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Agreeing to bind: the case of Russian

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This contribution offers an analysis of the structural constraints on the interpretation of the Russian anaphoric expressions *sebja* and *svoj*. It accounts for a number of intricate binding patterns, such as the 'animacy effect' in the case of non-local binding and apparent irregularities in subject orientation and complementarity in local and long-distance binding. We show that these patterns can be accounted for in a unified manner by Multiple Agree-based dependencies established separately for person and number features, assuming the presence of a φ-incomplete number-only probe low in the structure. As a result of the valuation procedure the reflexives end up only partially valued and thus remain distinct from pronominals.

1 Introduction

Russian has an argumental anaphor *sebja*, and a possessive anaphor *svoj*, as illustrated in (1):

(1)   a.   Vanja$_i$ protivorečit   sebe$_{i,*j}$.
               Vanya.NOM   contradicts.3SG   SEBJA.DAT
               'Vanya contradicts himself.'

          b.   Vanja$_i$ ljubit   svoju$_{i,*j}$ košku
               Vanya.NOM   loves.3SG   SVOJ   cat.ACC
               'Vanja loves his cat.

The form *sebja* is accusative; it has forms for all other cases, except nominative, and allows antecedents irrespective of person, number and gender; that is, it is *unspecified* for person, number and gender. The possessive anaphor *svoj* is unspecified for person and number (and gender) of its antecedent, though it bears uninterpretable adjectival morphology, sharing case, number and gender with the head of the NP it modifies. Like similar elements in other languages, *sebja* and *svoj* depend for their interpretation on another nominal expression in the sentence. As is usual we will refer to this particular type of dependency as *Argument binding*, or briefly, binding.[1] The Russian reflexives can be bound non-locally only within their minimal finite clause (Rappaport 1986). Neither *sebja* nor *svoj* ever take split or discourse antecedents.

     The present contribution presents a unified analysis of the constraints on their interpretation. As we will show, the very intricate binding properties of *sebja* and *svoj* can be successfully captured by an approach to anaphor binding based on φ-feature sharing, assuming a version of Multiple Agree. Thus, our contribution directly bears on the nature of the syntactic operation Agree and its role in establishing anaphoric dependencies.[2]

     Though certainly not all sufficiently local c-commanding NPs can bind reflexives in Russian,[3] which can thus informally be considered *subject-oriented*, it has long been known that some possible antecedents are not nominative, such as the dative argument *Vane* in (2):

(2)   Vane$_i$ v svoem$_{i,j,*k}$ fil'me   ponravilas'   Anja$_j$.
        Vanya.DAT in SVOJ   movie.LOC appealed.F.SG   Anya.NOM
        'Anya pleased Vanya in his/her movie.'

For this reason such non-nominative antecedents are sometimes considered subjects, too. In the case of such claims, however, it is difficult to avoid circularity, as the status of the notion of a

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[1] For a more formal definition of argument binding, see Reinhart (2006).

[2] Note that we don't assume that all binding, or even all anaphor binding is mediated by Agree, which we take to be limited to φ-deficient anaphoric expressions.

[3] E.g. neither object of ditransitives can bind reflexives in any position, as is well-known.

subject within current theory is unclear. Moreover, as noted already by Timberlake (1980) and as can be witnessed in (2) with *Anja* and *Vane*, the nominative and non-nominative coarguments can be competing antecedents, which casts further doubt on the idea. On closer inspection binding by nominatives and non-nominatives proves different in many ways.

Some PPs (e.g. event-external modifiers, unlike event-internal ones in terms of Maienborn (2003)) appear to be adjoined too high to be accessible for binding by the non-nominative antecedent, though they are still accessible for binding by the nominative. Compare (2) and (3):

(3)   Vane$_i$ iz-za   svoix$_{*i, j, *k}$/ego$_{i, k}$ vkusov   ponravilas'   Anja$_j$.
        Vanya.DAT because.of SVOJ/his   tastes.GEN appealed.F.SG Anya.NOM
        'Anya pleased Vanya because of his/her tastes.'

Furthermore, unlike nominatives, non-nominatives can only bind reflexives strictly locally and must be the closest available antecedents (Zubkov 2018). Here this is illustrated with NP-internal binding:

(4)   a. Miša$_i$ isportil   otnošenie   Vani$_j$ k sebe$_{i, j, *k}$
           Misha.NOM damaged.M.SG attitude.ACC Vanya.GEN to SEBJA.DAT
           'Misha damaged Vanya's attitude towards himself.'

        b. Miša$_i$ isportil   otnošenie   Vani$_j$ k ee$_l$ rasskazu o
           Misha.NOM damaged.M.SG attitude.ACC Vanya.GEN to her story.DAT about
           sebe$_{i, *j, *k, l}$/ nem$_j$.
           SEBJA.LOC him.LOC
           'Misha damaged Vanya's attitude towards her story about him/her.'

We show that, in order to account for these differences, Agree must proceed independently for different features and is subject to intervention on a feature-by-feature basis, unlike in Reuland (2005; 2011a).

Beyond the finite φ-complete probe in the left periphery, responsible for regular verb agreement with the nominative subject, a number-only probe in certain positions lower in the structure is postulated. As a consequence, non-local binding by *Vanya* in (4b) is ruled out as a minimality violation, as non-nominatives can only provide number, unlike the matrix subject. The details of the approach are presented in section 3.

Furthermore, we suggest this to capture the distribution of interpretive effects such as distributivity and awareness, as well as complex patterns of less than perfect complementarity between reflexives and pronominals based on economy principles (see Zubkov 2018, elaborating Reuland 2005; 2011a).

There is an animacy requirement on the antecedent in cases of non-local binding. Unlike Charnavel and Sportiche (2016), and Charnavel (2020a) who propose that a somewhat similar

requirement on some French expressions argues for a split between a local binding relation and a non-local logophoric control-based dependency, we show that in Russian the animacy requirement on the antecedent in cases of non-local binding can be straightforwardly accommodated by general properties of the Agree operation, and the features on which it operates.

To the best of our knowledge no other account covers the same empirical ground and we are in no position to speculate whether or how more general approaches could be modified to address this range of data. Therefore we can't provide a systematic comparison.[4]

In many examples to be given the anaphors are contrasted with pronominal forms specified for person, number and gender. Here we limit our discussion to 3rd person antecedents. In the 1st and 2nd person, although the distribution of the anaphors remains largely the same, the constraints on pronominal binding become more difficult to ascertain.[5]

2 Theoretical background

Our approach is inspired by the minimalist program outlined in Chomsky (1995).

Understanding the nature of anaphoric dependencies faces considerable empirical challenges since over the years binding patterns have been found in many languages that are far from 'well-behaved' from the perspective of earlier approaches to binding such as Chomsky (1981; 1986). The question is then how to find unity in this diversity. As argued in Reinhart and Reuland (1993) and subsequent work this requires a modular approach to anaphoric dependencies, involving components like argument structure, morphosyntax, logical syntax, and discourse.

Among the theoretical challenges is the task to determine when and how anaphoric dependencies are represented syntactically, subject to locality constraints, and how to relate such representations to the interpretation system, for instance if we want to understand complementarity between anaphors and bound pronominals.

In earlier approaches to binding, indices played a key role. However, already Reinhart (1983) showed that the status of indices was problematic. Subsequently, Chomsky (1995) concluded that they are not morphosyntactic objects and don't have a place in syntactic derivations (they

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[4] Unless acknowledged otherwise, the non-trivial data on Russian binding reported in the paper are novel or first discussed in Zubkov (2018). Where no other credit is given, the judgments reflect Peter Zubkov's native speaker intuition and are based, albeit not always literally, on examples systematically tested with a number of other native speakers.

[5] We don't include in the examples the option with pronominals, to avoid unnecessary cluttering of the examples, unless it is directly relevant. For example, a pronominal is shown in (3) just because otherwise it would be impossible to conclude that the example is not ruled out for reasons unrelated to anaphora. This doesn't apply to examples like (2) where a reflexive is acceptable.

violate the *inclusiveness condition*).[6] This entailed that the general definition of binding had to be rethought. Current syntactic theory provides two instruments to establish syntactic dependencies, namely Move and Agree. This led to proposals for a minimalist approach to binding, such as, for instance, Hornstein (2000), Reuland (1995/2001), Safir (2004), or Kratzer (2009) and subsequently, more strictly Agree-based approaches such as Hicks (2009), Rooryck and Vanden Wyngaerd (2011), Reuland (2005; 2011a) and Giblin (2016).

The current proposal is guided by the ideal that restrictions on anaphoric dependencies (or interpretive dependencies more generally) follow from independent properties of the operations that form them, in interaction with independently justified properties of their linguistic environment. In line with this, our approach does not use special features of reflexives or Voice heads, unlike for instance, Kratzer (2009) or Ahn (2015).

3 Outline of the system

3.1 Agree as a vehicle for binding

As indicated in section 1, our approach is based on the Agree operation. In developing our analysis we elaborate on the specific properties of Agree-based dependencies. In this sense, our proposal is part of a more general debate about the proper characterization of Agree, concerning whether one probe can interact with multiple goals (Hiraiwa 2001; 2005), whether Agree proceeds upward or downward (Preminger 2013; Bjorkman and Zeijlstra 2019), the valuation by Agree in relation to spell-out (Preminger 2019; Reuland 2020), what the locality constraints on Agree are (see below), and whether Agree involves full feature bundles (Kratzer 2009; Reuland 2001; 2011a) or rather individual features. Reflexive binding in Russian serves as a further probe into these issues, contributing to a more general understanding of Agree.

