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The *Agreement Theta Generalization*

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In this paper, we propose a new generalization concerning the structural relationship between a head that agrees with a DP in φ-features and the predicate that assigns the (first) thematic role to that DP: the *Agreement Theta Generalization* (ATG). According to the ATG, configurations where the thematic-role assigner is located in a higher clause than the agreeing head are categorically excluded. We present empirical evidence for the ATG, discuss its analytical import, and show that this generalization bears directly on the proper modeling of syntactic agreement, as well as the prospects for reducing other syntactic (and syntacto-semantic) dependencies to the same underlying mechanism.

1 Introduction

In this paper, we propose a new generalization concerning the structural relationship between theta assigners and heads showing morpho-phonologically overt phi-feature agreement, when the two interact with the same argument DP. At a first approximation, the generalization can be stated as follows:

(1)   THE *AGREEMENT THETA GENERALIZATION* (first version)
Let ψ be the predicate that assigns a thematic role to a given DP; and let F^0 be a verb or tense/aspect/mood marker that exhibits overt agreement with that DP in phi-features. Then **either:**
a. F^0 and ψ are in the same clause: $[_{\text{Clause}} \ldots F^0 \ldots \psi \ldots]$; **or**
b. F^0 is in a higher clause than ψ: $[_{\text{ClauseA}} \ldots F^0 \ldots [_{\text{ClauseB}} \ldots \psi \ldots] \ldots]$.

What (1) categorically excludes is situations in which the theta assigner, ψ, is located in a higher clause than the agreeing head, F^0:

(2) $*[_{\text{ClauseA}} \ldots \psi \ldots [_{\text{ClauseB}} \ldots F^0 \ldots] \ldots]$

Note that the DP to which ψ assigns a theta role, and which F^0 targets for agreement, is intentionally left out of the diagrams in (1–2); we return to the issue of the possible positions of that DP below.

   Some examples of what (2) would look like, were it possible, are provided by Baker (2008: 75):

(3)   a.   ***Three women** said [that there **seem** that it will rain].
         b.   *I told **three women** [that there **seem** that it will rain].

Baker gives fairly English-specific and construction-specific reasons why (3a–b) are ill-formed. What the current paper aims to show is that the pattern is considerably more general, and that language- and construction-specific explanations do not capture this generality.

We would like to underscore that we do not claim here that (1) holds of all possible instances where features of a particular nominal get transferred to another constituent—be that another DP-internal modifier, a clausemate constituent, or a constituent in a separate clause. The generalization is thus not about *Agree* (Chomsky 2000; 2001), nor about any other theoretical mechanism; it is a generalization about a particular kind of morpho-phonological covariance, and the relationship of that covariance to syntactic and thematic structure.

The distinction between *Agree* and phi-agreement is important because, in recent years, a variety of other phenomena involving correspondence between multiple syntactic elements have been argued to rely on the same underlying mechanism responsible for overt phi-feature agreement between a verb or tense/aspect/mood marker and a nominal argument. These include: nominal concord (Mallen 1997; Carstens 2000; Baker 2008; cf. Norris 2014); negative concord (Zeijlstra 2004; 2008b); modal concord (Zeijlstra 2008a); binding (Kratzer 2009; Reuland 2011; Rooryck & Vanden Wyngaerd 2011); and control (Landau 2000 *et seq.*). We choose to focus on overt phi-agreement between a verb or tense/aspect/mood marker and a nominal argument, because this type of covariance is particularly well defined. Whether our findings in this narrowly-defined domain do or do not end up generalizing to other instances of covariance is one of the factors that should ultimately determine whether these other instances should be reduced to the same underlying mechanism. But thorough consideration of the latter question requires, first, a careful investigation of the nature of each type of covariance unto itself, and it is this type of investigation that we undertake here.

We also need to define what we mean by "clause" (as referenced in (1–2)). For the purposes of this paper, we adopt a standard approach according to which there are three clausal layers: the outer CP layer, the middle TP layer, and the inner *v*P layer; and we focus on phi-agreement realized in the TP and *v*P layers (a choice we will defend in section 4). Any agreement relation that relates a functional head and a DP that are situated in the extended functional projections of different verbs will then be considered cross-clausal, for our current purposes.

Adopting these premises, it is possible to account for some—but not all—restrictions on cross-clausal agreement in terms of restrictions on phases. Baker (2008), for example, places the explanatory burden of such agreement restrictions almost entirely on Chomsky's (2001) *Phase Impenetrability Condition* (PIC). At least three considerations militate against this reliance on the PIC. First, there is no consensus on whether or not all *v*Ps constitute strong phases, with the phasehood of unaccusative *v*Ps being controversial (cf. Legate 2003; Richards 2007a, who argue that all *v*Ps are phases, regardless of transitivity/causativity; and see Gallego 2012 for counterarguments). Meanwhile, the generalization described in this paper cuts across different types of *v*Ps. Second, the literature contains overly many—and overly disparate—assumptions and definitions for phasehood to give the proposal that phases restrict agreement any concrete predictive power. Third, and perhaps most important, phases are poorly suited to capture a structural asymmetry of the kind presented by (1b) and (2); see section 3 for further discussion.

