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Null Subjects in Slavic and Finno-Ugric

Licensing, structure, and typology

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1 Introductory remarks

In this chapter, I will offer an overview of null subjects (NSs) with individual reference interpretation in the history of Russian.[1] Specifically, I will relate the current use of NSs in root contexts and NSs in syntactically embedded/subordinate clauses in Russian to their diachronic development.

The diachronic approach of this chapter will take as its starting point the synchronic description of the two relevant linguistic systems representing the initial and final stages of the change, i.e. referential NSs in Old Russian and Modern Russian. Fortunately, detailed synchronic accounts of these elements have been previously put forward, especially for Modern Russian. The main contribution of this chapter will then be to relate the two NS systems, which are, in principle, very different, and explain the reasons for a natural transition from one grammar to the next.

To be more precise, I will take every silent subject to be a minimal ϕP, in the spirit of Holmberg (2005, 2010), endowed with unvalued ϕ-features that, in addition, needs to copy the referential index of some D-valued antecedent, in order to be interpreted as referential (otherwise, it would be interpreted as generic or arbitrary).

On the one hand, I will argue that Old Russian was a "well-behaved" *pro*-drop language (Meyer 2011; Madariaga 2015, 2018; Jung 2018). Old Russian will represent our Grammar 1, in which NSs were licensed in an "indirect" way, in the domain of a T, whose unvalued D-feature was valued by a null Topic in CP (Frascarelli 2007; Holmberg, Nayudu & Sheehan 2009), whereas emphatic or contrastive subjects had to be realized as overt pronouns.

Pronominal NSs were licensed in a free and uniform way, regardless of the syntactic context (root or embedded), and their specific topical status (familiar/ given or sentential). The relevant configuration for licensing NSs was underpinned by the existence of V-to-T movement in Old Russian, which ensured the ability of T to check the EPP, match ф-features *and* value its unvalued D-feature from that position, thus becoming suitable to transmit that D-feature to the NS as well. As expected in a consistent NSL, other arguments in the structure lacking this Agree relation with T could not be dropped in Old Russian, but had to be overtly realized as clitics.

Our Grammar 2 will be the next stage in the change, starting from Late Middle Russian and represented by Modern Russian. This language has been characterized as a partial NS language, e.g. by Holmberg, Nayudu & Sheehan (2009); Roberts & Holmberg (2010); Livitz (2014); Tsedryk (2012, 2015, 2022), and many others, following the classification by Holmberg (2005). The baseline realization of pronominal subjects is overt in partial NSLs, although they can be dropped under certain circumstances, which vary from language to language. Here, I take "partial" NSL to be a cover term for languages displaying a range of properties that distinguish them from consistent NSLs.

For the purposes of analyzing NSs with individual reference interpretation, a significant property will be the availability of null Topics in these languages, which includes all sorts of null arguments, although we will just focus on null topic subjects in this chapter. The relevant configuration to license referential NSs in Modern Russian is the lack of V-to-T movement (Bailyn 2012; Gribanova 2013), together with a T-head lacking an unvalued D-feature, which is by itself able to license only non-referential NSs (Holmberg, Nayudu & Sheehan 2009). The definite (referential) interpretation of a NS requires an independent mechanism that can be obtained from heterogeneous sources. All of them imply the existence of an additional grammatical relation that is established with some higher element through CP. This can be performed by transmitting a D-feature from a preceding sentential Topic (A-Topic), from an Edge-feature (a logophoric feature or a situational/contextual topic feature, which renders a familiar/given topic, i.e. G-Topic), or from a c-commanding antecedent through a bound variable (embedded "control"). Impressionistically speaking, NSs in Modern Russian are less homogeneous, albeit more restricted, than NSs in Old Russian.

In a nutshell, I will argue that Russian first lost V-to-T movement; this loss conveyed the inability of T to mediate in copying the D-feature that referential NSs needed from the element located in CP. I formalize this change as a reanalysis of T losing its unvalued D-feature. This new configuration forced pronominal referential subjects to be realized overtly in regular conditions, which means that Russian factually became a non-*pro*-drop language. However, NSs with individual

reference were still available to new learners in their linguistic input because (i) change spreads through a community of speakers in a progressive way, and (ii) infinitive clauses still produced "referential" gaps in the place of subjects (PRO) in certain contexts.

I will propose that the instances of NSs we find in Modern Russian emerged by reanalysis/extension of residual NSs inherited from the previous system, and, in particular, NSs in root contexts were reinterpreted as null Topics (G-Topics or successive instances of an A-Topic), whenever their reference could be linked directly to the right topic or topic feature at CP; and NSs in embedded contexts were subsumed under "control" requirements (the need of a local c-commanding antecedent), extending the rare Old Russian instances of control which had been previously available only in a few infinitive constructions.