The rationale behind using Agree to account for certain types of syntactic binding dependencies, is that there is a class of anaphors that lack the feature specification for person, number or gender (briefly, ϕ-features) a corresponding pronominal would bear. This class includes SE-anaphors (Reinhart and Reuland 1993), with or without a further component (Dutch *zich(zelf)*, Norwegian *seg (selv)*, and also Russian *sebja* and *svoj*.[7] This deficiency should not be treated as accidental. It is explained if the deficiency allows the anaphor to be valued by an Agree operation copying the relevant values from the source NP and pasting them onto

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[6] See Reuland (2011b) for an overview of the problems with indices in syntax. Note that there is a different and technical use of the notion of an index in semantic interpretation (see Heim and Kratzer 1998). This use is unaffected by these considerations.

[7] In response to an anonymous reviewer, *sebja* is neither a SE-anaphor, nor a SELF-anaphor in the sense of Reinhart and Reuland (1993). Rather it is a *semi-reflexive*, a type of anaphor that allow both local and non-local binding; see Volkova and Reuland (2014), and Reuland, Wong and Everaert (2020).

the anaphor. This effects unification of these occurrences and the formation of a feature chain, which is interpreted as binding by the interpretation system. Thus, Agree is involved in the interpretation of such underspecified pronominal elements, but since it crucially makes use of this deficiency, it follows that, as stated in fn. 2, no such claim is made for binding in general (see Reuland 2020 in response to Preminger 2019).

Unlike other Agree-based approaches to binding (e.g. Hicks 2009, or, specifically for Russian, Antonenko 2012, among others), we rely on independently existing φ-features rather than special features of reflexives such as <VAR>, or [+reflexive] and their kin, that play no other role in the grammar and possess no locally specified interpretation. In our approach we adopt the feature valuation system of Pesetsky and Torrego (2007), where interpretability and valuation are assumed to be independent properties, and take reflexives to enter the derivation with interpretable unvalued φ-features,[8] building on the insight of Reuland (2005; 2011a: 5.9) that feature sharing between interpretable feature instances brings about an interpretive dependency. The reverse is of course not necessarily true, anaphoric dependencies can be established through other means too, but this is immaterial here. It is important to stress that feature sharing creates a single syntactic and semantic object occupying several positions rather than mere repetitions (cf. copy theory of movement/internal Merge). Different instantiations of the shared feature thus cannot make independent contributions to interpretation, including their perspectival properties, interaction with distributive operators etc.

Along with others (e.g. Chomsky 2000) we assume that probes (understood as the feature instances initiating the Agree operation) are properties of heads and can only see into their complements,[9] i.e. essentially our approach employs a version of downward Agree, albeit with a sufficiently different view on the limits and effects of this operation. Many studies of agreement have solely concentrated on the valuation of the probe. The element initiating the operation has often been the only one that is considered to change its value as a result, without a clear distinction between the two independent properties. This, however, is not necessary. Goals may be affected too. Though the probe, which initiates the operation, c-commands its goals, we assume, again following Pesetsky and Torrego (2007), that the directionality of valuation is not determined intrinsically, and goals can get valued as well.

Anaphor binding typically allows patterns where one antecedent binds anaphors in different positions that cannot be related in succession. Therefore, assuming downward Agree, it must be a one-to-many operation that underlies binding, in line with Multiple Agree (Hiraiwa 2001; 2005; Boeckx 2003; Chomsky 2004; 2008), which is not limited to a single

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[8] Note that the account does not depend on the assumption that the features have to be valued, but only on the assumption that they are automatically valued in the relevant configuration with the probe.

[9] As reflexives like *sebja* don't take complements, their features are unable to probe within this approach.

goal. Furthermore, following Zubkov (2018) we assume that valuation is carried out by the closest suitable feature instance. As structural conditions on the valuation of probes and goals are different, a probe is valued by the closest suitable goal, a goal is valued by the closest suitable probe.[10] This is illustrated in (5). The unvalued occurrence of φ probes and finds two other occurrences of φ in its domain, one valued, which values the probe, and a (lower) unvalued occurrence, which is simultaneously valued as well, as there is no closer probe that could have valued it here.[11]

(5)   φ:_   [[...φ:*val*...]...   [...φ:_...]...]

       φ:*val*   [[...φ:*val*...]...   [...φ:*val*...]...]
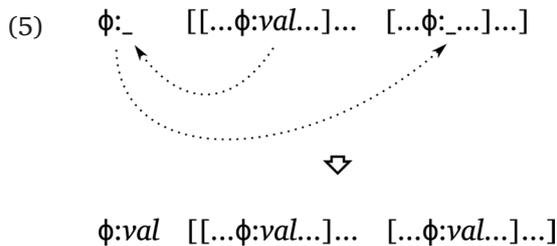
Unlike for Hiraiwa (2001, 2005) and Chomsky (2004: 115, 2008: 142), where goals intervene unless inactivated by the probe itself, in this model probing continues all the way down to the next lower probe. This pattern of intervention essentially reduces to minimality.

As a result, the probe spreads (or attempts to spread, depending on whether or not the potential goal is already valued) the value of the closest suitable goal to the farther goals in its domain, subject to intervention by other probes, as illustrated in (7) and (8) below. Assuming the feature-sharing view of Agree outlined above, this allows us to capture binding. Both the reflexive and its antecedent correspond to goals (as in the analysis of binding in Mandarin presented in Giblin 2016; see also Wong 2021), neither of them to the probe (unlike e.g. in Hicks 2009 or Rooryck and Vanden Wyngaerd 2011). Thus, even though the unvalued reflexive is merged lower than the valued antecedent, a resort to upward Agree is not warranted. Moreover, with upward Agree the prospects for deriving the complementarity patterns discussed below and correctly constraining the structural positions of possible antecedents would appear unpromising. From below the antecedents cannot be adequately characterized as the closest goals, as there may be other goals intervening, including features of lower arguments and of phrases embedding the reflexives.

We will start elucidating details of our approach on the basis of a simplex sentence.

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[10] Locality of probes reduces, as usual, to asymmetric c-command. This is generally not applicable to locality of goals, which for the purpose of the present approach should follow depth-first search (see Branan and Erlewine to appear for a discussion of minimal search algorithms).

[11] Here and elsewhere in this contribution the arrows show the direction of the ensuing valuation. Probing (search), however, is assumed to always proceed downwards.

3.2 Local binding – simplex clauses

Consider, then, a sentence as in (6), where a reflexive object is bound by the local external argument that bears nominative case and triggers verb agreement:

(6)   Vanja$_i$ protivorečit   sebe$_{i,*j}$.
        Vanya.NOM   contradicts.3SG   SEBJA.DAT
        'Vanya contradicts himself.'

The relevant aspects of its structure and a possible derivation that we propose are demonstrated in (7), where *Vanja* is taken to be first merged as the specifier of *v*P and moved into Spec TP.[12] The structure contains two probing heads, to be discussed in turn.

(7)
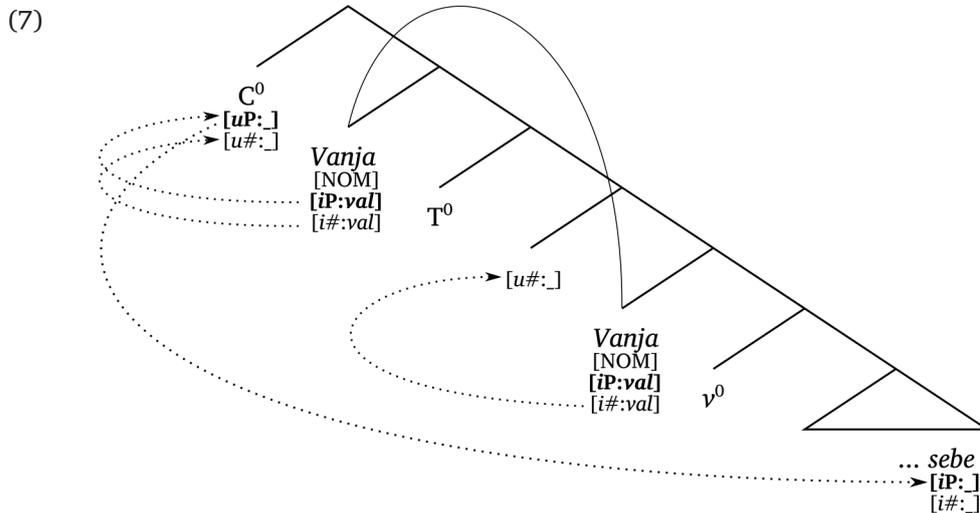
In line with Chomsky (2008) and much preceding and subsequent work, we assume a high ϕ-complete probe with unvalued person and number (#) in the left periphery of the finite clause. As indicated, the structure also contains a low #-probe, whose contribution will be sketched in (8) below. The high probe is valued by the nominative goal *Vanja*.[13] As it includes the closest person probe c-commanding *sebe*, once it gets valued, it simultaneously values the unvalued interpretable person feature of the reflexive as well. As a result, *Vanja* and *sebe* share a person feature. However, the high probe is unable to value the number feature of *sebe* by minimality, as

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[12] Though as a matter of convenience we indicate in the tree diagrams that the high probe resides on C and is valued by the goal in Spec TP, these specific assumptions don't appear essential for our approach.

