                    NP[7]
              ┌───────┴───────┐
             NP               Num
          ┌───┴───┐
        N [7]      AP
                   │
                   A
```

An argument in favour of a concord analysis rather than an agreement analysis for the Bantu data can be based on an observation by Carstens (2000:334). She notes that prepositions carry class markers reflecting the class of the head noun of the DP within which the PP is contained, rather than the class of the preposition's complement noun:

(5) a. *ki-ti   **w**-a m-toto

         7-*chair* 1-*of* 1-*child*

     b. ki-ti   **ch**-a m-toto

        7-*chair* 7-*of* 1-*child*

        'the child's chair'

Given (3i), PP is another potential host for the class features present on the dominating DP, and therefore, as per (3ii), these features can be spelled out on the head of PP. As the preposition's complement DP does not dominate PP, the features of this DP cannot be realized on P.

Having introduced the basic workings of concord, let us consider some more intricate cases of this phenomenon within DP.

2.2 Concord in the Dutch DP

Attributive adjectives in Dutch show one of two inflectional forms: they either carry a *–e* (schwa) ending, or remain bare. Which form appears depends on features present in the DP, in particular gender, number and definiteness: *–e* appears unless the DP is neuter, singular and indefinite (Kester 1996:94ff). The form of the definite determiner, too, is sensitive to these features. It is realized as *de*, unless the DP is neuter and singular, in which case it is *het*.

We assume that φ-features are privative, so what is seen as the negative value in a binary feature system is really the absence of the feature altogether. In particular, singular is the absence of number, neuter is the absence of gender, and indefinite is the absence of definiteness (see Ackema and Neeleman 2018 on number and gender and Lyons 1999 on definiteness). If so, the morphology of attributive adjectives in Dutch can be described with a simple generalization: if and only if the DP contains any feature from the set {Definite, Gender, Plural}, the adjective carries a schwa ending; if not, the adjective remains uninflected. Similarly, the definite determiner *de* is used when either of the features in the set {Gender, Plural} is present; otherwise, *het* is used. (Non-neuter Dutch R-expressions do not divide into masculine and feminine subsets; hence, all non-neuters are said to have common gender).

These generalizations pose a theoretical problem. In effect, they express disjunctions in the feature specification of particular morphemes. However, disjunction in feature specification is arguably undesirable, because it leads to a situation in which no contentful theory about patterns in syncretism can be developed (Blevins 1995, Ackema 2001). A theory of the morphology of Dutch prenominal determiners and adjectives in which this morphology results from concord rather than agreement can avoid this problem, as we will now argue.

Let us define a notion of a 'marked domain' for a category:

(6)   XP is a marked domain for a category γ if γ is a potential host for the features on XP

        and XP has one or more features absent in γ.

This definition expresses that spell-out can be sensitive to whether or not the host has a feature of the same type as the feature on XP that it acts as a host for.

     We can now capture the Dutch data with the following spell-out rules. First, the form of the definite determiner can be computed with the following two rules:[3]

(7)   a. D ↔ /het/

        b. D ↔ /de/ iff DP is a marked domain for D

Definiteness is inherent in the definite determiner. Therefore, whether or not DP is a marked domain for D does not depend on the presence of definiteness on DP, but only on the presence of gender (GND) and/or number (PL), these not being features of the determiner (see (3) and (6)). Consequently, the determiner is realised as *de* if the DP is non-neuter, plural, or both:

(8)

	–	PL
–	*het*	*de*
GND	*de*	*de*

Let's now turn to attributive adjectives. Whether these carry *–e* depends on whether the DP is a marked domain for AP. Given that AP does not have definiteness, gender or number features, the DP is a marked domain unless it lacks any of these features and is therefore indefinite neuter singular. The following spell-out rule expresses this:[4]

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[3] For reasons of space, we cannot discuss the structural position and spell-out rules for indefinite determiners here.
[4] Note that this rule does not specifically mention adjectives. Indeed, any attributive modifier is inflected with *–e* in the context mentioned in the rule. Infinitives in attributive position are a case in point:

(i)   de te gan-**e**   weg
        the to go-INFL *way*
        'the road to be travelled'

However, the determiner does not get the inflectional schwa, as clearly shown by its absence on neuter *het*; this is why the rule in (9) mentions NP as its domain.

(9)   /X/ → /X/+/e/ if X is contained in NP and DP is a marked domain for XP

The following table gives the distribution of the attributive schwa, and shows that it is indeed present except when the DP is neuter, singular and indefinite (DEF stands for definite, PL for plural and GND for gender.)

(10)

			−		DEF	
		−	PL		−	PL
−	een groot paard	grote paarden		**het** grote paard	**de** grote paarden	
	a big horse	*big horses*		*the big horse*	*the big horses*	
GND	een grote koe	grote koeien		**de** grote koe	**de** grote koeien	
	a big cow	*big cows*		*the big cow*	*the big cows*	

The concord relations within the Dutch DP are depicted in (11) for a definite singular DP with a common gender noun.