In this chapter, I will incorporate some basic assumptions about the nature of silent pronouns and the relation of T with NSs. These are listed below.

First of all, I will follow Holmberg (2005) and related work, such as Holmberg, Nayudu & Sheehan (2009), Roberts (2010); Livitz (2014) and Tsedryk (2015), by assuming that NSs in Russian are minimal φPs with unvalued interpretable φ-features ($\phi P_{[i\phi\_]}$). When they have their φ-features matched at [Spec,TP], they can exhibit gender/number verbal agreement, but they still need to match an additional D-feature to be interpreted as referential.[2]

Second, following Holmberg, Nayudu & Sheehan (2009), I will assume that T comes in two flavors. Specifically, in consistent NS languages, it contains an unvalued D-feature, which can be satisfied by an overt (in)definite DP or a NS (φP) through a null Topic in CP, with the ability of endowing the NS with a definite interpretation.[3] In partial NS languages, however, T lacks a D-feature, so NSs, after valuing their φ-features in [Spec,T], are canonically interpreted as generic or arbitrary, unless they are able to copy the referential index of a valued DP, by entering either in a chain with it (a "topic chain"), or an anaphoric relation (getting bound by a c-commanding antecedent).[4] As a third option available for

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2 I diverge at this point from Tsedryk (2022), who adopts Holmberg's (2005) idea that referential NSs are full DPs, combined with Barbosa's (2019) account based on semantic types.
3 For the purposes of this chapter, I do not need to assume a rich extended projection of CP in Old Russian (our consistent NS language), but just assume that NSs are uniformly linked to any type of null operator / topic in the C-domain (regardless of the degree of embedding), just as far as they share a [+given] feature with it (see Jiménez-Fernández 2016 for Spanish). I will explain this in more detail in Section 3.
4 The presence of a D-feature on T implies that the Avoid Pronoun Principle proposed by Chomsky (1981) is active only in the case of consistent NS languages. In a context in which either a null or overt pronoun is available, the null variant is preferable for expressing referential dependence

NSs, I will follow Sigurðsson (2011) and Tsedryk (2015) in that specific informational features (Edge-features), such as logophoric and situational/contextual/topical (deictic) features, can also transmit a referential index to a D-lacking φP, rendering it definite/referential.

With this line of thought in mind, in section 2 I review the synchronic properties of referential NSs in Russian, both in root clauses (section 2.1) and embedded clauses (section 2.2). In section 3, I deal with the properties of NSs in Old Russian. Then, in section 4, I explain the diachronic process that determined the current shape of the Russian system of referential NSs nowadays (the transit from Grammar 1 into Grammar 2). Finally, section 5 offers a conclusion.

2 Modern Russian NSs with individual reference (Grammar 2)

2.1 Root contexts and null Topics

In this section, I describe the use of NSs in root contexts in Modern Russian and introduce some basic assumptions. I argue that, in Modern Russian, NSs with the individual reference interpretation in root sentences have two possible sources, both tied to the C-domain: (i) null G-Topics, also known as Familiar Topics; and (ii) successive occurrences of an A-Topic (of a Sentence Topic). Every other instantiation of a subject with individual reference must be overtly realized in root contexts.

Russian shares with other partial NS languages their most salient common property, which is usually defined by opposition both to "*pro*-drop" and "non-*pro*-drop" languages (Holmberg 2005), i.e. the baseline realization of pronominal subjects is overt, *but* there are several contexts in which subjects can also be null (there is *pro*-drop to some extent).

One of the conditions determining licensing of NSs in Russian, as well as in other partial NS languages, is the availability of null Topics (of the type analyzed by Sigurðsson 2011 in Germanic). For the purposes of this chapter, we need to distinguish at least two main types of topic subjects in Russian, which can be described in terms of recoverability of the reference of the subject and

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only if T has a D-feature. Otherwise, by default, a null variant will express genericity or have an arbitrary interpretation.

its interpretation.[5] While in some cases the reference of a NS can be recovered from the "context" (see (1a–b)), in other cases there seem to be some additional restrictions. In the latter configurations, the reference of a silent subject cannot be recovered even from the preceding context, and an overt pronoun must surface instead (1c).