[13] Note that *Vanja* cannot value the reflexive directly since Spec *v*P is not a head that would take the rest of *v*P as a complement. Thus Vanya's ϕ-features are not in a position to probe out of Spec *v*P. Moreover, though for the reason just stated this doesn't bear on this particular configuration, valued ϕ-features never appear to be able to probe, even into complements of nominals.

there is a closer number probe that intervenes, which leaves *sebe* valued for person, but unvalued for number for the derivation in (7). As in this configuration the low number probe is valued by the same goal, an alternative derivation that results in number sharing between *Vanja* and *sebe* is available:

(8)
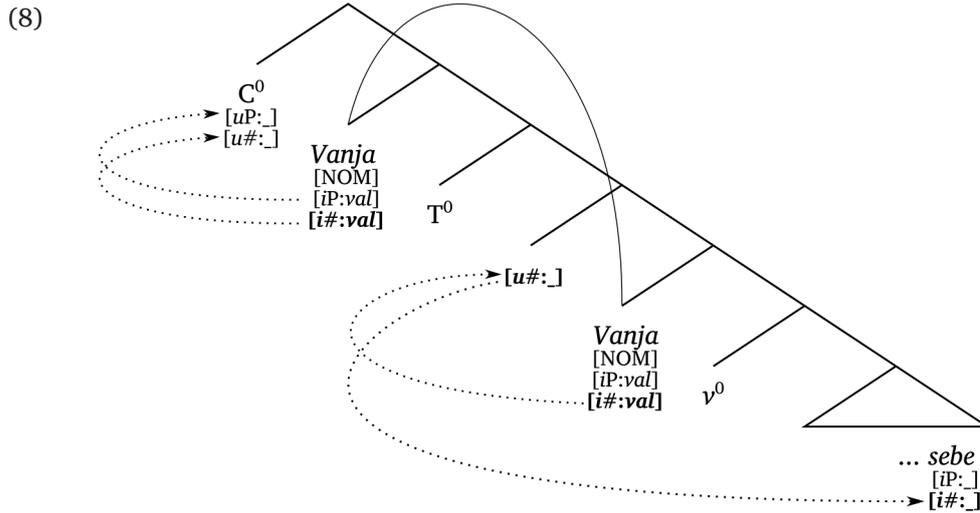
On the surface, in such cases the alternative derivations make almost no difference, arguably except for a variation in subtle interpretive effects. The different contribution of the probes becomes more conspicuous in other configurations to be discussed.

The ɸ-complete probe in the left periphery of the finite clause gets reflected in the verb agreement.[14] Many phenomena amenable to Agree-based analyses may be better viewed as indirect dependencies between goals, mediated by probes that may be hardly ever visible on their own. Accounts of downward Agree are rarely explicit about how inflection ends up on the verb, and it is sometimes assumed that the verb enters the derivation without any features at all. Our model of Agree opens up a possibility to implement verb agreement as goal valuation within the narrow syntax, though it doesn't depend on this.[15]

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[14] The finite verb overtly agrees in number and, depending on the tense form, either in person or (in the singular) gender with the nominative subject. Morphologically the verb agreement is not really ɸ-complete, as uninterpretable person marking never co-occurs with gender in Russian. However, this has no detectable syntactic consequences, and the co-occurrence restriction would look odd from the syntactic perspective, so we take this to be a purely morphological effect, at any rate not involving features on the probe.

[15] An anonymous reviewer wonders why the features on the verb would not act as a probe and intervener. V is known to move at least for some distance, which could likely bring its features out of a configuration required for probing. Details depend on how exactly verb movement is implemented, which is a highly controversial issue we cannot discuss at length here.

As evident in morphology and as is common across languages, in Russian this ɸ-complete probe can only be valued by a nominative goal, even if it is not the highest argument, for reasons that we don't fully understand yet. It is conceivable that EPP-satisfying movement, which does not apply to inherently case-marked phrases in Russian and perhaps bleeds vP-internal structural Case assignment, may always result in the nominative being close enough to the probe to value it, especially if one allows for the possibility of lower copy spell-out for nominative internal arguments pronounced *in situ*.[16] This probe can only account for binding by nominative antecedents, which, as already discussed, is not always the case.

To account for binding by non-nominatives, a #-probe, insensitive to case and considerably lower in the structure, will be shown to be necessary. Its low position captures several important patterns. First, the ability of non-nominatives to bind into PPs varies with the latter's height, as was demonstrated in (3), repeated here:

(9) Vane$_i$ iz-za   svoix$_{*i, j,*k}$/ego$_{i, k}$ vkusov   ponravilas'   Anja$_j$.
     Vanya.DAT because.of SVOJ/his   tastes.GEN appealed.F.SG Anya.NOM
     'Anya pleased Vanya because of his/her tastes.'

Here, the event-external modifier *iz-za POSS vkusov* appears to be adjoined too high for the possessive *svoj* to be accessible for binding by the non-nominative antecedent, which is mediated by the low #-probe, although it is still accessible for binding by the nominative, which is mediated by the high probe.

Furthermore, constituents that are merged above the non-nominative antecedents (such as the non-thematic possessors in NPs, see section 4.1) are unable to bind or interrupt binding. Finally, as binding by non-nominatives is possible within extended projections of different categories, both nominal and verbal, it is reasonable to expect that the probe responsible for it is situated rather low, where the projections may still be maximally uniform, perhaps even category-neutral. In all relevant respects discussed in this paper NP-internal binding patterns together with binding through the low clausal probe against the dependency established through the high left peripheral probe. As non-nominative antecedents are normally the highest on their theta-grids, in the verbal domain the low probe should be situated immediately above vP, assumed to be the projection completing the argument structure.[17]

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[16] Note that it is hard to tell cause from effect here, and we are not sure that this solution works well across languages.

[17] An anonymous reviewer wonders about binding by dative experiencers into nominative internal arguments. This is a domain where considerable variability in judgments has been reported. As discussed by Slioussar (2007), Bailyn (2003) reports that in (i) binding is acceptable; but see Padučeva (1983):

(i) Maše$_i$ nravitsja svoja$_i$ rabota
     Masha.DAT appeals   SVOJ work.NOM
     'Her work appeals to Masha'.

Note that our analysis assumes that the vP phase does not restrict Agree, following e.g. Bošković (2007) and Keine and Zeijlstra (2020). Cf. also Richards (2012). The head introducing the external argument (conventional v^0) is unlikely to be phasal for the purpose of punctuating movement paths either, for otherwise intermediate copies of scrambled constituents at the edge of vP would probably be able to value the low probe and bring about various unattested binding possibilities. However, the head carrying the probe itself may well define a phase for that purpose in the same region. That would be in line with ideas associating phasehood with ϕ-feature probes (Chomsky 2008; Richards 2012 and others). As we don't assume accusative Case assignment parasitic on ϕ-feature Agree and there is no independent justification for direct object agreement in Russian, unlike Chomsky we don't postulate any ϕ-features on v^0 proper. That said, it should be noted that there is no clear evidence for a phase boundary anywhere in the v region in Russian.[18]

In the present approach Agree is assumed to proceed independently for different features and is subject to intervention on a feature-by-feature basis. For the more distant probe to be able to search across the low probe, they must differ in their feature composition, otherwise binding would have been blocked by minimality. This is what we have already suggested to account for the pattern in (4). As we have illustrated above, local nominative antecedents highest on their theta-grid can establish a dependency through either of the probes. However, the binding dependency that is established exclusively through the left peripheral probe across the low probe (which is the case when the antecedent is not strictly local) and the binding dependency established exclusively through the low probe (which is the case when the antecedent is not nominative) turn out to have different properties. Only the latter allows for inanimate antecedents,[19] the former doesn't; moreover, it yields an awareness effect (see

In a questionnaire experiment Slioussar reports that for 50% of the participants binding it is acceptable and for the others somewhat degraded. However, we should emphasize that this does not immediately bear on our hypothesis, as in this configuration it is impossible to contrast dative experiencers with nominative antecedents. Moreover, there are factors such as the EPP, subject agreement and possibly others, that could affect the derivation.

The same reviewer also wonders about the impossibility for *sebja* in a nominative position to be bound by an experiencer argument. While arguably this ban could reflect the Anaphor Agreement Effect (Rizzi 1990), it could also be due to some interaction of Agree with EPP-related movement or with another instance of Agree. Going into this issue in detail would lead us beyond the scope of this contribution.

[18] An anonymous reviewer asks to what extent the low #-probe here is comparable to the locus of reflexivization in for instance Kratzer (2009) or Ahn (2015). Kratzer's approach is based on Feature transmission via the closest v, but it crucially involves feature bundles rather than individual features, whereas for the facts to be discussed here access to individual features in different positions is essential. Ahn's implementation is based on a dedicated Voice head, and again is not sufficiently fine-grained to capture patterns of the type discussed here.

[19] An anonymous reviewer reminds us that nouns that exhibit a certain declension pattern are often referred to as animate in Slavic linguistics. To avoid confusion we have to stress that this formal morphological property does not correspond to animacy as understood here, which is not lexically determined and is better viewed as the same property that enables expressions to receive [/+m] theta roles (experiencer, agent as opposed to cause) within the Theta System of Reinhart (2002).

section 4.2).[20] On the other hand, only the former can be collective, whereas the latter can only be distributive with plural antecedents (see section 4.4).[21] Neither of them can result in a dependency that is collective and doesn't imply awareness at the same time.

To account for this we propose that the lower probe is an incomplete ɸ-feature probe involving number but lacking person. As a result the dependency via the high probe across the low # probe is based on person sharing only, because of intervention, and the dependency via the low probe is based on number sharing.[22] Although gender piggy-backs on the dependency that is established it doesn't appear to play an independent role.