(11)
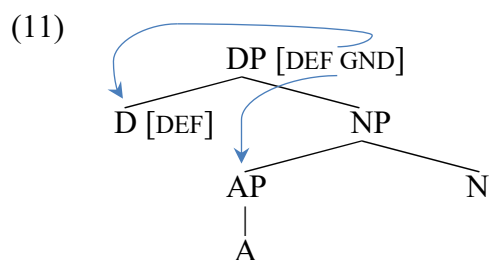
In short, a concord analysis of the morphology of Dutch determiners and attributive adjectives is straightforward once we accept the notion of marked domain. We think it also solves the problem that the data pose with respect to the desired ban on a disjunctive specification of morphemes. The definition of marked domain in effect describes a disjunction, as it mentions a surplus of one or more features (from a set relevant to a potential host). However, marked domains are contained in the context of the spell-out rules in (7) and (9), rather than in their input. As long as disjunctions are contained in the context of spell-out rules, the problems pointed out in Blevins 1995 and Ackema 2001 do not present themselves.[5]

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[5] There are other cases where it is desirable for a spell-out rule to contain a variable over features in its context (Halle and Marantz 1993:151, Ackema and Neeleman 2018:267-268).

There is a proviso to this solution. In principle, a spell-out rule that contains a disjunction in its input can easily be reformulated as a spell-out rule that contains the disjunction in its context: (12a) and (12b) appear to be equivalent. Both rules express that both the feature combination F_1+F_2 and the feature combination F_1+F_3 are realized as /aaa/.

(12) a. $[F_1\ F_2] \vee [F_1\ F_3] \leftrightarrow$ /aaa/

 b. $[F_1] \leftrightarrow$ /aaa/ / $[\_\_F_2] \vee [\_\_F_3]$

In order to avoid this confound, we must assume that for a spell-out rule to apply, no features present in the element to be spelled out may appear in the context of the rule (instead of in its input). This is precisely the difference between a concord analysis and an agreement analysis of the Dutch data. In the concord analysis, what is spelled out are just D and A. The rules that insert the forms are sensitive to the presence of features in the context (the dominating DP). In an agreement analysis, however, the adjective acquires all relevant features through feature sharing or copying. As a consequence, that analysis requires a spell-out rule for the Dutch adjectival agreement that has a disjunctive input.

One possible way out of this problem for the agreement analysis is through the use of elsewhere forms. The disjunctive feature specification required for *-e* could be avoided by designating this morpheme as an elsewhere form. This would work if the null form were a more specific form. Such a set up is incompatible with the above assumptions about features, as the adjectival zero ending expresses the absence of features and therefore cannot possibly be more specific than any other form. However, if one assumes binary, rather than privative, features, it is possible to formulate a spell-out rule for the null form that is formally more specific than the rule that introduces *-e*:

(13) a. [-DEF, -GND, -PL] $\leftrightarrow \varnothing$

 b. elsewhere: /e/

The rule in (13b) functions as an elsewhere rule because its input is less specified than the input of (13a). However, what is supposed to function as the most highly specified form in the elsewhere-based competition has only negative feature values. This analysis therefore comes at the cost of divorcing elsewhere argumentation from markedness, as there is strong evidence that the positive values of these features are the marked values. Hence, what is formally the most highly specified form is, in fact, the least marked form by standard measures of markedness.

2.3 Concord in the German DP

We now turn to a more complex case of concord in the nominal domain, namely inflection on prenominal elements in the German DP. German has an intricate system of concord. For a start, it is necessary to distinguish 'strong' and 'weak' inflection. Weak inflection is comparable to the inflection we described for Dutch: it only marks whether the dominating category counts as a marked domain for AP and/or N. Strong inflection expresses the combined feature content of DP, the relevant features being gender, number and case. German has three genders, namely neuter, masculine and feminine, which we analyse as absence of gender features, GND and GND-FEM, respectively. (Nothing hinges on the marked status of feminine as compared to masculine. It is motivated by the fact that masculine behaves as a default in certain contexts). As for case, we assume that the absence of features corresponds to nominative (Falk 1991, Neeleman and Weerman 1999). For the other cases, it suffices to assume that they have some featural content, which we designate with traditional labels, leaving open the possibility that the feature structure is more fine-grained (Caha 2013). We now show how the data can be accounted for with an analysis in terms of concord.

In most cases, the two types of inflection interact. We start by discussing the distribution of strong inflection, as the distribution of weak inflection depends on this. German has a set of spell-out rules for strong inflection, given in (14).

(14) a. [DAT GND-FEM] ↔ /r/   e. [GND-FEM] ↔ /i/   i. [DAT] ↔ /m/

      b. [GEN GND-FEM] ↔ /r/   f. [DAT PL] ↔ /n/   j. [GEN] ↔ /s/

      c. [ACC GND] ↔ /n/   g. [GEN PL] ↔ /r/   k. [PL] ↔ /i/

      d. [DAT GND] ↔ /m/   h. [GND] ↔ /r/   l. ∅ ↔ /s/

In contrast to Dutch, German attributive adjectives show a schwa-ending regardless of the features in DP. This schwa could be incorporated in the inflectional endings in (14), but it may be more insightful to regard it as the overt realisation of an operator that turns adjectives into attributive expressions (the *Join* operator of Partee 1986; see also Truswell 2004). Finally, D is realized as /dV/, with some variation in the realization of the vowel that we cannot discuss here.