(1) a. *Privet! Xorošo, čto (vy) prišli!* (Logophoric use)
           hi well that you.NOM came.PL
           'Hi! So good that you came!'
      b. A: *Čto s otcom?* (G-Topic)
               what with father
               'What's up with father?' / 'Anything new about father?'
          B: (*On*) *vsë eščë boleet.*
               (he) all still is_sick
               'He's still sick.' (Tsedryk, 2022: 35–75, example (5))
      c. A: *Ty čto-nibud' znaeš' ob Ivane?* (A-Topic)
               'Do you know anything about Ivan?'
          B: *(On) sejčas rabotaet na zavode.*
               he.NOM now work.3SG on factory
               'He is now working in a factory.' (adapted from Tsedryk, 2022: 35–75, example (8))[6]

The subjects in (1a) and (1b) are interpreted as Krifka's (2007) familiar Topics (also known as G-Topics), which are part of the discourse common ground, shared by the speaker and the hearer. They are semantically present in the context, either in utterances pronounced in the preceding discourse or just in previous illocutionary acts (1b). I also include topics related to logophoric features in this group (1a).[7] If we take a look at example (1b), the question formulated by the first

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I will not discuss the role of the register in this chapter but we can say that, in general terms, colloquial Russian is more prone to drop pronominal subjects than literary Russian.

6 I translated into Russian Tsedryk's original Ukrainian example (8), which forces a clearer A-topical context.

7 In Russian, logophoric features (licensing 1st and 2nd person subjects) are easily recoverable from the situational context, which is characteristic of other partial NS-languages as well (Standard Finnish, Hebrew, Germanic; cf. Holmberg 2005; Vainikka & Levy 1999, among others). Many authors attribute this property to Sigurðsson's (2011) insight that every clause has available logophoric features in its C-domain, so that the speaker and addressee are always available as local antecedents (cf. Frascarelli 2007; Holmberg, Nayudu & Sheehan 2009). For the purposes of this chapter, I will lump together null G-Topics and null Topics related to logophoric features as representing those environments in which NSs are available in a "direct" way in Russian, unlike

speaker implies that both participants in the conversation know that the father is or has been sick. Thus, the answer contains given information and its subject can be dropped.

In (1c), however, the subject is interpreted as a sentence Topic, also known as Aboutness-Shift Topic (A-Topic), (see Frascarelli 2007, 2018, inspired by Reinhart 1981).[8] Here, even if the entity 'Ivan' is overtly present in the previous context, the second speaker turns to a new propositional content (he gives new information about Ivan): thus, the pronominal subject qualifies as an A-Topic, and must be now overtly realized (see Tsedryk 2022).

There is a second context in which NSs in root contexts are available in Russian, which are not interpreted as G-Topics, and which do not necessarily involve logophoric features: non-emphatic subjects, coreferential with a nominative antecedent in the previous clause, i.e. successive instances of a subject already introduced in the discourse.

(2) *My*$_i$ *idëm*   *na*   *ozero.*   ___$_i$ *nadeemsja* *tam*   *vstretit'*   *Ivana*$_j$.
    we.NOM   go.1PL   to   lake   (we) hope.1PL   there   see.INF   Ivan.ACC
    (On$_j$)*   *nam*   *obeščal*   *peredat'* *ključi.*
    he.NOM   we.DAT   promised.M   pass.INF   keys.ACC
    'We are going to the lake. We hope to see Ivan there. He has promised us
    to pass the keys.' (Tsedryk 2022, (11))

In example (2), the second pronominal subject can be null, as it just follows up the information given in the first sentence (the reason why we are going to the lake). It is the second realization of a previously introduced identical subject (*my* 'we') that Frascarelli (2007) calls "continuing topic" in a "topic chain".[9] Successive realizations of a subject of this kind do not introduce new propositional content and thus cannot qualify as an A-Topic. The NS in (2) contrasts with the third pronominal subject in (2), *on* 'he', which qualifies as an A-Topic, i.e. it shifts the propositional content introducing new information about Ivan, which is

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successive instances of A-topics, which need additional structure mediating between the antecedent and the NS. In the sections to follow, it will be shown that they need to form a "chain of topics" subject to certain grammatical requirements.

A(boutness-Shift)-Topics reintroduce a topic in the discourse or shift to a new propositional content without losing or replacing information from the previous context.

9 Tsedryk (2022) lumps together these two types of null Topics and identifies successive copies of A-Topics with G-Topics. In any event, root NS in Modern Russian must be characterized as a specific type of null Topic.

unrelated to the previous one. Thus, it must be overt (*on* 'he'), even if it refers to an element overtly present in the immediately previous sentence (*Ivan*).

As I noted in the initial remarks, I will follow Holmberg et al. (2009) in that T lacks an unvalued D-feature in partial NS languages, so T cannot "mediate" in the transmission of a referential index to a minimal φP. However, referential indexes can be transmitted in a topic chain, just by index identification between the two links of the chain (Holmberg et al. 2009). According to Frascarelli (2017), in a topic chain the φP copies the referential index of the D-valued antecedent through a null operator in CP, probably through a dedicated ShiftP, obtaining a referential interpretation. If this is the case, the φP does not need to be overtly realized (i.e. it can be realized as NS), because the topic chain can undergo chain reduction (Bobaljik 2002), and only the highest link of the chain needs to be pronounced.