On this view, inanimates, which *prima facie* invariably appear to be 3rd person, do not in fact carry a person feature (cf. Richards 2015; Lochbihler, Oxford & Welch 2021) or at least do not endow it with an interpretation; therefore they cannot take part in an interpretive dependency based on person. Thus, with inanimate antecedents only one route is available:[23]

(10) [Èta kniga]$_i$ protivorečit   sebe$_{i,*j}$.
      this book.NOM contradicts.3SG SEBJA.DAT
      'This book contradicts itself.'

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[20] An anonymous reviewer wonders why the dependency proceeding through the high locus cannot be mediated by a logophoric operator in the spirit of Charnavel and Sportiche (2016) and Charnavel (2020a,b). We have to reiterate that this dependency strictly obeys locality requirements, just of a different sort compared to binding mediated by the low probe, being confined to the minimal finite clause even if the subject of the latter is inanimate. In this *sebja* and *svoj* are crucially distinct from English 'exempt' anaphors, which allow an antecedent outside their minimal finite cause (Reinhart and Reuland 1993). The Russian reflexives never allow split antecedents (as acknowledged already in Klenin 1974), nor partial binding. These properties are considered hallmarks of non-logophoric dependencies in Charnavel (2020b). Furthermore, from the logophoric perspective it would be difficult to see why binding could be sensitive to Case, whereas agreement is demonstrably sensitive to it, and to explain the patterns of complementary distribution discussed in section 5.

[21] An anonymous reviewer wonders about the behavior of group nouns in this respect. In contemporary Russian, singular group nouns only trigger singular agreement on the verb and don't distribute. They show no special behavior with respect to binding either, as expected.

[22] To make it possible for subject agreement, including number, to surface on the verb, V probably has to raise high enough to get outside the domain of the #-probe, with technical details depending on the exact theory of verb agreement. It is known from adverb placement tests that V in Russian normally doesn't overtly raise as high as to T (Slioussar 2007; 2011, a.o., see also Kallestinova 2007), but clear evidence as to its exact position in a more articulated structure of the verbal spine is lacking, and the architecture of the latter has not been firmly established either. Gribanova's (2013) proposal that the verb moves to Asp appears compatible with our approach.

The uninterpretable #-probe has nothing to do with the interpretable number projection in the functional structure of the nominal, which presumably must be located higher in the nominal domain to avoid mutual interference between the dependencies they participate in.

[23] An anonymous reviewer suggests that inanimate nouns can be used with adverbs like *soznatel'no* 'consciously, on purpose', *narochno* 'on purpose', as in e.g. *Èta kniga soznatel'no/narochno sama sebe protivorechit* 'This book contradicts itself consciously/on purpose'. These examples are actually not felicitous. To the extent in which these are possible they are nevertheless less relevant since they definitely do not reflect mental involvement of the book (see fn. 19), but rather reflect the perspective of its author, or perhaps, e.g. a class instructor.

The configuration is given in (11):

(11)
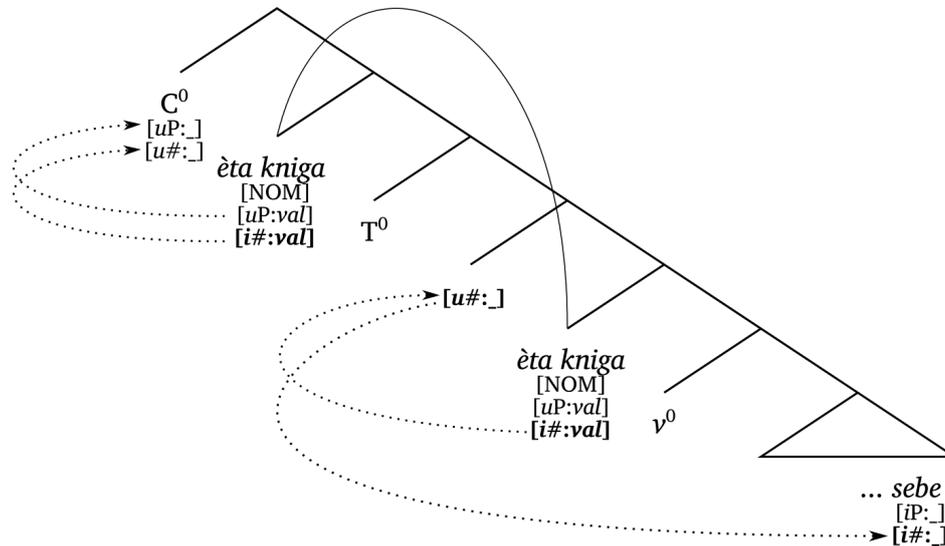
Since *èta kniga* is inanimate it cannot take part in an interpretable person-based dependency. However, it can provide interpretable number. Though the high # probe cannot value goals across the low one, the latter can value *sebe*'s unvalued # feature. Accordingly, binding by plural inanimates is always interpreted distributively.

For reasons of space in this paper we avoid discussing which copy gets valued if the goal moves between domains of several probes during the derivation. Scrambling doesn't bleed reflexive binding in Russian, though some other kinds of movement appear to do so. Given that languages vary widely with respect to movement possibilities this may account for some part of cross-linguistic variation. Note, however, that, as far as variation is concerned, we don't imply that all expressions that are used as anaphors across languages form a natural class and take part in the same syntactic derivations as in Russian.

With the essential properties of our approach in place, in the next section we will show how it works in more intricate cases.

4 More intricate binding patterns

4.1 NP-internal binding: Possessor versus author

NP-internal binding shows an interesting difference between two types of possessor phrases, namely possessors that are in a relation with the possessee that is merely contextually specified (ownership, or more generally the R-relation in Higginbotham 1983) and possessor phrases that stand in a thematic relation such as authorship. The former are unable to antecede reflexives; only the latter can, as in (12):

(12)   a.   Tanino$_i$ pis'mo (k) sebe$_i$
               Tanya.POSS letter   to   SEBJA.DAT
               'Tanya's letter to herself'

       b.   Tanino   pis'mo (k) Vane
               Tanya.POSS letter   to   Vanya.DAT
               'Tanya's letter to Vanya'

The possessor in (12a) can only be construed as the author, not a person who owns the letter. The latter interpretation is fine if the possessor doesn't bind a reflexive, as in (12b). The same pattern was reported for Polish (Rozwadowska 1995). This contrast is derived by the position of the NP-internal # probe.[24] Thematically linked dependents are first merged within the domain of the Number probe, presumably because they need to receive theta-roles from the nominal in a local configuration. The non-thematic possessor with no such requirement is merged outside it. This is illustrated in (13), with N and the possessors in their base positions:

(13)
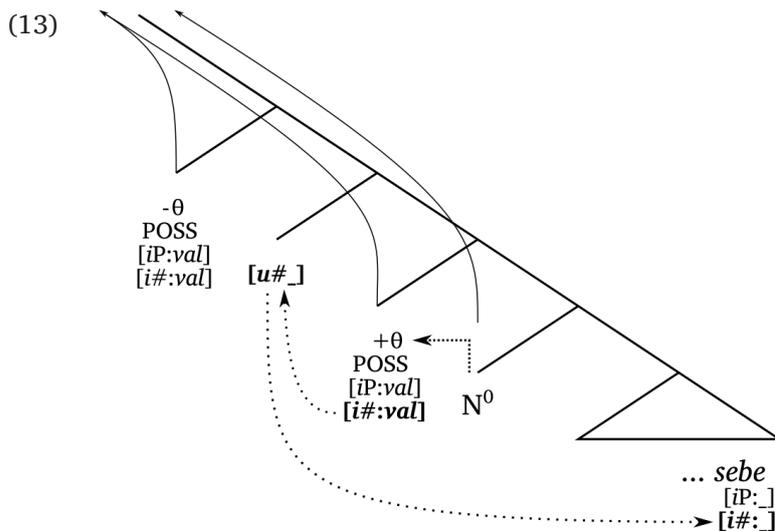
Here only the author Poss is accessible for probing by the # probe. The latter is then valued and simultaneously values the # feature of *sebe*, resulting in binding.

    Thus, the author's number feature can be probed by the NP-internal #-probe, which results in binding. This is not available for the possessor merged outside the domain of the #-probe.

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[24] An anonymous reviewer wonders why NPs don't contain a φ-complete high probe. This is presumably due to the fact that NP's lack a domain corresponding to the clausal left periphery. In any case, such a probe wouldn't account for anything at all as far as we can see and would probably yield wrong predictions, both for binding and elsewhere.

4.2 Binding into NPs: the role of animacy/awareness

Binding into NPs shows an interesting animacy effect, illustrated in (14):

(14)   a.   Vanja$_i$ isportil   ee$_j$ otnošenie   k sebe$_{i, j, *k}$ /[svoej$_{i, j, *k}$ sestre].
             Vanya.NOM damaged.M.SG her attitude.ACC to SEBJA.DAT SVOJ   sister.DAT
             'Vanya$_i$ damaged her$_j$ attitude towards him/herself/[his$_i$/her$_j$ sister].'

       b.   [Èta kniga]$_i$ isportila   ego$_j$ otnošenie   k sebe$_{*i, j, *k}$ /nej$_{i, k}$.
             this book.NOM damaged.F.SG his attitude.ACC to SEBJA.DAT it.DAT
             'This book damaged his attitude towards it/himself.'

       c.   [Èta kniga]$_i$ isportila   ego$_j$ otnošenie   k svoemu$_{*i}$ /ee$_i$ avtoru.
             this book.NOM damaged.F.SG his attitude.ACC to SVOJ   its author.DAT
             'This book damaged his attitude towards its author.'