To capture the distribution of strong inflection, two domains must be distinguished, namely DP and NP. There is a preference for spelling out strong inflection on one or more hosts in the higher domain, the DP. This leads to realization on D, and/or on N as the head of NP (note that NP is part of the DP domain) (see (16)-(18), (20) and (23a) below). If neither D nor N permits morphological realization of strong inflection, then realization within the lower domain, the NP, is attempted. This will lead to spell-out on A (as the head of AP) (see (21) and (23b)). If morphological realization of strong inflection is still not possible, in particular because there is no AP, no suffix is inserted.

The spell-out rule for weak inflection is as in (15), where X is a variable over morphological hosts.

(15)   /X/ → /X/+/n/ if X is contained in NP and DP is a marked domain for XP

This rule is similar to the rule for attributive inflection in Dutch (see (9)). However, there is a difference between the two languages regarding the features that define a marked domain. In German, these are limited to case and number, whereas in Dutch definiteness, number and gender are relevant (Dutch lacks case).

The distribution of weak inflection follows two generalizations: (i) whenever strong inflection is realized in the DP domain (so on D and/or N), weak inflection appears in the NP domain (see for instance (16)-(18), (20) and (23a)); (ii) whenever strong inflection is realized in the NP domain, weak inflection does not normally appear (see (21) and (23b)). We can make sense of these generalizations if the rules for both weak and strong inflection are obligatory where applicable, but on morphological hosts that permit only one affix, strong inflection overrules weak inflection. There is one specific set of hosts that permit multiple affixation and show both weak and strong inflection.

These generalizations depend on whether or not particular heads are possible hosts for strong inflection. This is an arbitrary morphological property of the relevant heads. The definite determiner can carry strong inflection. The indefinite determiner *ein* and possessors containing this form (*mein* 'my', *dein* 'your', *sein* 'his') can carry strong inflection except in the masculine nominative singular and the neuter nominative and accusative singular.[6] Neither the definite nor the '*ein*'-forms will show weak inflection, as they occur exclusively in the higher (DP) domain. Adjectives can carry strong and weak inflection, but not both together. Nouns, finally, divide into several classes. Regular nouns carry strong inflection when genitive masculine/neuter or dative plural, but in no other circumstances. Weak nouns carry weak but usually not strong inflection. Finally, a subset of weak nouns carry both weak and strong inflection in those contexts where regular nouns show the latter.

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[6] Forms like *einer* 'a-MASC.NOM.SG' do surface in contexts where a null noun is present after the indefinite, as in *Nur einer hat mich verstanden* 'Only one (person) has understood me'. The null noun contains the morphological slot that hosts strong inflection, which subsequently attaches phonologically to *ein* (Murphy 2018).

We now discuss a number of representative examples, starting with definite DPs. Consider (16).

(16)　　de-**m**　　　　nett-e-**n**　　　Mann

　　　　　the-DAT.MASC.SG *kind*-JOIN-INFL *man*

The relevant features on DP are DAT and GND. As expected, the definite determiner carries the strong ending –*m* (see (14d)). The noun *Mann* belongs to the large class that does not carry inflection in this context. Since strong inflection is realized in the higher domain (DP), weak inflection is realized in the lower domain, so ultimately on A. The DP is a marked domain for AP, because it has a Case feature DAT (which the AP lacks). Hence, weak inflection is realized as –*n* (see (15)).

A similar case, but with a nominative DP, is given in (17). Again the determiner carries the strong ending, here -*r* (see (14h)). In this context, however, DP is not a marked domain for AP, as it does not have a Case feature (nominative corresponds to absence of Case). Therefore, (15) does not apply, so no weak –*n* ending appears on A.

(17)　　de-**r**　　　　nett-e　　Mann

　　　　　the-NOM.MASC.SG *kind*-JOIN *man*

Consider next a context in which the noun *Mann* carries strong inflection, for example in the genitive singular. Here, both D and N show a strong ending (-*s*, see (14j)), while weak inflection is realized on A. The latter is realized as –*n* given that the presence of a Case feature yields DP a marked domain for AP.

(18)　　de-**s**　　　　　nett-e-**n**　　　Mann-**es**

　　　　　the-GEN.MASC.SG *kind*-JOIN-INFL *man*-GEN.MASC.SG

For concreteness' sake, we give the structure of this example in (19).

(19)

```
              DP [GEN GND]
         strong
    D ←          → NP      weak
              AP ←      N
              |
              A
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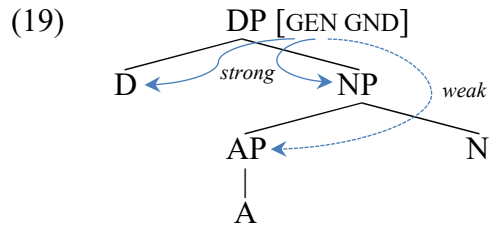
Consider next examples introduced by *ein*-forms. Where the *ein*-form can carry strong inflection, the patterns are identical to the ones with the definite determiner. One such example is given in (20).