(3) $[\text{DP}_i \dots [_{\text{CP}} [_{\text{ShiftP}} \text{Op}_{[+\text{aboutness}]} [_{\text{TP}} \varphi\text{P}_i \text{ T}\dots]]]]$

It is worth noting that Russian allows null coreferential pronominal subjects as successive realizations of an A-Topic only if there is no potential intervener blocking the relation between the NS and its antecedent in the topic chain (cf. Tsedryk 2012, 2015; Livitz 2014). The presence of an overt intervener between the C-layer and a subject forces the overt realization of the subject (4b), which can otherwise be null, as in (4a):

(4) a. *Ja*ᵢ *tol'ko čto videl Svetu*ⱼ.   (*Ona*ⱼ)   *skazala mne*ᵢ, *čto naš*
        I   just   saw   Sveta.ACC she.NOM said.F I.DAT that our
        dom uže   prodan.
        house already sold
        'I've just seen Sveta. (She) told me that our house had already been sold.'
    b. *Ja*ᵢ *tol'ko čto videl Svetu*ⱼ.   **Mne**ᵢ *(ona*ⱼ)   *skazala, čto naš*
        I   just   saw   Sveta.ACC I.DAT she.NOM said.F   that our
        dom uže   prodan.
        house already sold
        'I've just seen Sveta. She told me that our house had already been sold.'
        (Tsedyk 2015: 349)

As for silent G-Topics / Logophoric Topics, I will adopt Sigurðsson's (2011) account of Germanic null Topics. He argues that every referential definite argument, whether silent or not, matches an "edge" feature available in C. The matching is performed in a direct way, i.e. with no operator or extra-structure mediating the

relation (cf. Tsedryk 2015 specifically for Russian).[10] This is an alternative way for NSs in Russian to receive a referential index and, thus, be interpreted as referential, albeit null, at PF.

(5) $[_{CP} \, Op_{[+edge]} \, [_{TP} \, \phi P_i \, T. . .]]]$

The matching illustrated in (5) is possible only if the NS has direct access to the empty [Spec,C], i.e. when there is no other overt D-element intervening between C and the ϕP. In (6), the presence of a left-dislocated direct object (*Svetu*) does not prevent the NS from checking its ϕ-features in a regular way (with T), as reflected in the verbal form (here, plural). However, the left-dislocated object acts as an intervener between the logophoric edge-feature contained in C and the NS. As a consequence, the NS in (6) gets an arbitrary reading and cannot be interpreted as referential:[11]

(6) *Svetu*   ___ *nedavno videli   na   rynke.*
     Sveta.ACC   recently saw.PL at   market
     'Sveta was seen recently at the market.' / '*We saw Sveta recently at the market.' (Tsedryk 2015: 349)

2.2 Embedded contexts and "control"

In the previous section I presented two types of null Topics available in Modern Russian, which can be realized as NSs (Logophoric Topics / G-Topics and successive instances of A-Topics in topic chains). Now I will turn to a third type of NSs in Modern Russian available in embedded contexts, i.e. NSs c-commanded by a close antecedent.

  In Modern Russian, a NS with individual reference can be inserted in a subordinate clause without being committed to a topic interpretation, as in (7) below. This property is shared by Russian and other partial NS languages, e.g. Finnish,

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10 Edge features are related to various interpretations: (i) a logophoric feature anchors the interpretation of the NS in the speaker-hearer domain, or (ii) a "topic" feature, in Sigurðsson's (2011) sense, is taken here to be a situational or contextual deictic feature, resulting in a NS interpreted as a G-Topic.
11 In this respect, the crucial difference between Russian and Germanic is that Modern Russian is not a V2 language and does not have V-to-T movement (Bailyn 2012, Gribanova 2013), so V remains low, and the number of potential interveners is more reduced in Russian than in Germanic. For example, pre-verbal adverbials and PPs do not behave as interveners (Tsedryk 2015), as opposed to what happens in Icelandic (Sigurðsson 2011).

Brazilian Portuguese, Hebrew, and Marathi (cf. Landau 2004; Holmberg et al. 2009; Modesto 2011).

(7) *Vrač*$_i$ *skazal,* *čto* ___$_i$ *primet* *bol'nyx*$_j$.
  doctor said that (he) will receive.3SG sick people.ACC
  'The doctor said that he will see patients.'

In general terms, embedded NSs in Modern Russian are partially conditioned by pragmatic considerations: an embedded subject can be either overt or null if it implies G-topicality (8b), whereas it is preferably null otherwise (8a). Let us consider the following example provided by Pavel Graschenkov (personal communication).

In (8), the participants are planning a party. If there is no previous expectation (positive or negative) about Petya's coming to the party and someone unexpectedly utters (8a), the presence of a coreferential NS in embedded position is highly preferable, at least in colloquial language. However, someone can introduce Petya in the discourse by asking a question like 'What about Petya?' and, thus, enforcing some previous expectation about Petya's coming. In this case, the embedded clause can function as given, and its subject can be null or overt (a G-Topic), as in (8b).