While our primary point here is that (something close to) the generalization in (1) holds of natural languages, we will show that, insofar as this generalization is correct, it has significant theoretical implications. In particular, it casts doubt on theories of agreement

that resort to DOWNWARD VALUATION (that is, transmission of feature values from a structurally higher element to a structurally lower one; see Adger 2003; Merchant 2006; Baker 2008; Merchant 2011; Wurmbrand 2011; Abels 2012; Wurmbrand 2012; Zeijlstra 2012; Bjorkman & Zeijlstra 2014; 2015; Carstens 2016; Bjorkman & Zeijlstra 2019, among others), at least as far as phi-features are concerned.[1] As we will see, this doubt persists whether the theories in question require DOWNWARD VALUATION outright, or merely permit it as an option. (We address more subtle aspects of this point in the Conclusion; see also fn. 11.) The proposed generalization also casts doubt on another family of theories: those that treat morpho-syntactic agreement as a formally symmetric relation.

2 The robust attestation of cross-clausal agreement

It is uncontroversial that DPs are often targeted for agreement by a head located in the same clause where the DP is assigned its thematic role; the scenario in (1a) is therefore unremarkable. Likewise, the scenario in (1b)—i.e., agreement targeting a DP whose theta assigner is located in a subordinate clause—is neither highly exceptional nor exceedingly rare in natural language (see also Polinsky 2003; Preminger & Polinsky 2015). The scenario in question is well attested the Nakh-Dagestanian languages Hinuq, Khwarshi, and Tsez (Forker 2013: 634–638; Khalilova 2009: 383–390; Polinsky & Potsdam 2001); in "substandard" Basque (Etxepare 2006; Preminger 2009); in the Algonquian languages Innu-Aimûn and Passamaquoddy (Branigan & MacKenzie 2002; Bruening 2001); in Icelandic (Sigurðsson 2000; *a.o.*); and possibly in Latin (Haug & Nikitina 2012; Haug 2014; Haug & Nikitina 2015) as well as in Romanian and Greek (Alexiadou et al. 2012).[2] And this list is by no means exhaustive (see Bhatt & Keine 2017 for a recent overview).

Several examples that instantiate (1b) are given in (4–6). Considerations of space preclude us from faithfully reproducing the arguments that each of these cases indeed has the structure in (1b); the reader is referred to the cited works for the relevant argumentation.

(4)   *Tsez* (Polinsky & Potsdam 2001: 606)
    a.   Eni-r   [**uži** ϕ-āy-ru-łi   ] ϕ-iy-xo.
           mother-DAT **boy.I(ABS)** I-arrive-PST.PTCP-NMLZ **I**-know-PRS
           'The mother knows that as for the boy, he arrived.'

    b.   Eni-r   [už-ā   **magalu**   **b**-āc'-ru-łi   ] **b**-iy-xo.
           mother-DAT boy-ERG **bread.III(ABS)** **III**-eat-PST.PTCP-NMLZ **III**-know-PRS
           'The mother knows that as for the bread, the boy ate it.'

(5)   *"substandard" Basque* (Etxepare: 2006: 333)
    [**Harri**   **horiek**   altxa-tze-n   ] probate [d-   **it-**
     stone(s) those$_{\text{PL}}$**(ABS)** lift-NMLZ-LOC attempted 3.ABS- **PL.ABS-**
    u- zte]$_{\text{aux}}$.
    √- 3pl.ERG
    'They have attempted to lift those stones.'

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[1] What we refer to here as DOWNWARD VALUATION has been described elsewhere in the literature in terms of the directionality of the posited search operation (cf. *Upwards Agree*; Zeijlstra 2012; Bjorkman & Zeijlstra 2014; 2015; 2019). We depart from this terminology because we consider it useful to focus on the direction of valuation—allowing us to discuss things at the level of the phenomenon, without committing to one particular mechanism of feature-value transmission over another. See Preminger (2014) for a critique of Chomsky's (2000; 2001) conception of *Agree* that is unrelated to this directionality issue.

[2] The Romanian and Greek data are less conclusive, and may also be accounted for in terms of scrambling under restructuring; see Potsdam & Polinsky (2008) for discussion.

(6)   *Innu-Aimûn* (Branigan & MacKenzie 2002: 389)

      a.   Ni-tshissenim-**âu** [**Pûn** kâ-mûpisht-âshk   *pro*$_2$].
          1-know-**3**   **Paul** PTCP-visited-2/INV
          'I know that Paul visited you.'

      b.   **Tshi**-tshissît-**âtin**   [kâ-uîtshi-shk   *pro*$_{2pl}$ Pûn utâuia].
          2-remember-**1/2pl** PTCP-helped-3/2pl   Paul father
          'I remember that Paul's father helped you.'