(20)   ein-**es**   nett-e-**n**   Mann-**es**

      a-GEN.MASC.SG *kind*-JOIN-INFL *man*-GEN.MASC.SG

However, in contrast to definite determiners, there are contexts in which the *ein*-form cannot carry strong inflection. If the noun cannot do so either, strong inflection can only be realized in the lower domain, hence on any As present. One example of this is given in (21).

(21)   mein klein-e-**r**   Hund

     my   *small*-JOIN-NOM.MASC.SG *dog*

(22)

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              DP [NOM GND]
    D    strong    NP
              → AP        N
              |
              A
```
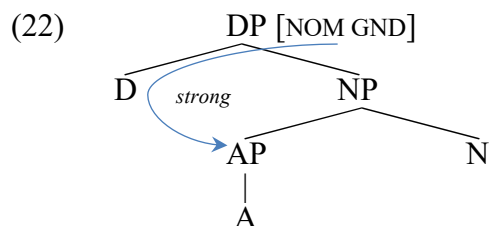
If more than one AP is present, all As carry strong inflection (*mein hübscher kleiner Hund* 'my pretty little dog'). If no prenominal modifier is present, strong inflection remains unrealized (*mein Hund*).

    Consider next cases without any article. As strong inflection cannot be realized on D, what happens depends on whether or not it can be realized on N. If it can, it is realized in the higher domain (recall that NP is part of this), and therefore the adjective in the lower domain will

carry weak inflection, as per (15). If N cannot carry strong inflection, it will be realized in the lower domain, so on A. This is illustrated by (23a,b).

(23) a. heiss-e-**n**   Kaffee-**s**

        hot-JOIN-INFL *coffee*-GEN.MASC.SG

   b. heiss-e-**m**   Kaffee

        hot-JOIN-DAT.MASC.SG *coffee*

Thus far, we have only considered examples with nouns from the large class that cannot carry weak inflection. In (24), the noun belongs to the more limited class that can carry weak (but not strong) inflection. The result is that both A and N will carry weak inflection where D can host strong inflection:

(24)   de-**m**   nett-e-**n**   Student-**en**

        the-DAT.MASC.SG *kind*-JOIN-INFL *student*-INFL

If D cannot carry strong inflection, this is realized on A instead, so we get strong inflection on A and weak inflection on N with this class of nouns:

(25)   ein nett-e-**r**   Student-**en**

        a   *kind*-JOIN-NOM.MASC.SG *student*-INFL

    Finally, we turn to the small group of nouns that can carry strong and weak inflection simultaneously. This is relevant because N has a special status in the system. NP is contained in DP, and hence is a target for concord in the higher domain (realized on N). At the same time, N is contained in NP, the lower domain, and is therefore a potential host for weak inflection. Hence, if DP is a marked domain for NP, so that (15) applies, we see both a strong and a weak ending on nouns of the relevant class:

(26)   de-**s**   froh-e-**n**   Herz-**en-s**

the-GEN.NEUT.SG *joyous*-JOIN-INFL *heart*-INFL-GEN.NEUT.SG

This suffices to illustrate the workings of concord in the German DP. A full account of the entire paradigm would require just one additional type of rule, namely feature impoverishment. This is necessary to account for a handful of systematic syncretisms. In particular, the accusative Case feature is deleted (thereby rendering the accusative identical to a nominative) in the feminine and neuter singulars, and in the plural. Additionally, in the plural all gender features are deleted.

Various agreement analyses of the German data have been proposed (see for instance Leu 2008 and Schoorlemmer 2009). These face specific difficulties (Roehrs 2015), but more generally it appears to us that the data fit better in a concord analysis. This is partly because both weak inflection and strong inflection can 'spread' across multiple elements. Strong inflection can be simultaneously found on determiners and nouns (for example in the masculine genitive singular), as well as on (in principle limitless) sequences of adjectives. Weak inflection also appears on sequences of adjectives, and can also appear simultaneously on adjectives and certain nouns. This indicates that we are dealing with a phenomenon that involves the realization of the features of a node on morphological hosts dominated by that node, rather than with a one-to-one relation between a target and a controller, subject to c-command. A second difficulty for agreement accounts lies in the 'dislocation' of strong agreement, that is, the phenomenon that strong agreement appears on lower elements (adjectives) exactly when there is no suitable higher host. This kind of dislocation cannot be explained syntactically if concord in the higher domain (DP) and concord in the lower domain (NP) are independent agreement relations, as proposed, for example, by Baker (2008). Therefore, it would require a type of spell-out mechanism in addition to the core agreement relations themselves, a mechanism that will have to incorporate many of the assumptions underlying the concord analysis above.

3. Concord in the verbal domain

3.1 Introduction

We have argued that there are reasons to consider some apparent agreement phenomena in the nominal domain as resulting from the spell-out of features present in XP on nodes dominated by that XP. If nominal and verbal syntax are really parallel, we would expect similar phenomena in the TP. In this section we will argue that this does indeed occur. It provides a simple account of some apparently exotic agreement patterns in the verbal domain.