In (14b,c) the inanimate subject *èta kniga* cannot bind the anaphor across the possessor, whereas in (14a) in a similar position the animate *Vanja* can. Let (15) illustrate the derivation of (14a):

(15)
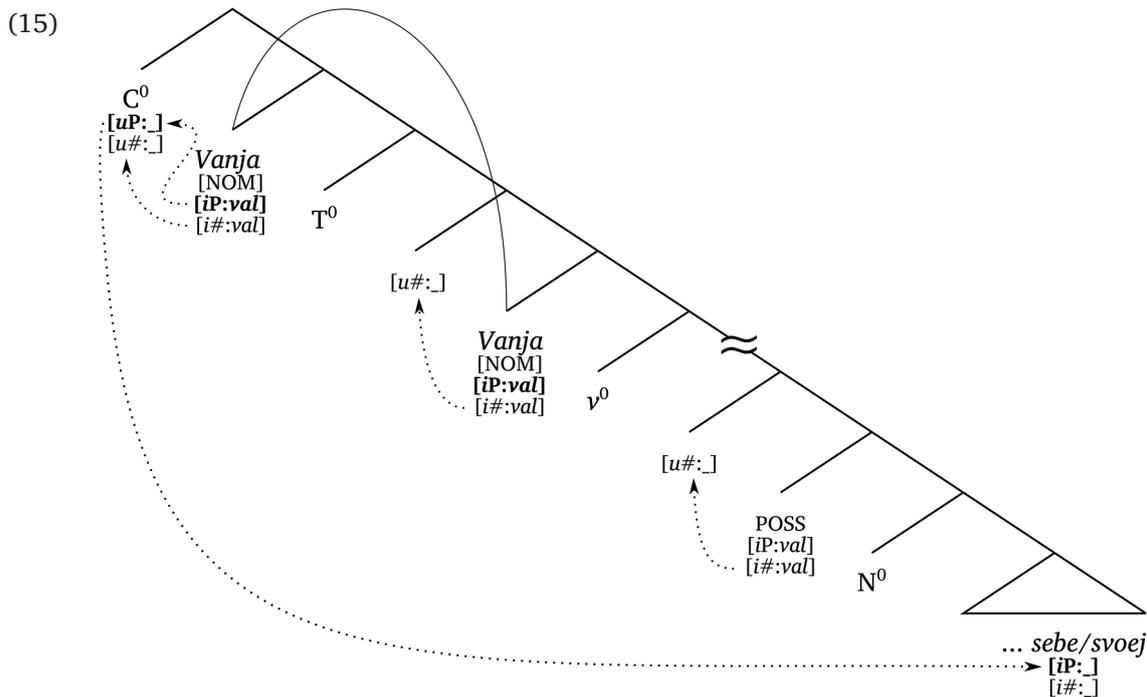
Here the high person probe is valued by the nominative *Vanja* and values the person feature of *sebe*, since there are no other person probes in the domain.

   Consider next the inanimate subject in (14b,c). The structure is as in (16):

(16)
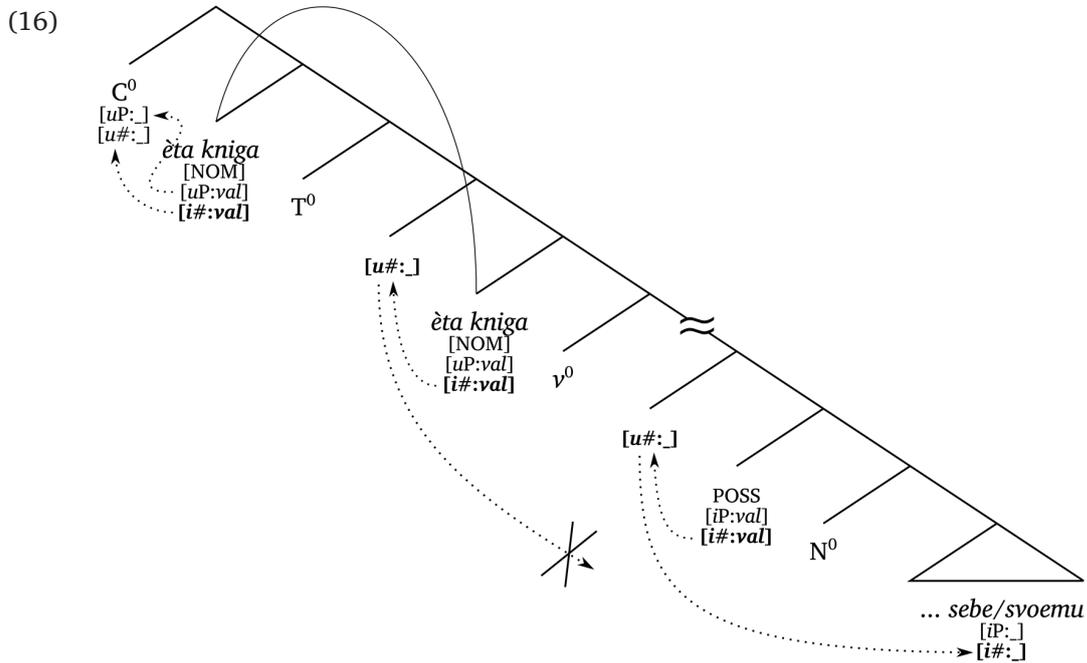
The low # probe on the verbal spine probes for number, finds a NP goal to be valued by, but cannot see beyond the NP-internal # probe by minimality. Hence, it cannot value the number feature of the reflexive. As discussed in section 3, the person-based dependency is unavailable for inanimates. Therefore there is no route available to *èta kniga* to bind the reflexive here. Thus, the animacy requirement on the antecedent is explained. As already illustrated in section 3.2, with local binding no such restriction applies.

The approach provides an account for a further person-related contrast, which is illustrated in (17):

(17) a. Maša$_i$ kupila   ego$_j$ knigu   o   sebe$_{i, j, *k}$ /nej$_{i, k}$.
          Masha.NOM bought.F.SG his   book.ACC about   SEBJA.LOC her.LOC
          'Masha$_i$ bought his$_j$ book about her/himself.'

      b. Maša$_i$ kupila   ego$_j$ knigu   o   [svoej$_{i, j, *k}$ /ee$_{i, k}$ materi].
          Masha.NOM bought.F.SG his   book.ACC about   SVOJ   her   mother.LOC
          'Masha$_i$ bought his$_j$ book about [her/his$_j$ mother].'

The reflexives cannot be bound by the matrix subject *Maša* in (17) if Masha doesn't realize that the book she bought is about herself or her own mother. Here too, the dependency is built on the person feature, and follows the pattern in (15). No such restriction applies to the interpretation of the pronominals.

This indicates that person sharing does not just require animacy but also implies awareness, which may follow if, as we assume, it is person features that carry perspectival properties, and feature sharing by Agree effects their unification.

The patterns we discussed show two things. One is that animacy and awareness requirements are not limited to traditional 'long-distance binding' across clause boundaries.[25] The other is that such requirements can be captured by a straightforward Agree-based analysis. In the next section we will discuss intricate binding patterns presented by high non-nominative experiencers.

## 4.3 Experiencer predicates

Where the highest argument is not nominative, valuation of the probes is split between two goals. The nominative values the probe associated with finite agreement, and the highest argument (dative) values the number probe. This results in two possible antecedents, as in (2), repeated here as (18):

(18) Vane$_i$ v svoem$_{i, j, *k}$ fil'me   ponravilas'   Anja$_j$.
      Vanya.DAT in SVOJ   movie.LOC appealed.F.SG Anya.NOM
      'Anya pleased Vanya in his/her movie.'

As is standard with this type of verb, and according to the mapping rules of the theta-system (Reinhart 2002), we assume that the dative *Vane* is merged higher than the base position of the nominative *Anja* but is unable to satisfy the EPP (see e.g. Slioussar 2007 on this).

The derivations are illustrated in (19–20). The high person probe is valued by the privileged nominative goal, the low # probe is valued by the nearby dative goal:

(19)   The low # probe is valued by the dative goal

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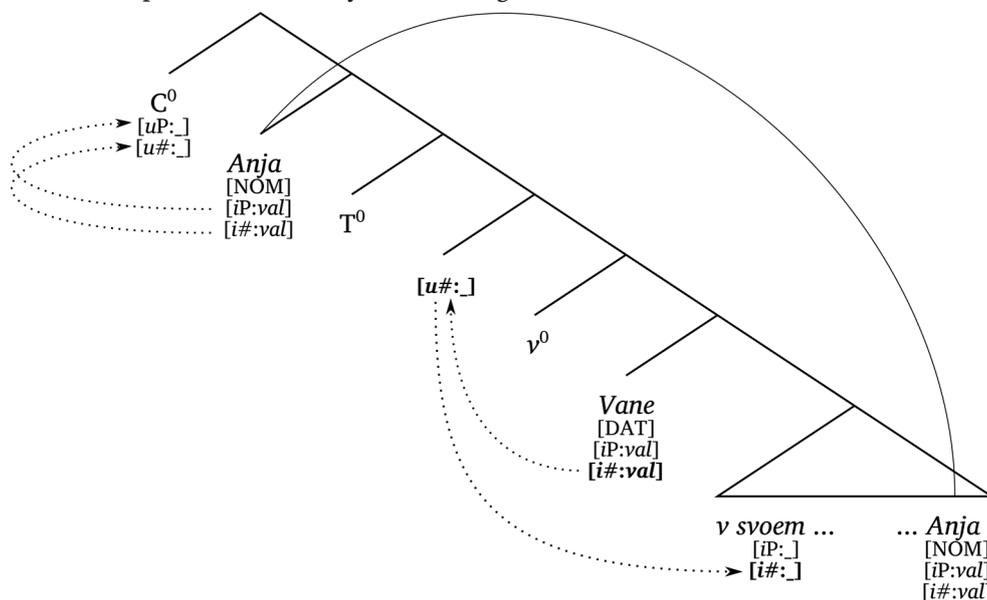
[25] For instance discussions of awareness effects in non-local binding such as Cole, Hermon, and Lee (2001), and Huang and Liu (2001) are essentially limited to cross-clausal anaphoric dependencies. More recently, Charnavel and Sportiche's (2016) phase based approach only mentions C⁰ and v⁰ as relevant phase heads, though see Charnavel (2020b) for a list including D⁰.