(8) a. *Petja*$_i$ *skazal,* [*čto* $^?$*on*$_i$ / ___$_i$ *pridët*]. (unexpected: no
    Petja said that he.NOM will come.3SG topicalization)
    'Petja said that he would come.'
  b. *Petja*$_i$ *skazal,* [*čto* *on*$_i$ / ___$_i$ *pridët*]. (embedded G-Topic)
    Petja said that he.NOM will_come.3SG
    'Petja said that he would come.'

The pragmatic situation of the latter context (8b) is equal to that of G-Topics in root clauses (e.g. in example (1b) above): the subject will be preferably null if the participants in the conversation expect that Petya is coming, whereas it will be preferably overt if the participants do not expect him to be coming (Egor Tsedryk, personal communication). In all likelihood, embedded G-Topics have access to the same edge features as root G-Topics, and the mechanism of licensing null G-Topics must be the same in both contexts.

This is consistent with the idea, put forward in Section 2.1, that null G-Topics are quite freely licensed in Modern Russian, both in root and embedded contexts, given the right pragmatic conditions. However, there is no commitment to a G-Topic interpretation of the embedded clauses in (7) and (8a), which requires a different analysis of the corresponding NSs.

Previous work on this kind of NSs has established the existence of common properties in several partial NS languages. More specifically, as Landau (2004) shows for Hebrew, Rodrigues (2004) and Boeckx, Hornstein & Nunes (2010) for Brazilian Portuguese, and Tsedryk (2012); Livitz (2014: 71ff, 110ff) for Russian, embedded NSs in finite clauses exhibit the following properties: (i) need for a local c-commanding antecedent; (ii) ban on split antecedents; (iii) sloppy interpretation under ellipsis; and (iv) *de se* reading.[12]

These are some of the typical characteristics of what is called "obligatory control" in the generative tradition, originally proposed for PRO in non-finite clauses (see Chomsky 1981; and Hornstein 1999). The similarities between the classic PRO and NSs in finite embedded clauses in partial NS languages led some authors to use the term "finite control" for this phenomenon (Boeckx, Hornstein, & Nunes 2010; Ferreira 2009; Modesto 2011; Landau 2006, among others). I will avoid this term and the related discussion as it is irrelevant for the purposes of this chapter, and stick to the main idea that embedded NSs are necessarily c-commanded by an antecedent in Modern Russian, as shown in (9).[13]

(9) a. *Petja$_i$ ne znaet, kak on$_{i/j}$ / ___$_{i/*j}$ sjuda popal.*
    Petya not knows how he.NOM   here ended_up.M
    'Petya doesn't know how he ended up here.'
    (Livitz 2014: 84)

    b. [*Doč' prezidenta$_j$*]$_i$ *ob'javila, čto ona$_i$ / ___$_{i/*j}$*
      daughter president.GEN announced that she.NOM / (she.NOM)
      vystupit s dokladom.
      will_perform.3SG with speech
      'The president's daughter announced that she will give a speech.'
      (Livitz 2014: 72)

The example in (9a) shows that an embedded NS must have a coreferent antecedent in order to be licensed; otherwise, it must be realized as an overt pronoun. Example (9b) illustrates the fact that the antecedent of an embedded NS must c-command the NS; if not, the embedded pronoun must be overt.

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12 These properties are not all met in other partial NS languages, namely in Finnish and Marathi (Holmberg et al. 2009), but they are fulfilled in the case of Russian. The linguistic productions in Russian that could be taken as potential exceptions are convincingly discarded by Livitz (2014), who ascribes them to independent processes.

13 For the other properties of "finite control" in Russian, as well as their parallel in non-finite clauses, see a detailed account and abundant examples in Livitz (2014).

In Modern Russian, the interpretation of the reference of an embedded NS is carried out under strict locality (Tsedryk 2012; Livitz 2014; Shushurin 2017; Madariaga 2018), at least whenever they are not interpreted as G-Topics. This is shown in (10a), in which the only possible antecedent for the NS is the closest c-commanding antecedent. Strict locality is also the reason why a plural intervener renders ungrammatical the sentence in (10b), in which the embedded verb is singular. [14]

(10) a. *Maša*ᵢ *boitsja,* *čto* *Anja*ⱼ *dumaet,* *čto* ____ⱼ /*ᵢ/*ₖ *ne*
   Masha fears that Anya thinks that not
   pridët *vovremja.*
   will come.3sg on time
   'Masha is afraid that Anya thinks that (Anya/*Masha) won't arrive on time'

   b. * *Majja*ᵢ *boitsja,* *čto* *roditeli*ⱼ *dumajut,* *čto* ____ᵢ *ne*
   Maia fears that parents.PL think that not
   pridët *vovremja.*
   will come.3sg on time
   Intended: 'Maia is afraid that her parents think that (Maia) won't arrive on time'

As for the mechanism underlying licensing of this kind of embedded NSs, previous accounts in the literature have adopted different views. Tsedryk (2012) and Madariaga (2018) adopt the movement theory of control proposed by Boeckx, Hornstein & Nunes (2010) for Brazilian Portuguese, identifying almost completely finite and non-finite control. Other works, such as Landau (2004); Livitz (2014); and Tsedryk (2015), assume an Agree-based analysis of control.