The proposal that this kind of spell-out exists in the verbal domain is not an innovation as such. Round (2013) proposes an analysis of so-called case stacking in Kayardild that in essence invokes a mechanism exactly like this. What is called case stacking involves the morphological realisation of multiple tense, aspect and mood (TAM) markers on DPs in the language. Such features are, of course, not intrinsic to DPs, but are features of verbal projections. Round shows that the Kayardild clause contains several verbal domains, each associated with a particular subset of the TAM features. The features are morphologically realized on constituents contained in the relevant domains, just as in the concord mechanism we have used above. Remarkable about the Kayardild data is that DPs have slots for multiple affixes, with the effect that a low DP will reflect the features of all domains it is contained in, thus giving rise to the 'stacking' effect. The order of morphological markers corresponds transparently to the size of the domains: features associated with a smaller domain appear closer to the nominal base than features associated with a larger domain.

Our proposal is simply an extension of this type of analysis to φ-features in some contexts, following a suggestion in Norris 2014:242-243. φ-features can, of course, be licensed on a verbal head under agreement. If we assume that extended projections share features with their head, we may expect φ-features to be present on TP. This implies that, if there are suitable morphological hosts within the TP, concord will give rise to the realization of φ-features on

constituents not themselves involved in the agreement relation (such as adjuncts and arguments other than the controller). We will now discuss examples of this.

3.2 Single domain concord: Archi

In Archi, absolutive arguments agree with verbs and/or auxiliaries for gender and number (Bond et al. 2016). This instantiates an ordinary agreement relation, with a typical controller (a nominative/absolutive DP) and a typical target (a verbal head). However, other elements can reflect the features of the controller as well. For instance, VP-level adverbs can do this, as illustrated by (27a-c) ((27a) is from Kibrik et al. 1977 via Polinsky 2016:207; (27b) is from Chumakina and Bond 2016:70-71). In these examples, an adverb appears to agree for gender (indicated by Roman numerals) with the absolutive argument.[7]

(27) a. *pro* balah   dit:a<**b**>u   b-erχin.

      trouble(III).SG.ABS *soon*<III.SG> III.SG-*forget*.IPFV

    'One forgets trouble quickly.'

  b. tu-w-mi   is   mišin   allij<**t'**>u

    that-I.SG-SG.ERG IV.SG.1SG.GEN *car*(IV).SG.ABS *for.free*<IV.SG>

    mua-<**r**>-ši   i.

    repair-<IV.SG>-IPFV.CVB IV.SG.*be*.PRS

    'He is repairing my car for free.'

Our account is that the adverb does not actually agree with the absolutive argument. Rather, the absolutive agrees with the verb, which licenses the presence of gender features in the extended projection of the verb. In turn, these features partake in concord. Hence, a constituent within the relevant verbal domain reflects the features of the absolutive argument if it has a

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[7] The reviewers of this chapter ask whether the agreeing elements in question could be DP-internal adjectives (on a par with cases like *the occasional sailor* in English). This is not likely to be a possible analysis, as the relevant adjuncts need not occur adjacent to the absolutive DP, see (29).

morphological slot for them. (The latter property is idiosyncratic; indeed, the adverbs showing 'agreement' are a lexically restricted subset of the class of adverbs in Archi).

In short, an example like (27a) receives the following analysis (where agreement is marked through coindexation):

(28)
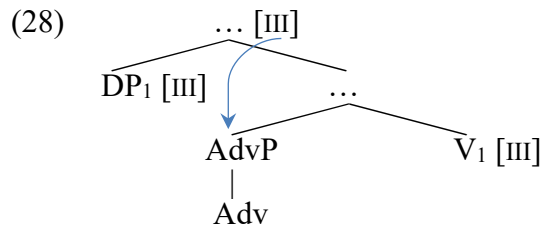
In (27), the apparently agreeing constituents are adverbs, but various other elements in the verb's projection show the same behaviour, including postpositions (as in (29)) and even pronominal co-arguments of the absolutive controller (as in (30)).

(29)   *φ-features of controller realized on a PP* (Bond and Chumakina 2016:73):

goroχči   b-aqˤa   haˤtər-če-qˤa-k   e<**b**>q'en

rolling.stone(III)[SG.ABS] III.SG-*come*.PFV *river*(IV)-SG.OBL-INTER-LAT <III.SG>*up.to*

'The rolling stone went up to the river.'

(30)   *φ-features of controller realized on a co-argument* (Kibrik 1972:124, Kibrik 1994:349

        and Corbett 1991:114-115, cited from Corbett 2006:67)

   a. **b**-ez   dogi   kł'an-ši b-i

     III-1SG.DAT *donkey*(III)[ABS] *like*-CVB III-*is*

     'I like the donkey.'

   b. **w**-ez   dija   kł'an-ši w-i

     I-1SG.DAT *father*(I)[ABS] *like*-CVB I-*is*

     'I like father.'