In each of the examples in (4–6), an argument DP receives its thematic role from a predicate in the embedded clause, and is agreed with by a syntactic head located in the superordinate clause.

In principle, one could try to explain away such cases by claiming that cross-clausal agreement is illusory, and what is being targeted for agreement is always the embedded clause in its entirety, or some other "mediating" projection (see Polinsky 2003 for the range of possible analyses). While we do not deny that there may be cases that superficially resemble (1b) for which such mediated agreement turns out to be the proper analysis, it has been shown that this is an incorrect analysis for Tsez, some varieties of Basque, or Innu-Aimûn (see Polinsky & Potsdam 2001; Branigan & MacKenzie 2002; Polinsky 2003; Preminger 2009; Preminger & Polinsky 2015; and see, in particular, Preminger 2009: 628–635 on how to empirically distinguish mediated and non-mediated agreement).

To recapitulate, (4–6) are merely a few representative examples of a wider pattern. We therefore conclude that alongside (1a), the configuration in (1b) is also well attested (see also Bhatt & Keine 2017).

3 The typological gap

Recall Baker's (2008: 75) examples, repeated below, of putative cross-clausal agreement where the agreement controller is in a *higher* clause than the agreeing verb:

(3)   a. ***Three women** said [that there **seem** that it will rain].
      b. *I told **three women** [that there **seem** that it will rain].

Baker asserts that such examples are ruled out on independent grounds—namely, Chomsky's (2000; 2001) *Phase Impenetrability Condition*, something already mentioned in passing in section 1. While this may indeed be a sufficient explanation for (3a–b) in particular, it cannot explain the overall absence of instances of (2). That is because, to explain the absence of (2) in terms of the PIC, one would need to assume that an agreeing head cannot be separated from a higher theta-position by a *clause*-boundary without also being separated from that theta-position by a *phase*-boundary:

(7)   NECESSARY ASSUMPTION FOR A Baker 2008-STYLE ACCOUNT OF (2):
      θ-position $\gg$ Clause $\ni$ $F^0{}_{\langle phi\text{-}probe\rangle}$ $\Rightarrow$ θ-position $\gg$ Phase $\ni$ $F^0{}_{\langle phi\text{-}probe\rangle}$
      (where '$\gg$' indicates c-command and '$\ni$' indicates containment)

In other words, if a given theta position is located outside a clause containing the probe F^0, the condition states that there must be at least one phasal category also separating the two. (The highest projection of the clause could serve as the relevant phasal category, or the two could be distinct.)

But this assumption is problematic; at least two very common patterns militate against it.[3] First, if infinitives lack the sort of phasal infrastructure associated with their finite counterparts, the existence of agreeing infinitivals (in Portuguese and certain other Romance dialects: Raposo 1987; Scida 2004; in Hungarian: Tóth 1999; Kiss 2002; and in several Nakh-Dagestanian languages: Gagliardi et al. 2014; Polinsky 2015) is evidence against (7). Second, the existence of A-raising out of finite clauses also argues against (7), on the assumption that movement out of phasal clauses is A-bar movement (see Yoon 2007 on Korean; Kuno 1976 on Japanese; Joseph 1976; Ingria 1981; Alexiadou et al. 2012 on Greek; and Zeller 2006; Halpert & Zeller 2015 on several Bantu languages). Thus, we cannot maintain (7), and so we cannot maintain Baker's account for the absence of configurations like (2) in the general case.

To make things somewhat more concrete, let us illustrate one configuration in which we would have *expected* this kind of agreement to arise, were (2) not systematically excluded. Suppose that the clause containing F^0 is a raising- or ECM-sized infinitive; that the verb contained in this infinitive is an unaccusative verb, whose subject has remained in situ; and that the language in question is one in which infinitives show overt phi-agreement:

(8) $[\ldots \psi \ldots$ **DP**$\ldots [_{\text{non-finite clause}} \ldots$ **F^0** $\ldots$ **V S** $\ldots$ $]]$

If (2) were not systematically excluded, the agreeing infinitive in (8) (or, more accurately, the instance of F^0 inside this infinitival clause) would be able to find—and agree with—a DP argument in a higher clause. This is so even if the DP in question is thematically unrelated to the embedded infinitival clause (as is the case in (8)). The ingredients for this state of affairs (raising-/ECM-sized complement clauses, agreeing infinitives, and in-situ arguments of unaccusatives) are all well-attested. That something like (8) never arises thus constitutes evidence that (2) is a meaningful typological gap.