(20) The high person probe gets valued by the privileged nominative goal

Note that some PPs appear to be merged too high to be accessible to the number probe. In this case (repeated here from (3)) only the nominative antecedent remains available:

(21) Vane$_i$ iz-za   svoix$_{*i, j, *k}$/ego$_{i, k}$ vkusov   ponravilas'   Anja$_j$.
     Vanya.DAT because.of SVOJ his   tastes.GEN appealed.F.SG Anya.NOM
     'Anya pleased Vanya because of his/her tastes.'

4.4 The number feature and distributivity

Whereas the animacy effect reflects the nature of the person feature, we will now briefly discuss a contrast that may well reflect the nature of the #-feature. To see this, consider (22):

(22) a. Soldaty$_i$ v svoej$_{i, *j}$ mnogočislennosti videli   preimuščestvo.
        soldiers.NOM in SVOJ   numerosity.LOC   saw.PL advantage.ACC

     b. Soldatam$_i$ v * svoej$_{i, j}$ /ix$_{i, j}$ mnogočislennosti videlos'   preimuščestvo.
        soldiers.DAT in SVOJ   their numerosity.LOC   appeared.3SG advantage.NOM
        'The soldiers saw an advantage in their numerosity.'

     c. Soldatam$_i$ v svoej$_{i, *j}$ podgotovke   videlos'   preimuščestvo.
        soldiers.DAT in SVOJ   preparation.LOC appeared.3SG advantage.NOM
        'The soldiers saw an advantage in their training.'

Example (22a) shows that where for semantic reasons the reflexive cannot range over singular individuals it can nevertheless be bound by a plural nominative antecedent in Russian even if the predicate is interpreted as distributive on the antecedent. By contrast, as (22b) shows, this is different for plural non-nominative antecedents. These are not appropriate if the reflexive cannot range over singular individuals. Note that binding by the dative (22c) is otherwise straightforward.[26]

As we saw in the preceding discussion of experiencer verbs, non-nominative antecedents can only bind through the #-probe, which we propose to be taken to be the source of the contrast. Likewise binding by plural inanimates is always interpreted distributively.[27]

4.5 Binding into infinitives: the role of animacy/awareness

Russian also allows non-local binding into infinitives. However, there is varying acceptability with different control verbs (Timberlake 1979, Klenin 1974) and some degree of inter-speaker variation documented by Klenin (1974: 40, 57). For instance, as reported by Klenin, in the following sentence some of her informants accepted only the (k) indexing, some others both (k) and (i), but not (j), still others all three options (i, j, k):

(23)   General$_i$ ne   razrešaet   sekretarše$_j$ PRO$_j$ pozvolit' dvorniku$_k$
        general.NOM NEG permit.3SG secretary.F.DAT   allow.INF janitor.DAT
        PRO$_k$ nazyvat' sebja$_{i, j, k, *l}$ Valej.
                call.INF SEBJA.ACC Valya.INS
        'The general does not permit the secretary to allow the janitor to call himself/him/her Valya.' (Klenin 1974:57)[28]

Like other cases of non-local binding we discussed, binding into infinitives also shows sensitivity to animacy:

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[26] The strength of the contrast may depend on whether speakers realize during processing that 'numerosity' can only characterize a set. This may explain variation in the strength of the judgments noted by two of the anonymous reviewers. Additionally, an interpretation may be marginally available where neither the antecedent nor the anaphor are distributed (as is always the case with singular arguments), which appears infelicitous here but would be consistent with our premises.

[27] It could be interesting to relate such facts to more general issues in distributivity as discussed in e.g. Landman (2000) or Dotlačil (2010). Although nothing precludes this in principle, doing so would lead us far beyond the scope of the present article.

[28] As suggested by an anonymous reviewer, it may be helpful for non-Russian readers to know that *Valya* is a diminutive form of a proper name reflecting a degree of informality that is considered inappropriate here.

(24)   a.   [Èta kniga]$_i$ zastavila   Anju$_j$ PRO$_j$ pereproverit' sebja$_{*i, j, *k}$
             this book.NOM forced.F.SG Anya.ACC   recheck.INF SEBJA.ACC
             /ee$_{i, k}$.
             it.ACC
             'This study made Anya$_j$ recheck it/herself.'

       b.   [Èta kniga]$_i$ zastavila   Anju$_j$ PRO$_j$ pereproverit' svoi$_{*i, j, *k}$ /ee$_{i, k}$
             this book.NOM forced.F.SG Anya.ACC   recheck.INF SVOJ   its
             vyvody].
             conclusions.ACC
             'This study made Anya$_j$ recheck her$_j$/its conclusions.'

       c.   Vanja$_i$ zastavil   Anju$_j$ PRO$_j$ pereproverit' sebja$_{i, j, *k}$ /svoi$_{i, j, *k}$
             Vanya.NOM forced.M.SG Anya.ACC   recheck.INF SEBJA.ACC SVOJ
             vyvody.
             conclusions.ACC
             'Vanya$_i$ made Anya$_j$ recheck him$_i$/herself$_j$/[his$_i$/her$_j$ conclusions].'

In (24a,b) the inanimate *èta kniga* 'this book' is unable to bind the possessive anaphor *svoj*, although its structural position is the same as the animate *Vanja*'s in (24c), which can.

In order for binding into infinitives to be possible at all, their left periphery should differ from that of finite clauses. Specifically, the high probe should be absent or at least lack the person feature. That is, infinitival clauses may show the effect of *restructuring*.[29]
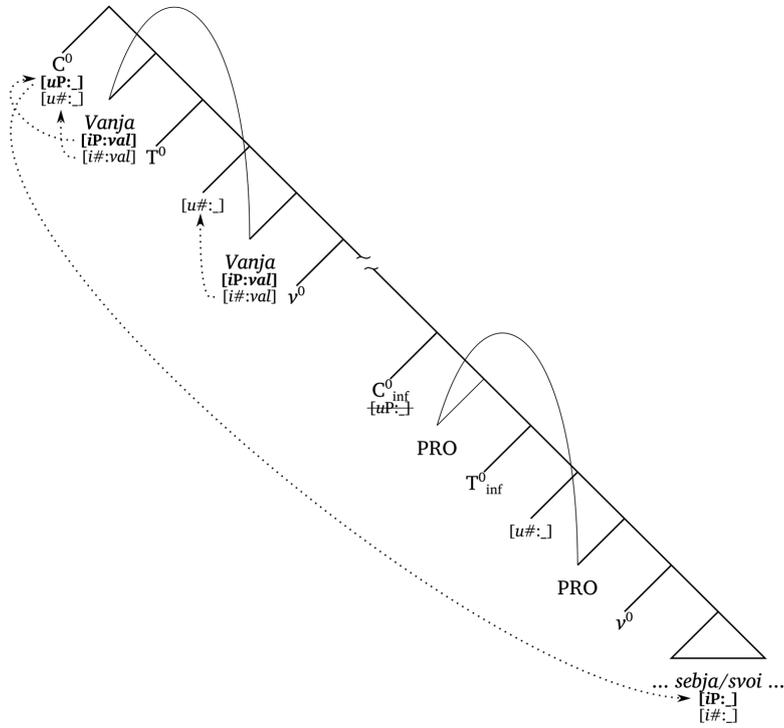
The crucial assumption is that the differences reside in the high probe. This provides a straightforward means to account for the variability: control verbs may differ in the richness of the CP they select, and speakers may differ in whether or not they allow CPs without a high probe. The three options in (23) observed by Klenin follow if restructuring is unavailable, obligatory and optional respectively.[30]

Assuming that the low #-probe is always present the animacy effect follows. Just as in the cases of non-local binding into NPs discussed in section 4.2, the low #-probe may be crossed by a person probe in the matrix clause, but not by a #-probe in the matrix clause. The relevant patterns are graphically represented in (25)–(26):
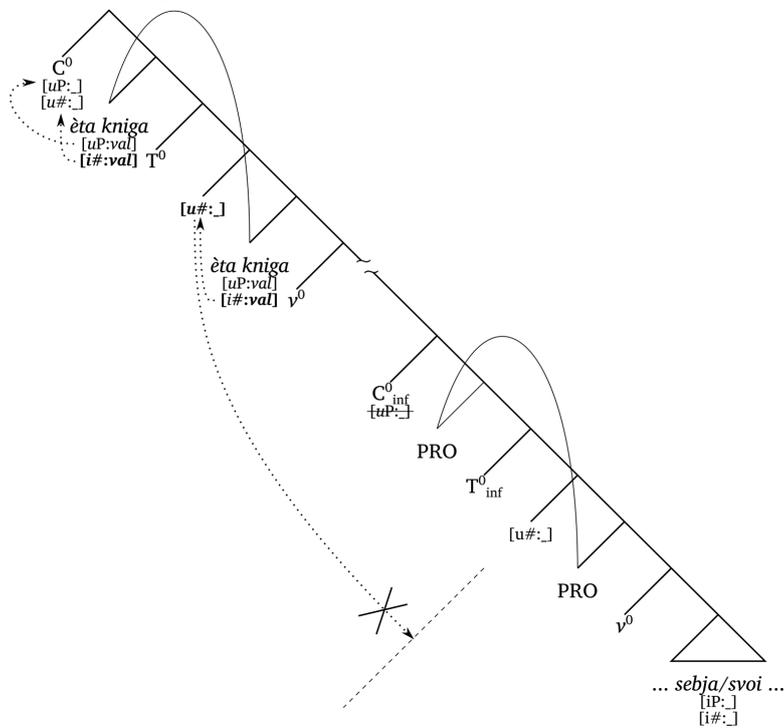
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[29] See Bhatt and Keine (2017) for a discussion of types of restructuring across languages.