The examples in (30) indicate that the domain of concord in Archi must include the subject position, and therefore is larger than VP. It is unclear whether it is, in fact, the entire clause or perhaps a domain slightly smaller than that. Polinsky (2016:208) contends that TP-level adverbs do not partake in agreement, giving the example in (31) in evidence. However, the strength of this argument is hard to assess, in view of the fact that, according to Chumakina and Bond (2016:111), only thirteen adverbs out of over three hundred in the language show concord to begin with.

(31)　　*Talaħliš-ijr'u/ejt'u　　　　χˤel　　　　　eχdi-t'aw

　　　　fortunately-II.EMPH/IV.EMPH *rain*.IV.SG.ABS IV.SG.*to.rain*.PFV-CVB.NEG

　　　　da-qˤa.

　　　　II.SG-*come*.PFV

　　　　'Fortunately, I (woman speaking) came back before it rained.'

If our analysis is correct, a remarkable type of concord should be possible. The absolutive argument that is the controller in the agreement relation with the verb, and therefore the ultimate source of the features on VP/TP, is positioned within the VP, and thus within the domain of concord. This means that if it has a morphological slot for φ-features, it could show a form that reflects its own features as a consequence of concord. This apparent agreement of an argument with itself has indeed been observed for Archi by Kibrik 1977, as discussed in Corbett (2006:68). The argument is somewhat complicated. As a starting point, consider the data in (30) again, which show that a co-argument of the absolutive can express the latter's φ-features. In (30), this co-argument is a dative subject pronoun. There is one pronoun that has a slot for concord when it appears in the ergative, namely the first person inclusive:

(32)   nena<**b**>u   χʷalli   a<**b**>u

       1PL.INCL.ERG<III> *bread*(III)[ABS] *made*<III>

       'We (inclusive) made bread.'

In (32), the absolutive argument that acts as controller for the agreement relation with the verb is an R-expression, but of course this controller can be a pronoun as well. If in a transitive construction the absolutive pronoun is a first or second person plural, the apparently agreeing ergative first person plural inclusive pronoun has the form *nent'u*. Consider now what happens in an intransitive clause in which the first person plural inclusive pronoun itself appears in the absolutive. Here, it also shows up in the form *nent'u*, as in (33). For all the other first and second person pronouns (except the first person singular), the absolutive and ergative forms are the same. Given that in the ergative *nent'u* is the form of the first person inclusive pronoun that reflects the features of a first or second person plural pronominal controller, this means that in (33), with the pronoun in the absolutive, the same must be true. So here, too, the form of the pronoun reflects the features of a first or second person pronominal controller. The controller is the argument in the absolutive – which is *nent'u* itself (which is, of course, indeed the type of controller that triggers the observed form; as noted, this form occurs when the controller is first or second person). Hence, we must conclude that the absolutive pronoun shows concord for its own features.

(33)   č'éba χará-ši   baqI'á   nént'u

       let's back-ALL *return*.RFV 1PL.INCL.ABS.1PL

       'Let's go back.'

On our account, the absolutive agrees with just the verb, as usual. The relevant φ-features are inherited by VP. By concord, they are spelled out on morphologically suitable elements dominated by VP; in (33) the absolutive is such an element.

A somewhat related set of data that can also be construed as agreement of an argument with itself involves the Archi emphatic marker *=ejt'u*. This element attaches to the focus of a sentence and has a morphological slot that expresses the features of the absolutive argument, as illustrated in (34) (from Bond and Chumakina 2016:74).

(34)   Gubčit:i   kł'an=ij<**b**>u   b-ez.

         basket(III)[SG.ABS] *want*=EMPH<III.SG>   III.SG-1SG.DAT

         'I only WANT a basket' (I don't NEED it)

If the absolutive argument itself is in focus, the emphatic marker attaches to this argument and expresses its features (see (35), from Bond and Chumakina 2016:74). In other words, an emphatic absolutive argument contains a slot for phi-features in which its own features are expressed.

(35)   Gubčit:i=j<**b**>u   kł'an   b-ez.

         basket(III)[SG.ABS]=EMPH<III.SG>   *want*III.SG-1SG.DAT III.SG-1SG.DAT

         'I want only a BASKET.' (I don't want anything else.)

If the Archi data are to be dealt with through agreement, then the notion of agreement will have to be stretched. The standard view is that agreement instantiates a syntactic dependency between a probing head and one or more phrasal goals. Like other syntactic dependencies, it is established under c-command. If treated as agreement, the Archi data require that the relationship be established between phrases (namely an absolutive DP and adverbials or other DPs). Moreover, c-command cannot be a conditioning factor if absolutive pronouns can indeed reflect their own features.

Alternatively, one could adopt the line of analysis in Polinsky 2016 and Polinsky et al. 2017. On this analysis, the absolutive agrees with a local *v* head. In turn, there is a series of higher *v* heads in the clause, which all agree with the features of the next *v* head lower down.

The features of agreeing co-arguments and adjuncts are not valued directly by the absolutive, but instead by a local v head. While couched in terms of agreement, this theory extends the standard view in permitting heads with unvalued features (Probes) to agree with other such heads. It is, in essence, an implementation of the notion of feature percolation in terms of agreement.