A similar point can be made by considering Tsez once more. In (9a) and (10a), the embedded verb agrees with the absolutive argument in the embedded clause (*balahyabi* 'troubles.ABS.II.PL' and *uži* 'boy.ABS.I'). We include both a non-finite variant (9) and a nominalized finite variant (10) (on a par with (4)) to ensure that the empirical pattern is not sensitive to finiteness.

Were (2) not categorically excluded, one might expect that, alongside (9a, 10a), we would also find (9b, 10b), where the embedded verb agrees with the absolutive nominal in the superordinate clause (*xiyal* 'wish.ABS.III' or *murad* 'desire.ABS.III'), contrary to fact.

(9)   *Tsez*
       a.   Eniy-ā   xiyal   b-oy-s   [balahyabi
            mother-ERG   wish.ABS.III III-make-PST.EVID   troubles.ABS.II.PL
            r-ay-ā-č'i].
            II-come-INF-NEG
            'Mother wished for nothing bad to happen.' (*lit.*: 'Mother wished for troubles not to come.')

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[3] The same phenomena also cast doubt on "feature-inheritance" (the idea that phi-features are passed down from the phase head to the head of its complement; Richards 2007b; Chomsky 2008, *a.o.*). Beyond conceptual argumentation, the main empirical support for feature-inheritance comes from the same raising and ECM configurations that are at the center of Baker's (2008) discussion, as well as from West Germanic complementizer agreement. (See also Haegeman & Koppen 2012 for arguments that the West Germanic patterns do not provide support for feature-inheritance, after all.)

     b. *Eniy-ā   xiyal   b-oy-s   [balahyabi
         mother-ERG wish.ABS.III III-make-PST.EVID   troubles.ABS.II.PL
         b-ay-ā-č'i].
         III-come-INF-NEG
         Intended: 'Mother wished for nothing bad to happen.' / 'Mother wished for troubles not to come.'

(10)   a. Eniw-s   murad   t'ubazi b-oq-si   [uži   ħurmat
         mother-GEN desire.ABS.III fulfill III-become-PST.EVID boy.ABS.I respected
         yoł-āsi   φ-āq-ru-łi].
         be-PRS.PTCP I-become-PST.PTCP-NMLZ
         'The mother's hope that the boy grow up to be a respected man came true.'

     b. *Eniw-s   murad   t'ubazi b-oq-si   [uži   ħurmat
         mother-GEN desire.ABS.III fulfill III-become-PST.EVID boy.ABS.I respected
         yoł-āsi   **b**-āq-ru-łi].
         be-PRS.PTCP III-become-PST.PTCP-NMLZ
         Intended: 'The mother's hope that the boy grow up to be a respected man came true.'

As with the more abstract (8) above, it is possible that there is some independent factor that rules out (9b)/(10b) in particular. But our point is that nothing like (8), (9b), or (10b) is ever attested, despite the fact that the relevant clausal peripheries are demonstrably permeable to valuation relations. While Polinsky & Potsdam (2001) analyze Long-Distance Agreement (LDA) in Tsez in terms of covert movement of the agreement controller to the edge of the embedded clause, this cannot be maintained as an analysis of all LDA patterns cross-linguistically. Nevertheless, all instances of LDA cross-linguistically are with an argument in a lower clausal domain, never a higher one. (For cases that are superficially Tsez-like but do not lend themselves to a clause-edge analysis of this sort, see Bhatt 2005; Bhatt & Keine 2017 on Hindi, Preminger 2009; 2011b on Basque.) Thus, treating the lack of attestation of anything like (9b) as a series of coincidences—whereby each particular type of example receives its own dedicated explanation—misses an important generalization. It is this generalization that (1) and (2) are meant to capture.[4]

    To recapitulate, we find the following typology (square brackets indicate clause boundaries, ψ a theta assigner, and F^0 a head that agrees with the same DP that ψ theta-marks):

(11)

		attested?
a.	F^0 and ψ are clausemates	✓
b.	[… F^0 … [… ψ …]] (F^0 in higher clause, ψ in embedded clause)	✓
c.	[… ψ … [… F^0 …]] (ψ in higher clause, F^0 in embedded clause)	✗

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[4] Relatedly, a reviewer raises the possibility that, were the typological gap in (2) derived through a confluence of independent factors after all, one could then reconcile the empirical landscape with the "hybrid" directionality approach recently put forth by Bjorkman & Zeijlstra (2019). We would like to point out that Bjorkman & Zeijlstra's (2019) approach, whatever its merits in accounting for other empirical domains, cannot serve as an adequate theory of phi-feature agreement in the first place. That is because it must assume that all phi-agreement includes a *checking* component alongside *valuation*. It has been shown, however, that in at least some phi-agreement relations, adding a checking component makes exactly the wrong predictions (Preminger 2011a; 2014).