For the purposes of this chapter, I will follow Landau's (2015) account, adapting it in the case of finite control. Technical details aside, Landau (2015) describes the mechanism of "obligatory control" in complement infinitive clauses in the following way: the matrix controller binds a variable at CP, which, in turn, binds a minimal pronoun with unvalued φ-features in the complement clause (PRO). A pronoun which has valued its φ-features and is bound by a matrix antecedent can be realized as null (PRO) at PF, as far as it shares its reference with that antecedent. Interestingly for us, according to Landau (2015), Agree as such

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14 Incidentally, NSs in embedded finite contexts in partial NS languages differ from their equivalents in consistent NS languages in that the latter do not undergo locality restrictions of this kind (cf. Alonso-Ovalle et al. 2002 for Spanish):

(i) *Pedro*ᵢ *le* *ha* *dicho* *a* *Juan*ⱼ *que* ____ᵢ/ⱼ/ₖ *no* *llegará* *a* *tiempo.*
   Pedro CL has said to Juan that not will arrive on time
   'Pedro told Juan that he (=Pedro, Juan, or someone else) will not arrive on time'.

plays no role in establishing the semantic antecedence relation; it just matches the φ-values of PRO. The reference of PRO is established in the relation with the binding antecedent through an intermediate variable in CP.[15]

On the other hand, Landau (2015) defines as Non-Control all those instances in which T is both tensed and inflected for φ-features. Under this view, Russian embedded finite clauses with NSs would not be instances of control. However, given the common properties of finite embedded NSs and infinitive PRO in Modern Russian, I will assume, as in the case of root NSs, that the NS is a minimal φP which values its φ-features with T in a canonical way, thereby resulting in verbal agreement. Yet, as in root finite clauses, T lacks an unvalued D-feature, so the φP needs to get its reference in an independent way, i.e. from the closest c-commanding (compatible) antecedent. If this is the case, then recoverability of the reference of the embedded pronoun is again the reason why it can be realized as null at PF. This mechanism is a simpler instance of variable binding than control in non-finite clauses in that φ-features of the minimal φP are valued straightforwardly within the embedded clause, but we still need to posit a bound variable "mediating" between the controller and the embedded φP, as Landau (2015) does in the case of infinitive control.

(11) $[DP_i \ldots [_{CP} Op_i C [_{TP} \phi P_i T \ldots]]]$

Notice that the mechanism of licensing embedding NSs of this kind is different from topic chains (cf. Section 2.1) because there is no pragmatic or informational commitment to A-topicalization here, and a Shift projection does not make any sense in this case. The different nature of topic chains and embedded finite NSs is evidenced by several properties, such as the ability of antecedents in topic chains to bind a wider range of subjects (e.g. dative subjects) than in embedded finite NS structures (Egor Tsedryk, personal communication).

Another remarkable difference between topic chains and embedded NSs is the fact that the interveners blocking NSs in topic chains are different from those blocking NSs in finite embedded contexts. In Section 2.1 I showed that any

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15 As for φ-feature valuation in non-finite control, Livitz (2014) specifies that the embedded T, which is the first potential Probe for PRO, has unvalued φ-features itself and cannot match PRO's features. On the other hand, the inflected matrix T matches its unvalued φ-features with the matrix subject in a regular way, obtaining the corresponding φ-feature values. Then, this matrix T is able to probe further into the embedded clause, matching the features of PRO as well, thus creating a sort of Agree chain. In order to avoid a violation of the Phase Impenetrability Condition, Livitz (2014: 51ff) argues further that, in fact, the Agree relation between PRO and its antecedent is mediated by the matrix little v, endowed with unvalued φ-features. More specifically, when little v cannot value its features within its c-command domain (the complement CP), it probes upward and ends up with the features of the matrix subject.

referential overt entity (arguments, obliques, etc.) can act as an intervener in a topic chain, preventing ϕP from copying the referential index of its antecedent through the null operator in CP. In example (4b) above, for instance, a left-dislocated dative goal (*mne* 'me') blocks Topic drop.