[30] Note that at least for some speakers object-controlled PRO can be a non-local antecedent and thus patterns with nominative antecedents, despite often being claimed to bear an oblique case based on the case marking of floating quantifiers (see Comrie 1974; Babby 1998; Landau 2008). We suggest that, unlike the dative of experiencer arguments, which is assigned locally, in that instance an oblique case may be assigned to the entire infinitival clause (cf. also Matushansky 2008; 2010), so at least at the point of the derivation when the high probe in the infinitival left periphery is active PRO lacks an oblique case and can take part in a dependency based on person.

(25)   Restructuring: Matrix animate nominative

C⁰
[uP:_]
[u#:_]

Vanja
[iP:val]
[i#:val]   T⁰

[u#:_]

Vanja
[iP:val]
[i#:val] v^0

C⁰_inf
[uP:_]

PRO

T⁰_inf

[u#:_]

PRO

v^0

... sebja/svoi ...
[iP:_]
[i#:_]

(26)   Restructuring: Matrix inanimate nominative

C⁰
[uP:_]
[u#:_]

èta kniga
[uP:val]
[i#:val]   T⁰

[u#:_]

èta kniga
[uP:val]
[i#:val] v^0

C⁰_inf
[uP:_]

PRO

T⁰_inf

[u#:_]

PRO

v^0

... sebja/svoi ...
[iP:_]
[i#:_]

Interestingly, there is an environment where binding into infinitives is not allowed, namely in the presence of an adjunct clause, see the contrast in (27):

(27) a. Anja$_i$ poprosila soseda$_j$ PRO$_j$ sfotografirovat' sebja$_{*i, j}$ /ee$_i$,
Anya.NOM asked.F.SG neighbor.ACC photograph.INF SEBJA.ACC her.ACC
kogda ona vernetsja.
when she.NOM returns.3SG
'Anya asked the neighbor to take a picture of her/himself when she returns.'
LD binding blocked

b. Anja$_i$ poprosila soseda$_j$ PRO$_j$ sfotografirovat' sebja$_{i,j}$ zavtra.
Anya.NOM asked.F.SG neighbor.ACC photograph.INF SEBJA.ACC tomorrow
'Anya asked the neighbor to take a picture of her/himself tomorrow.'
LD binding available

The infinitive in (27a), unlike (27b), is modified by a clause. It seems to be a reasonable assumption that a high modifier clause goes with a richer structure in the left periphery, and hence is incompatible with restructuring.[31]

(28) No restructuring: Matrix animate nominative

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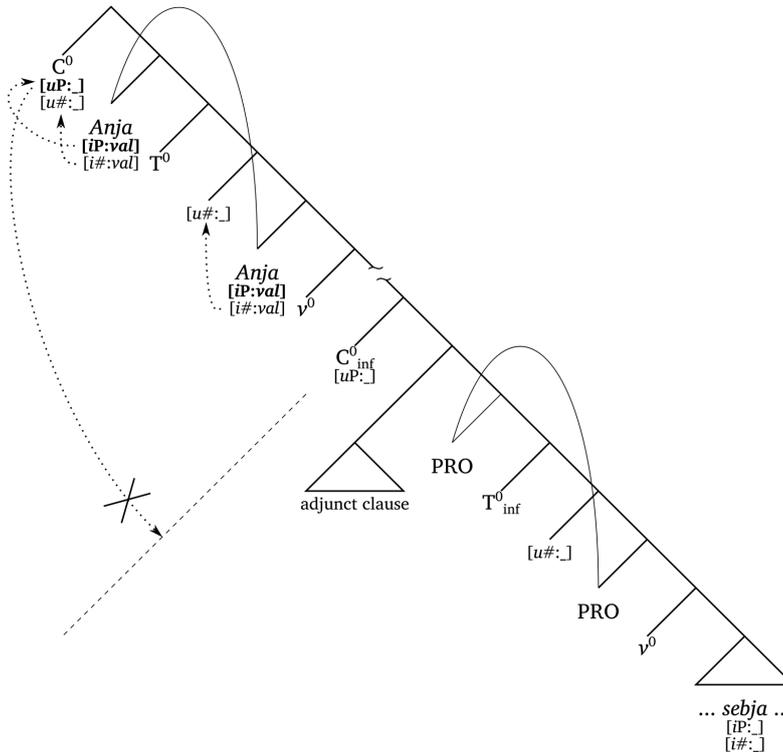
[31] An anonymous reviewer asks why we assume that adjunct clauses are different from ordinary temporal adverbials. Unlike temporal PPs and adverbials, bare adjunct clauses (not embedded within a PP) never modify nominalizations in standard Russian and are normally only licensed by clauses.

Summarizing, we have seen that infinitival clauses undergo optional re-structuring. Restructuring entails the absence of a high person probe in the C-domain, but the low #probe above *v*P is retained. Consequently, animate matrix nominatives can bind anaphors in infinitival complement clauses, since the person probe in the matrix clause – valued by the nominative – can probe across intervening #-probes. Anaphor binding by inanimate matrix nominatives is still blocked, since these can only participate in a dependency based on number, which cannot cross intervening #-probes. Though their exact positions currently remain unclear, some evidence suggests there may be further #-probes in this configuration, but the one indicated is sufficient to guarantee that the dependency is blocked. This explains the animacy requirement on antecedents in non-local binding, without an appeal to any other process but Agree-chain formation.

5 Complementarity: relativizing the chain condition to single features

As argued in Reuland (2011a; 2017), if feature sharing (chain formation) is attempted and fails, as it does within the present approach when the probe attempts to value an already valued goal in its domain, the derivation is cancelled (Chomsky 1995).[32] Hence the failure cannot be bypassed by alternative strategies in subsequent modules of the language faculty due to economy principles. The interpretation that would otherwise result remains unavailable.[33] Therefore it is expected that pronominals inherently specified for ϕ-features cannot be bound by the goal that has provided the features the probe attempts to share. It is important to note that this account involves no comparison with any alternative derivations involving a reflexive instead of the pronominal. That the reflexive is bound and the pronominal is set free in the same configuration are two mutually independent consequences of the probe accessing their position and does not result from any competition between the two.

As in many other languages, in Russian complementarity between reflexives and pronominals is less than perfect. It obtains in some configurations, but not in others. The patterns are fairly complex (for a useful overview, albeit not including some of the data crucial for our approach, see Kazenin 2000). From the competition perspective that inconsistency would be rather puzzling, as we would expect complementarity to hold throughout.[34] In Reuland's original approach chain formation involved full ϕ-feature bundles,[35] which also appears insufficiently fine-grained

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[32] Note that here we only assume that, once valued, features cannot be overwritten by Agree. We don't claim that features must get valued (see fn. 8 on the latter). In line with Preminger 2014, features that remain unvalued upon spellout don't result in derivation cancellation.

[33] Reuland (2011:130–131) provides an explicit account of how cancellation due to a failed attempt to apply Agree is crucial in order to explain the binding properties of two forms of the 1st person plural pronominal in Brazilian Portuguese.

[34] Or at least, given the proposal rejected in fn. 20, consistently for dependencies established through one of the loci, which is, however, not the case either, as one can see below.

[35] Note that, while in the present approach number and person are treated on a par, in Reuland (2001; 2011a) person and number were treated differently. It was assumed that an attempt to value inherently valued person, unlike number, was compatible with chain formation.

to account for the Russian patterns. However, given the framework of the economy principle outlined above we argue that the patterns follow from the alternation of the two routes of derivation that we proposed in the previous sections.

Descriptively, provided the pronominal is not excluded for independent reasons,[36] complementarity breaks down unless the routes converge on the same antecedent (or antecedents referentially indistinct from one another). Consider for example the contrast in (29). For pronouns within complex event NPs (CEN) complementarity holds if the highest argument of the complex event nominal – here Ø – is controlled by the closest nominative subject, but breaks down otherwise:

(29)   a.   Miša$_i$ obvinil   Vanju$_j$ v izbienii   Ø$_j$ ego$_{i, j, k}$ /svoej$_{i, j,*k}$ sestry.
        Misha.NOM accused.M.SG Vanya.ACC in beating.LOC   his   SVOJ   sister.GEN
        'Misha accused Vanya of beating his sister.'

        b.   Miša$_i$ priznalsja   Vane   v izbienii   Ø$_i$ ego$_{*i, j}$ /svoej$_{i,*j,*k}$ sestry.
        Misha.NOM confessed.M.SG Vanya.DAT in beating.LOC   his   SVOJ   sister.GEN
        'Misha confessed beating his sister to Vanya.'