4 Refining the generalization

Before turning to the theoretical implications of this typology, let us first refine certain aspects of (11) (and, concomitantly, of (1–2)).

The first issue that deserves attention concerns agreeing complementizers. To cite one example, Diercks (2013) discusses a pattern in Lubukusu (Bantu) in which complementizers appear to agree in phi-features with the subject of a higher clause (Arabic numerals in these Lubukusu glosses indicate noun class):[5]

(12)   *Lubukusu*[6] (Diercks 2013: 358)
   a.   Ba-ba-ndu ba-bol-el-a   Alfredi ba-li   a-kha-khil-e.
         2-2-people 2S-said-APPL-FV 1Alfred 2-that 1S-FUT-conquer
         'The people told Alfred that he will win.'

   b.   Alfredi ka-bol-el-a   ba-ba-ndu a-li   ba-kha-khil-e.
         1Alfred 1S-said-APPL-FV 2-2-people 1-that 2S-FUT-conquer
         'Alfred told the people that they will win.'

Taken at face value, these data would seem to instantiate precisely the pattern in (2)/(11c), claimed here to be unattested; but there are two points to be made in this regard, one methodological and the other theoretical. Methodologically speaking, let us note that complementizers sit at the boundary between one clause and another. Within the theory of phases, for example, complementizers—along with their specifier(s)—belong to the next-higher spellout domain, separate from the interior of the clause (see, e.g., Chomsky 2001: 13). It is therefore not immediately clear whether complementizers should be properly construed as belonging to the clause they introduce, or to the superordinate clause.

Given this uncertainty in the clausal affiliation of complementizers, one reasonable way to proceed is to initially abstract away from complementizers, as we have done here (cf. the discussion in section 1), and see whether something like the Agreement Theta Generalization holds when complementizers are excluded from consideration. If it turns out that it does, we can then leverage this knowledge to reason about the clausal affiliation of complementizers. (And, possibly, to see if different complementizers may have different affiliations; in light of Baker's 2003 suggestion that prepositions are a mixed class, for example, it may turn out that complementizers are a similarly mixed class.)

The other point is a theoretical one, and has to do specifically with the proper analysis of the Lubukusu data. Diercks himself argues that the mechanism underlying data like (12a–b) is not, in fact, direct agreement between the superordinate subject and the embedded complementizer. Rather, the complementizer enters into a local agreement relation with a phonologically silent subject-oriented anaphor; and it this anaphor which enters into a relationship—in this case, binding—with the superordinate subject. Crucially, our proposed generalization generates no expectations about the directionality of binding relations.[7]

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[5] The Lubukusu case discussed by Diercks (2013) differs from many of the cases of complementizer agreement discussed in the literature (see, e.g., fn. 3). In the more familiar cases, the complementizer agrees with the subject of the clause that it embeds; whereas in Lubukusu, it appears to agree with the subject of the superordinate clause.

[6] 'FV' = 'final vowel'.

[7] As noted earlier, to the extent that overt phi-agreement between a verb or TAM-marker and a nominal argument obeys the proposed generalization, but binding does not, there is an argument against proposals that reduce one to the other (e.g. Kratzer 2009; Reuland 2011; Rooryck & Vanden Wyngaerd 2011); see also the discussion in section 1.

(13)   Diercks (2013: 372)
         $[_{TP}$ Subject$_i$ … $[_{CP}$ OP$_i$ C^0 […]]]
         where:
         • Subject and OP stand in a *binding* relation
         • OP and C^0 stand in an *agreement* relation

On Diercks' account, the *agreement* relation (the one between the complementizer and the null anaphor) is maximally local. As noted by Preminger (2013) and Preminger & Polinsky (2015), maximally-local configurations are uninformative with respect to the directionality of agreement. We will demonstrate that in some detail in section 5, but for now, note that if Diercks (2013) is correct in his analysis of complementizer agreement in Lubukusu (whereby the only actual agreement relation is the maximally-local relation between the complementizer and the null anaphor), this case would have no particular purchase on the directionality issue.

It is an open question, of course, whether every instance of apparent agreement between a complementizer and an argument in a superordinate clause can ultimately be afforded the kind of analysis that Diercks proposes for Lubukusu. But coupled with the general methodological concern articulated above, we believe that it is a reasonable move to discard agreeing complementizers from the domain of application of the generalization in (1–2)/(11).

Another issue that deserves attention concerns the view that DPs can in principle be assigned multiple thematic roles (see, e.g., Hornstein 1998; 2001). Assuming that multiple thematic-role assignment is a possibility, our definition of ψ in (1–2)/(11) is underdetermined, since a single DP could be theta-marked by multiple different predicates. In this case, we would revise our definition so that ψ is identified with the predicate that assigns the DP its *first* thematic role. This way of defining ψ—much like the original definition, above—is tied to the fact that a DP cannot be occupy a position any lower than where it receives its (first) thematic role. While we offer no new account of this fact, it is a fact that can be established independently of our present concerns; for example, the same assumption is necessary to explain why a DP cannot take quantificational scope in an embedded clause when it receives its (first) thematic role in the matrix clause:

(14)   *[The news report persuaded$_\psi$ **his$_i$ mother** [that every boy$_i$ is a genius]].