In contrast, a left-dislocated dative goal does not inhibit subject drop in finite embedded clauses (12a). Only subject-like elements located in the EPP position (e.g., a dative subject) can act as interveners in this case (12b), whereas subject drop can be performed if the EPP position is available (12c).

(12) a. *Maša*$_i$ *dumaet,* *čto* ***mne*** ___$_i$ *skazala* *nepravdu.*
          Maša thinks that me.DAT said non-truth
          'Masha thinks that she told me a lie.'
      b. ?*Petja$_i$ *skazal,* *čto* ***Maše***$_j$ ___$_i$ *nravitsja.*
          Petja.NOM said that Maša.DAT pleases
      c. *Petja*$_i$ *skazal,* *čto* ___$_i$ *nravitsja* *Maše*$_j$.
          Petja.NOM said that pleases Maša.DAT
          'Petja said that Masha likes him.'
          (Livitz 2014: 111–112)

Even though word order in Russian is quite free, there is a simple test to check the position of the dative element in these sentences. Following Bailyn (2004, 2012), I assume that word order rearrangements in Russian are due to one of the two following basic mechanisms at the clausal level, i.e. Generalized Inversion or Dislocation. Generalized Inversion is an EPP-driven A-movement, whereby any XP can be raised to [Spec,TP] position and satisfy the EPP.[16] In case a non-nominative XP raises to [Spec,TP], the verb raises to T over the subject (unlike in regular SVO sentences in which V goes only as far as *v*). As a result, this mechanism typically renders OVS/XVS word orders. Dislocation, on the contrary, is a discourse-driven A'-movement, by virtue of which any XP can be dislocated to the left periphery, to check some informational feature in the CP domain.

In our examples, (12a) is not an instance of Generalized Inversion. It does not display the canonical OVS/XVS order (e.g. . . ., *čto nepravdu skazala mne ona* / . . ., *čto nepravdu mne skazala ona*) and, as expected, it becomes ungrammatical once the pronominal subject is silenced (. . ., **čto nepravdu skazala mne* ___$_i$ / . . .; *čto

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16 I assume that V-to-T movement satisfies the EPP in consistent Null Subject Languages (Alexiadou & Anagnostopoulou 1998, among others), whereas in partial Null Subject Languages, the EPP is canonically satisfied by some XP located in [Spec,TP] or by a referential / definite pronoun, which can be eventually realized as null (Holmberg, Nayudu & Sheehan 2009, Roberts 2009, among others).

nepravdu mne skazala ___$_i$). So (12a) can be either (i) an instance of left-dislocation (when *mne* is interpreted/pronounced as a focus or a contrastive Topic, 'it is me that she told the truth'), or (ii) VP/*v*P-level Inversion, typical of goals (Bailyn 2012: 311–312), when it is interpreted and pronounced as pragmatically neutral. But in neither case does *mne* intervene between the embedded φP and its controller, because it does not compete for the Topic position of the intermediate bound variable or the embedded EPP position in (11).

In (12b), however, the embedded clause is a typical instance of XVS (Generalized Inversion), in which the dative experiencer A-moves to [Spec,TP], as argued in detail by Bailyn (2012: 161ff). From that position, the dative experiencer acts as an intervener, blocking the drop of the pronominal embedded subject, while it does not do so if it stays low in the structure (12c). The reason follows straightforwardly from the configuration in (11), in which the [Spec,TP] subject position must be occupied by the minimal φP itself, in order to be high enough to enter into a reference transmission relation with the matrix subject controller.

3 Old Russian NSs with individual reference (Grammar 1)

In this section, I show that NSs in Old Russian formed a homogeneous group, as opposed to NSs in Modern Russian (see Section 2). Old Russian NSs were regularly licensed in the domain of a T whose unvalued D-feature was valued by a null Topic at [Spec,CP], while focused or contrastive subjects had to be realized as overt. In fact, if the subject was a pronoun, it *had* to be realized as null (meaning that a Topic or a topic feature was always available at CP in Old Russian), unless there was an additional requirement that forced its overt realization (namely a [+focus] or [+contrastive] feature). This implies that A-Topics were also realized as null in Old Russian, as we will see in what follows.

As far as we can judge from the texts, Old Russian was a "well-behaved" consistent NS language (Meyer 2011; Eckhoff & Meyer 2011; Madariaga 2015, 2018; Jung 2018). In general terms, until the 15th century, the baseline realization of pronominal subjects was null in informationally neutral (i.e. 'non-stressed') positions in terms of Borkovskij (1949, 1978), meaning non-emphatic, non-contrastive, non-focal positions (Meyer 2011).[17] Let us consider an example of

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17 Overt pronominal subjects in Old Russian were restricted to 'stressed' contexts (informationally "emphatic," contrastive, focal), as in (i).

a series of 2nd person root NSs, similar to Modern Russian Logophoric Topics / G-Topics in (1a-b):

(13) *Počto* ____i *ideši* *opjatъ,* ____i *poimalъ* *esi* *vsju* *danь.*
     what for   go.2.SG again   took.M AUX.2.SG whole tax
     'Why did you come back? You collected the whole tribute already.'
     [*Laur. Chr.*, 14v]¹⁸

Despite potential similarities with Modern Russian in this specific context, NSs in Old Russian were not restricted to this configuration. They were licensed in a uniform way, regardless of the syntactic context (root or embedded), their topical status (G-Topic or A-Topic), and the specific nature of their antecedent, as a far as it was itself some kind of Topic.