The analysis faces a number of empirical problems. To begin with, we have seen that Archi has a pronoun that appears to agree with itself (see (33)). Polinsky et al. argue, following the standard view in Minimalism, that agreement is a search for missing information. In the Archi case, the missing information is a class feature: agreeing pronouns initially lack such a feature, but are required to have it by the end of the derivation. It goes without saying that the absolutive pronoun that acts as controller, and hence as the source of this feature, cannot simultaneously be the pronoun that lacks this feature.

Second, while the analysis shares properties with the concord analysis suggested here, it is difficult to extend it to the Dutch and German nominal concord data discussed in section 2. Take the Dutch case, which would require that gender and number features travel upward to D and A via some form of agreement with local n heads, while at the same time the Def feature must travel downwards from D to A. This seems to require that the same agreement relation transmits information both upwards and downwards, which is unusual.

Finally, below we will discuss examples from Gujarati in which the features morphologically realised on the head of a lower domain are not those realised on elements that agree with this head (see (38)). This requires that features from a controller in the higher domain are somehow copied onto the lower head, while having to be ignored in the agreement relations in the lower domain itself. Polinsky et al's analysis has no mechanism by which this can be achieved.

In contrast, our analysis posits only a perfectly conventional agreement relation between the verb and the absolutive DP. This is complemented by an extension of the process of concord, as described for the nominal domain in section 2, to φ-features in the verbal domain. Such an extension is to be expected if nominal and verbal syntax are cut from the same cloth.

Rudnev (2019) gives three arguments for treating very similar data in Avar in terms of agreement rather than concord. Rudnev adopts the view that concord is a process by which features of a (nominal) head are realized on elements contained in its maximal projection.

His first argument is based on this assumption: as the agreeing adjuncts, PPs and arguments in languages like Archi and Avar are not part of the absolutive DP whose features they reflect, an analysis in terms of concord within DP is indeed ruled out. However, this leaves unaffected our hypothesis that we are dealing with concord in TP/VP, fed by agreement between V and the absolutive DP.

The fact that the analysis relies on an agreement relation between V and the absolutive DP also answers Rudnev's second argument against a concord analysis. This is that the phenomenon is case-sensitive: the features of absolutive DPs are reflected on other elements, but not those of ergative DPs, for example. Admittedly, such case sensitivity is typical of agreement relations (Bobaljik 2008), but that is not a problem, since concord involves the features on TP/VP that are licensed there through an agreement relation between a DP and the verb. It is this agreement relation that is sensitive to case.

Rudnev's third argument is that the morphological realization of features under what he considers concord (so within DP) differs from the morphological realization of the same features in TP/VP. Thus, the morphological realization of plural on an attributive adjective is -*l*, where as the realization of plural on an adverb and on the verb is -*r*. But such morphological constrasts can be dealt with by the spell-out system and do not depend on the way in which different terminals come to reflect those features. All that is required is that features can be

realized differently in different contexts, something familiar from other types of allomorphy (for example, PL is realised as –*s* on some Dutch nouns but is systematically realised as –*n* on verbs).

3.3 Multiple domains of concord: Archi and Gujarati

The Archi data discussed in section 3.2 involve a single domain for concord. However, when we considered concord in the DP (in section 2), we saw that sometimes it is necessary to distinguish two separate concord domains. We expect this to be true for some cases of concord in the verbal domain as well, if the parallel is to go through. Indeed, in Archi there are constructions that are instances of this. These are constructions with a periphrastic verb form in which there are two absolutive arguments. Bond and Chumakina (2016) discuss which elements reflect the features of which argument in such structures. We cannot go into details here, but the general rule is that there is a smaller domain containing the main verb and the lower absolutive argument and a larger domain containing the auxiliary and the higher absolutive argument. Verbal agreement in each domain is with the local absolutive argument: the main verb agrees with the lower absolutive and the auxiliary with the higher absolutive. Concord follows the expected pattern: in each domain, it is for the features of the local verbal head. Thus, a high adverb indirectly reflects the features of the higher absolutive, while a low adverb indirectly reflects the features of the lower absolutive. Consider the examples in (36), which both contain the adverb 'early'. If this adverb reflects the features of the object, it must have a low interpretation (inside the lower domain), and if it reflects the features of the subject, it must have a high interpretation (inside the higher domain).

(36) a. Pat'i   dit:a<**b**>u   qˤʷib   b-o<r>kɬin-ši

        Pati(II)[SG.ABS] *early*<III.SG> *potato*(III)[SG.ABS] III.SG-<IPFV>*dig*.IPFV-CVB

        d-i

        II.SG-*be*.PRS

        'Pati is digging the potatoes out early' (It is too early for the potatoes to be ready.)

    b. Pat'i   dit:a<**r**>u   qˤʷib   b-o<r>kɬin-ši

        Pati(II)[SG.ABS] *early*<II.SG> *potato*(III)[SG.ABS] III.SG-<IPFV>*dig*.IPFV-CVB

        d-i

        II.SG-*be*.PRS

        'Pati is digging the potatoes out early' (Pati got up early.)