Taking these two issues into consideration, we can formulate the following, revised version of the Agreement Theta Generalization:

(15)   THE *AGREEMENT THETA GENERALIZATION* (final version)
         Let ψ be the predicate that assigns a given DP its (first) thematic role; and let F^0 be a verb or tense/aspect/mood marker, properly contained in some clause, that exhibits overt agreement with that DP in phi-features. Then **either**:
         a. F^0 and ψ are in the same clause: $[_{Clause}$ … F^0 … ψ …]; **or**
         b. F^0 is in a higher clause than ψ: $[_{ClauseA}$ … F^0 … $[_{ClauseB}$ … ψ …] …].

This revised version of the Agreement Theta Generalization does not make the typological gap discussed in section 3 any less surprising. In the particular example used to demonstrate this gap—an unaccusative with an in-situ subject, contained in a raising-/ECM-sized agreeing infinitive—the embedded subject does not raise, and there is no control relation between the matrix and embedded clause. The modifier "first" in (15) is therefore vacu-

ous in this particular scenario, and so the revision to the formulation of the generalization does not affect it.

Given the empirical picture surveyed in sections 2 and 3, we take the revised generalization in (15) to be true of natural languages. The next step is to ask what can be concluded from this.

5 Theoretical implications

Recall what it is that (15) rules out; it rules out structures with the general profile given in (2), repeated here:

(2) $*[_{ClauseA} \dots \psi \dots [_{ClauseB} \dots F^0 \dots] \dots]$

We argue that this gap can be straightforwardly accounted for if we assume that phi-feature agreement is only ever capable of transmitting feature values upward in the structure. Conversely, we show that any theory that so much as permits DOWNWARD VALUATION as an option requires a series of stipulations to block (2).

To see this, let us first consider the DP that is theta-marked by ψ and agreed with by F^0 in (2). Given that DPs are generally capable of movement across clausal boundaries, it makes more sense to talk about the possible positions, rather than a unique position, that this DP may occupy. Now, crucially, thematic roles must be discharged in a highly local configuration (the standard assumption, it seems to us, is sisterhood with some projection of the predicate); and, as discussed in section 4, DPs cannot be merged lower than the position where they receive their (first) theta role. It follows, then, that the DP in question *cannot occupy a position properly contained in ClauseB*. This, in turn, means that F^0 is lower than any position that the DP could occupy in the course of the derivation.[8]

Returning to (2), then, we can reassert that F^0, properly contained in ClauseB, is indeed lower than any position occupied by a DP receiving its (first) thematic role from ψ. If phi-feature values can only ever be transmitted upward in the syntactic derivation—that is, if F^0 must c-command the DP with which it agrees—then there is no way for F^0 in (2) to receive phi-feature values from the DP, deriving the desired typological gap.[9]

Now consider the same state of affairs in a theory that allows DOWNWARD VALUATION, i.e., a theory that permits F^0 to receive phi-feature values from a DP in a configuration where the DP (asymmetrically) c-commands F^0. (See, e.g., Adger 2003; Merchant 2006; Baker 2008; Merchant 2011; Wurmbrand 2011; Abels 2012; Wurmbrand 2012; Zeijlstra 2012; Bjorkman & Zeijlstra 2014; 2015; Carstens 2016; Bjorkman & Zeijlstra 2019.) On such a theory, F^0 stands in the proper structural relation to the relevant DP in (2) (the one theta-marked by ψ) for agreement to obtain. One could attempt to block this on a

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[8] The current discussion is phrased as though F^0 were literally immobile; and we know that this need not be the case, strictly speaking. But a crucial property of head movement is that it is highly local. Even instances of head movement that appear to violate Travis' (1984) *Head Movement Constraint* are nevertheless clause-bounded (see, e.g., Borsley, Rivero & Stephens 1996 on long verb movement in Breton). This means that as long as our concern is which clause immediately contains a given syntactic element, we can safely abstract away from head movement for the purposes of the present discussion.