In terms of probe-goal relations the generalization can be restated as the *relativized chain condition* (RCC):

(30)   *Relativized Chain Condition (RCC) – based on feature chains involving a single probe*
        A pronominal with a fully specified φ-feature bundle cannot be bound by an antecedent if the latter (or other goals referentially indistinct from it) values all probes that can attempt to value the former (closest number, closest person).

CEN's highest argument in (29), though silent, can bind reflexives, thus it is assumed to be projected syntactically and to value a # probe like in other NPs we discussed. In both (29a) and (29b) the nominative subject *Miša* is able to bind *svoej* through its person feature and the high person probe. Since it is referentially identified with the highest argument of the CEN *izbienie* in (26b) and the latter can also bind *svoej* through the # probe, the RCC applies and complementarity is preserved. In (29a), however, the # probe is valued by the Ø argument controlled by the object distinct from *Miša*. Hence, either can bind *svoej* but complementarity does not obtain.

It follows from (30) that any relevant φ-feature probe licenses binding of pronominals in its domain by any antecedent referentially distinct from the goal that values it, completely independently of the origin of other probes' values. The RCC does not involve any comparison between the alternatives. The pattern in (29a) follows if what we see in (29a) is merely a superposition of the derivations (31a) based on person sharing and (31b) based on number sharing, which do not interact between themselves:

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[36] Like e.g. in coargument binding, because pronominal possessors may trigger definiteness of the noun phrase they modify where reflexives don't, or due to discourse accessibility violations.

(31) a. *person*: Miša$_i$ obvinil Vanju$_j$ v izbienii Ø$_j$ ego$_{*i, j, k}$/svoej$_{i, *j,*k}$ sestry.

     b. *number*: Miša$_i$ obvinil Vanju$_j$ v izbienii Ø$_j$ ego$_{i, *j, k}$/svoej$_{*i, j,*k}$ sestry.

Within each of the individual alternating derivations complementarity is observed and is unaffected by the existence of another variant. The RCC thus follows if compliance with the economy principle of Reuland (2011a, 2017) outlined above is evaluated separately for alternating derivations and doesn't involve transderivational comparison. A pronominal with a given interpretation becomes possible if that is licensed in at least one derivation ((31b) for $<i>$, (31a) for $<j>$), regardless of the other. Pronominal binding is ruled out only if it is unavailable with all alternatives, as in (29b) for $<i>$.

If one of the derivational routes is interpretively vacuous, as is the case with the person dependency with inanimate antecedents (as well as dependencies involving expletive subjects/default agreement, which we don't discuss here), no interpretation of the pronominal is excluded in the respective derivation, hence non-complementarity with inanimate antecedents is predicted. This prediction is generally borne out:

(32) a. Stol$_i$ otbrasyval ten' na svoi$_{i,*j}$/ego$_{i, j}$ nožki.

       table.NOM cast.M.SG shadow.ACC on SVOJ/its legs.ACC

       'The table cast a shadow on its legs.'

     b. Vanya$_i$ otbrasyval ten' na svoi$_{i,*j}$/ego$_{*i, j}$ ladoni.

       Vanya.NOM cast.M.SG shadow.ACC on SVOJ/his palms.ACC

       'Vanya cast a shadow on his palms.'

Thus, just like animacy creates non-trivial patterns in locality, it is also involved in the rather complex patterns in complementarity one finds in Russian, as has been noted already by Padučeva (1983).

We also derive the pattern in possessor binding, where binding is sensitive to whether the binder is just the owner or the author. Due to the different position relative to the NP-internal #-probe, there is no complementarity in the former case, whereas in the latter case there is. The overall picture is given in (33).

(33) Anja$_i$ prodala svoju$_{i,*j}$ knigu o ee$_{i, j}$ /svoej$_{i,*j}$ sestre.

     Anya.NOM sold.F.SG SVOJ book.ACC about her SVOJ sister.LOC

     'Anya$_i$ sold her$_i$ book about her sister.'

Differentiated per reading we get the pattern in (34a) for the owner reading, and that in (34b) for the author reading.

(34) a. Anja$_i$ prodala svoju$_{i,*j}$ knigu o ee$_{i, j}$ /svoej$_{i,*j}$ sestre.

       Anya.NOM sold.F.SG SVOJ book.ACC about her SVOJ sister.LOC

       'Anya$_i$ sold her$_i$ book about her sister.'

b. Anja$_i$ prodala svoju$_{i,*j}$ knigu o ee$_{*i,j}$ /svoej$_{i,*j}$ sestre.
Anya.NOM sold.F.SG SVOJ book.ACC about her SVOJ sister.LOC
'Anya$_i$ sold her$_i$ book about her sister.'

Recall from 4.1 that (34a) must be derived from the base structure where Poss is merged above the NP-internal number probe. *Anja* can bind *svoej* by the high person probe. But binding of *svoej* by the low #-probe is impossible due to the intervening NP-internal #-probe. Thus, *Anja* does not value all probes that can attempt to value *svoej*, neither directly, nor indirectly. Hence the RCC is not invoked, and there is no complementarity.

In (34b), with the possessor *svoju* specified as the author, we find the structure where it originates in the domain of the #-probe. *Anja* can bind *svoej* by the high person probe. However, *svoju* is in such a position that it could value *svoej* through the NP-internal #-probe.[37] Although the probes are positionally distinct they are referentially identified with each other. That is, proviso (i) of the RCC applies and complementarity ensues.

In contrast to (33–34), in (35) free distribution holds with both antecedents independently of the interpretation of the possessor, because the NPs valuing the probes are not identified with one another, and proviso (i) of the RCC does not apply.

(35) Anja$_i$ prodala Taninu$_j$ knigu o ee$_{i,j,k}$ /svoej$_{i,j,*k}$ sestre.
Anya.NOM sold.F.SG Tanya.POSS book.ACC about her SVOJ sister.LOC
'Anya sold Tanya's book about her sister.'

6 Concluding remarks

The binding patterns in Russian are notoriously complex and have proven challenging for any attempt to account for them so far. We have presented an account based on Multiple Agree that derives these complex patterns from a set of assumptions that are virtually all independently justified, or represent at least plausible choices where the general minimalist framework we adopt leaves things open. We could have added further cases to our exposition, but we feel that the cases we discussed are sufficiently representative (Zubkov 2018 presents some further patterns).

Why probes differ in their sensitivity to case requires further study involving a broader range of languages. The proposal that binding is based on single-feature chains is novel in this particular form. However the claim that this level of granularity is needed is amply supported by the intricate patterns of binding and (non-)complementarity it allows us to derive. The contrasts we observed in the latter domain cannot be handled by any form of transderivational economy. Otherwise a single derivation by way of either probe would be enough to rule pronominals out.

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[37] We abstract away from the issue of how *svoju* itself gets valued for number here, as this would require a far more detailed analysis than the background introduced so far allows.

The proposal that binding is based on single-feature chains entails that an anaphor retains unvalued features after valuation. This keeps them distinct from pronominals, for instance for transfer to the spell-out system. This also obviates the problems with an Agree-based account of binding put forward in recent work by Preminger (2019), since partial valuation retains the difference between anaphors and pronominals. If an analysis along these lines carries over to Germanic, it also solves an issue raised in Rooryck and Vanden Wyngaerd (2011), namely how one can avoid spelling out an anaphor like Dutch *zich* as a pronoun after valuation.

The approach of Charnavel and Sportiche (2016), and Charnavel (2020a,b) if applied to the Russian reflexives would face major difficulties accounting for complementarity and would offer no perspective on the dependence of non-local binding on the case of the antecedent. Note that despite some superficial similarity in the role of animacy (cf., however, Marty (2020) for some complications) we do not propose to extend our approach to the French expressions that Charnavel and Sportiche consider in their work. French *lui-même* appears to bear a much more profound similarity to the Russian pronominals reinforced with the intensifier *sam*, which in many instances, albeit poorly defined, require animate antecedents too, unlike plain pronominals. However, just like the latter they obey complementary distribution with the true reflexives whenever expected.

We have shown that the difference between local and non-local binding in Russian can be accounted for within narrow syntax by an Agree-based system without recourse to a qualitative difference between local and non-local binding in the form of a two-step process. Importantly, such animacy and awareness effects not only obtain with binding into clausal complements, but also in the case of binding into NPs. The animacy and awareness effects that have been observed can in fact be reduced to the role of person. Person is the bearer of animacy and awareness. Where only person can value a reflexive these effects follow.

A next step is to investigate how this approach works out cross-linguistically. Cross-linguistically, binding patterns result from quite complex interactions between different components of the language system. Even if each of these components is universal and simple, superficial comparisons may not be revealing. Hence, for a fruitful comparison between languages there is no escape from in-depth analyses. Hence an investigation of how our system plays out in other languages will have to wait for other occasions.[38]

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[38] For a possible approach to the variation among Indo-European languages, see Reuland (2021).

Abbreviations

3 = 3rd person, ACC = accusative case, DAT = dative case, F = feminine gender, GEN = genitive case, INF = infinitive, INS = instrumental case, M = masculine gender, NOM = nominative case, LOC = locative case, PL = plural, NEG = negation, POSS = possessive, SG = singular

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Competing Interests

The authors have no competing interests to declare.

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