A similar pattern can be observed in Gujarati, albeit with a morphological twist. As described in Woolford 2006, verbal agreement in Gujarati is controlled by nominative/absolutive DPs, or, in the absence of a such a DP in the relevant domain, by "objects with certain features such as specificity [that] are marked with what looks like the dative Case" (Woolford p.311).

    As in Archi, a subset of adverbs have a morphological slot for φ-features. If there is only one possible controller of the verbal agreement, then, unsurprisingly, the adverbs will show the same features as the agreeing verb, on our analysis as a result of concord. Thus, in (37) (from Hook and Joshi 1994) both the main verb and the auxiliary agree with the object 'this job' (as the subject is ergative and hence not accessible for agreement), while the temporal adverb reflects the relevant features through concord.

(37)   chokr-aa-e   kyaar-n-**i**   e   nokri   lidh-i   hat-i

        boy-OBL-ERG *when*-GEN-FEM.SG *this job*(FEM, SG) *taken*-FEM.SG *was*-FEM.SG

        'The boy had taken this job a long time (before).'

However, there are sentences that contain two possible controllers, in particular a non-ergative subject and an object that is either absolute/nominative or carries the dative associated with specificity (see above). We will show that what happens in such cases can be explained if the clause in Gujarati is divided into two distinct concord domains (much as in Archi). That two domains must be distinguished to account for the Gujarati data is not, as such, an innovation of our account; within a Minimalist Probe-Goal model for agreement, Grosz and Patel-Grosz 2014 argue in some detail that in Kutchi Gujarati there are two distinct probes in the clause, one in a high domain (TP) and one in a low domain (vP or perhaps AspectP). (The data in Kutchi Gujarati contrast in some details with those of Standard Gujarati discussed here; see Grosz and Patel-Grosz for discussion).

At first sight, it may not be obvious that it is necessary to distinguish two agreement/concord domains in the Gujarati clause. In (37), both the higher verb (the auxiliary) and the lower one show the same agreement just because there is only one possible controller. But even in clauses that have two potential controllers the lower verb shows the same phi-features as the higher one, with the highest accessible DP (the non-ergative subject) acting as the apparent controller. We contend, however, that the morphology on the lower verb is not the result of agreement with the subject, but rather of concord. After all, the lower domain (VP/vP) is contained within the higher domain (TP), so that its head is a potential host for realisation of the features that TP acquires after agreement between T and subject. The lower verb does, in fact, agree with the DP in the lower domain, but this agreement has no morphological reflex on the verb itself. The verb has only one morphological slot for φ-features, and this is used for concord in Gujarati. Nevertheless, we can see that the lower verb must enter into a local agreement relation with the object, as this relation also feeds concord, but in the VP. Thus, low adverbs that can act as morphological host for φ-features reflect the features of the lower

27

controller rather than the higher one. The result is a structure in which the lower verb reflects a different set of features than the adverbs in its domain (examples from Hook and Joshi 1994):

(38) a. e   aa   gito   saar-**AA**   gaay   che

       he(NOM) *these songs*(NEUT, PL) *well*-NEUT.PL *sing*(3SG) *be*(3SG)

       'He sings these songs well.'

   b. hU   chokri-ne vahel-**i**   jagaaD-t-**o**   hat-o

       I(NOM) *girl*-DAT   *early*-FEM.SG *waken-ing*-MASC.SG *was*-MASC.SG

       'I used to waken the girl early.'

We give a representation of example (38b) in (39).

(39)
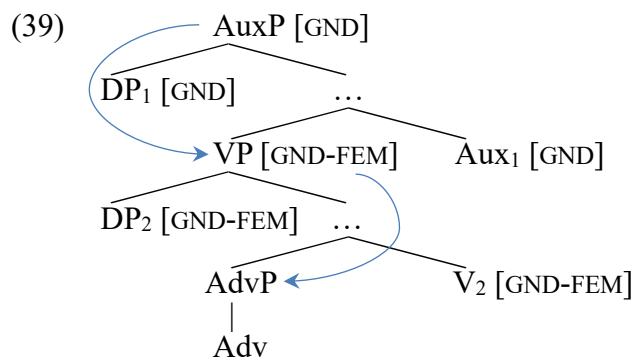
Note that in (38) the adverbs show concord for the features of VP. If there are high adverbs that can act as morphological host for φ-features, we would expect these to reflect the features of the higher controller. This is indeed what happens. Hook and Joshi (1994) provide the example in (40), which contains the same adverb *paach* twice, once with an interpretation compatible with high scope and once with an interpretation compatible with low scope.

(40)   te paach-**o**   copaDio   paach-**i**   laav-vaa   maNDy-o

         he again-MASC.SG *books*(FEM, PL) *back*-FEM.PL *bring*-INF *began*-MASC.SG

         'He began again to bring the books back.'

The lower verb in (40) is an infinitive, which does not have a morphological slot for φ-features. Nevertheless, it must agree with the object: given that the low adverb must acquire its morphological features under concord, the features must be present on VP.

In conclusion, concord works the same way in all extended projections, whether verbal or nominal.

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