[9] A reviewer asks about the fate of predicative adjectives within a theory that bans DOWNWARD VALUATION entirely. There are two issues pertaining to predicate adjectives that warrant mention here. First, while it has been argued that not all adjectives pass unaccusativity diagnostics (Cinque 1990; Bowers 1993; Baker 2003; Meltzer-Asscher 2011, *a.o.*), it is likely that even external arguments to the adjective are generated as a sister to some projection in the extended projection of the adjective. Since sisterhood is direction-neutral, these cases would therefore not bear on the debate at hand. Second, there is a debate as to whether agreement on predicative adjectives forms a natural class with verbal agreement or with nominal concord, in the first place (Baker 2008; Norris 2014, *a.o.*). If it is the latter, that would be one more reason why predicative adjective agreement does not bear on the current discussion. As we have stated from the outset, nominal concord is crucially not part of the purview of generalization (1) (see section 1).

language- and construction-specific basis, e.g. by asserting that ClauseB is syntactically opaque (cf. Baker's 2008: 75 discussion of examples like (3a–b), above). But as noted earlier, there are configurations where such moves do not seem obviously available; agreeing infinitives containing unaccusatives whose subject is in situ are a salient example (see (8), above, and the surrounding discussion). To reiterate, attributing the absence of such patterns to a confluence of separate factors arguably misses a generalization that is captured in the terms given in (1–2).

In fact, the state of affairs faced by theories that permit DOWNWARD VALUATION is arguably even more challenging. In our earlier discussion of the position of F^0, we restricted ourselves to head movement. That is because phrasal movement of a phrase containing F^0 could not extend the c-command domain of F^0 (since F^0 would not c-command out of the moved phrase in its landing site). And so, if valuation must proceed upwards, we can safely ignore such movement for the purposes of agreement. For DOWNWARD VALUATION, however, the requirement is not that F^0 c-command the DP, but that the DP c-command F^0. Therefore, if for example the phrase headed by F^0, FP, were to move in its entirety to the periphery of ClauseB, a DP merged in ClauseA would still c-command F^0 at the landing site of FP. This means that any clause that is permeable to phrasal movement should, in the general case, be permeable to DOWNWARD VALUATION as well, making the cross-linguistic absence of (2) even more surprising.[10]

Alongside these consequences for theories that sanction DOWNWARD VALUATION, the Agreement Theta Generalization also provides evidence against another family of theories: those in which the agreement relation is formally symmetric. Examples of formally symmetric characterizations of agreement include the *feature unification* mechanism at the heart of constraint-based lexicalism (see, e.g., Gazdar et al. 1985; Pollard & Sag 1994; Kathol 1999; Dalrymple & Kaplan 2000; Bresnan 2001; Wechsler & Zlatic 2003; Borsley 2009); as well as any variant of GB/minimalism that views agreement as feature-*checking* rather than feature-*valuation* (see, e.g., Chomsky 1993; 1995). On such theories, the relevant generalization is unstateable without an additional diacritic distinguishing (what is described here as) value-suppliers or goals, from (what is described here as) value-recipients or probes. Supplemented with such a mechanism, such theories are arguably not symmetric at all, but instead amount to valuation-based theories "in disguise."

Before concluding the discussion, let us consider the robustly attested configuration in (1b)/(11b), repeated in (16):
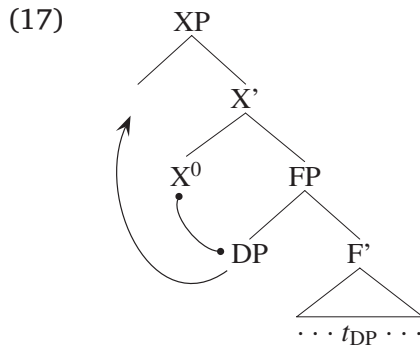
(16) F^0 is in a higher clause than ψ: [$_{\text{ClauseA}}$ … F^0 … [$_{\text{ClauseB}}$ … ψ …] …]

That (16) is possible is straightforwardly derived on any theory that allows UPWARD VALUATION (i.e., the transmission of phi-feature values from a DP to a head F^0 that c-commands it)—including the theory defended here, where UPWARD VALUATION is the *only* permitted agreement configuration. Recall that theta assignment is maximally local; consequently, the DP argument of ψ must occupy a position in ClauseB, a position which is already c-commanded by F^0. Thus, if ClauseB is permeable to agreement (e.g. an infinitive), and/or if the DP moves to the periphery of ClauseB, F^0 will be able to agree with DP under UPWARD VALUATION.
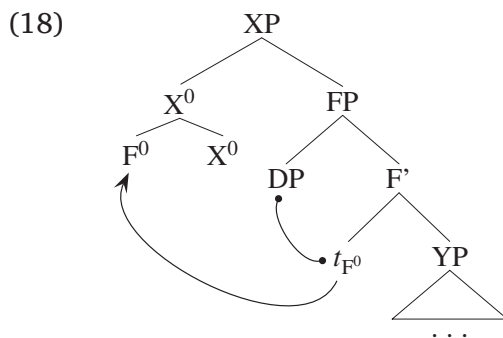
These conclusions highlight a methodological issue related to reasoning about the direction of syntactic valuation, one that has to do with reliance on local configurations: local

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[10] A reviewer raises the question of whether or not the kind of phrases typically headed by agreement probes (*v*P/VP, TP) generally undergo movement out of their base positions. In this regard, it is worth noting that *v*P/VP-fronting is a common derivation of verb-initial languages (Clemens & Polinsky 2017).

phenomena are not where one goes looking for arguments about directionality. That is because, by their very nature, phenomena that are highly local have intrinsic "analytical slack" that allows the direction of agreement to be reversed under very minor changes to the analysis. For example, any apparent spec-head relation between a head X^0 and a DP can be recast as agreement under local c-command of the DP by X^0, by positing that the DP makes an obligatory stop in the specifier of X^0's complement:

(17)

Similarly, any apparent case of agreement under maximally-local c-command between a head X^0 and a DP can be recast as spec-head agreement by assuming that a lower head F^0 enters into spec-head agreement with the DP and then head-moves into X^0 (and what was initially analyzed as the exponent of X^0 is actually the exponent of the head-moved F^0):

(18)

Thus, no maximally-local agreement relation could ever provide decisive evidence concerning the directionality of agreement.

6 Conclusion

In this paper, we have introduced and argued for the Agreement Theta Generalization (repeated below), an observation concerning the structural relationship between a head that agrees with a DP and the predicate that assigns the (first) thematic role to that DP:

(19)   THE *AGREEMENT THETA GENERALIZATION* (final version)
        Let ψ be the predicate that assigns a given DP its (first) thematic role; and let F^0
        be a verb or tense/aspect/mood marker, properly contained in some clause, that
        exhibits overt agreement with that DP in phi-features. Then **either**:
        a. F^0 and ψ are in the same clause: $[_{\text{Clause}} \ldots F^0 \ldots \psi \ldots]$; **or**
        b. F^0 is in a higher clause than ψ: $[_{\text{ClauseA}} \ldots F^0 \ldots [_{\text{ClauseB}} \ldots \psi \ldots] \ldots]$.

This generalization excludes configurations where the theta-role assigner is located in a higher clause than the agreeing head.

While it is well-established that thematic roles cannot be assigned across clauses, that alone is not enough to capture the Agreement Theta Generalization. But as we have shown, adding a single assumption—that agreement permits only UPWARD VALUATION, i.e., transmission of phi-feature values from a DP to a head F^0 that c-commands it—is sufficient to derive the generalization. Our account of the Agreement Theta Generalization thus rests on only these two assumptions: UPWARD VALUATION, and the locality of theta assignment. In contrast, theories that require or even just permit DOWNWARD VALUATION (the transmission of phi-feature values from a DP to a head F^0 c-commanded by that DP) can only derive these results by stipulation.[11] And theories in which the agreement relation is formally symmetric cannot even state the generalization, in the first place.

As noted in section 5, highly local agreement relations can be reversed under very minor changes to the analysis. Such reversals may not cohere with particular researchers' theoretical preferences, but that in and of itself is not an argument one way or another; the only way to truly avoid this kind of "analytical slack" is by examining what happens in non-local scenarios. It is in this sense that the Agreement Theta Generalization constitutes an indispensable part of the empirical picture, and a crucial target of explanation for any theory of grammar and, in particular, any theory of agreement.

The current paper has not gone beyond the empirical domain of phi-features. There is good reason to think these results do not immediately extend to interactions of other feature types (see, e.g., Zeijlstra 2012). It is true that, all else being equal, a general theory of feature interaction that applies equally to all features would be preferable. But such a theory can be considered valid only if it genuinely addresses the relevant empirical challenges.

Abbreviations
Abbreviations follow the Leipzig glossing rules unless otherwise noted.

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Competing Interests
The authors have no competing interests to declare.

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[11] A reviewer raises a potential caveat pertaining to this statement, concerning theories where a probe first examines its c-command domain (in search of a goal that could provide UPWARD VALUATION), but if that domain is exhausted, it can then probe in the opposite direction, in search of a goal that could provide DOWNWARD VALUATION, in what may count as last resort (e.g. Carstens 2016). Were this the end of the story, we would concur that this alternative is also compatible with the Agreement Theta Generalization. However, there is much work indicating that this apparent last-resort probing in the opposite direction is merely a side effect of reprojection (see Béjar 2003; Béjar & Rezac 2009; Keine & Dash 2018; Clem 2019, *a.o.*). If a head has exhausted its c-command domain without finding an appropriate goal, the label of the constituent formed by this head and its complement will be (another occurrence of) that very same head, with its featural needs still unmet. When this constituent merges with a specifier, the latter occurrence of the head (*viz.* the label) is able to probe its specifier under sisterhood, which, crucially, is just a subcase of c-command. The same mechanism can repeat itself for every additional specifier merged. Keine & Dash (2018) in particular provide evidence that this predicts exactly the correct limits on so-called "upward" probing. If so, these limits are far too strict to alter the predictions stated in the main text.

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