As a matter of fact, pronominal subjects in Old Russian were dropped whenever they were informationally "neutral" and their reference recoverable from the context, regardless of other "aboutness shifts" in the discourse. That is, even the subjects that are nowadays interpreted as A-Topics, always overt in Modern Russian, were null in Old Russian (Eckhoff & Meyer 2011). Let us see a pair of examples extracted from the part of the *Laurentian Chronicle* that narrates Prince Oleg's life:

(14) a. *I* *viděvše* *že* *Grěcě*_i *ubojašasja* (...). *I* *ustavi*
       and seeing part Greeks feared   and stopped.3SG
       *Olegъ*_j *boi*_k. *I* ____i *vynesoša* *emu*_j *brašna* *i*
       Oleg.NOM soldiers and   brought.3PL him food   and
       *vino*_m *i* ____j *ne* *prija* *ego*_m ____m *bě* *bo* *ustroeno*
       wine and   not took.3SG it   was part prepared
       s *otravoju.*
       with poison
       'When they saw that, the Greeks became afraid (and asked Oleg to stop the war). Oleg stopped his soldiers. And [the Greeks] brought him food and wine, and [Oleg] did not drink it, because [the wine] was poisoned.'
       [*Laur. Chr.*, 15R]

(i) *Ne* **jazъ** *bo* *počalъ* *bratьju* *biti* *no* **onъ**.
   not I.NOM PART started.M brothers hit but that.NOM
   'It was not me, but him, who started to attack our brothers.' [*Laur. Chr.*, 24]

18 Old Russian examples have been extracted from conversational-like and narrative passages of the 14th-century Laurentian Chronicle (Karskij 2001 [1926–28]). The examples extracted from the Radziwill codex (15th century) are marked with an "R".

b. *I*   *(Olegъ$_i$)*   *s'sěde*   *c*   *konja* (. . .) *i*   ___$_i$ *vъstupi*
    and (Oleg)   got_off.3SG from horse   and   stepped.3SG
    nogoju   *na*   *lobъ.* *I*   *vynuknuvši* *zmia$_j$*   *zo*   *lba*
    with_foot on skull and getting.out snake.NOM from skull
    i$_i$ *ukljunu* *v*   *nogu* *i*   *s*   *tog(o)* ___$_i$ *razbolěs(ja)*
    him.ACC bit.3SG on foot and from this   got sick.3SG
    i   *umre.*
    and   died.3SG
    'And [Oleg] got off his horse (. . .) and stepped on the skull. And a snake
    came out of the skull and bit his foot, and [Oleg] got sick from this bite
    and died.' [*Laur. Chr.*, 19R–19Rv]

Here is the context for example (14a): Oleg makes constant incursions into Byzantium and the Greeks pretend to agree to pay Oleg a tax if he stops attacking them. They set up a welcome reception for him, but their real intention is to poison him. In example (14a), we observe the first topic shift from Oleg (and his soldiers) into a NS referring to the Greeks, who bring Prince Oleg food and poisoned wine. Then, there is the second shift back into a new NS retaking a reference to Oleg. In between, there is a further shift into a NS referring to the wine, which had appeared before. All the three NSs, clearly qualifying as A-Topics, would have to be overtly realized in Modern Russian.

As for the example in (14b), the magic men prophesize that Oleg will die because of his favorite horse. As a result, Oleg decides not to ride it any more. The horse finally dies. Oleg comes to see the bones of the dead horse, and is happy that the prophecy has not been fulfilled. But he steps on the horse's skull and gets bitten by a snake that comes out from the skull, and the bite leads to his death. In example (14b), we observe first an A-Topic shift from Oleg into the snake, but this intermediate A-Topical subject (the snake) does not prevent the author from referring to Oleg again later with the help of a NS.

This is a recurrent pattern in the old chronicles, whereas such root NSs would be ungrammatical in Modern Russian. Dropping coreferential subjects, regardless of their topical nature, implies that the specific type of topicalization, as well as the degree of embedding, is not relevant in licensing NSs in Old Russian.[19]

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19 I do not overlook the fact that overt ɸ-marking in morphology is crucial for the right interpretation of NSs in consistent NS languages and sometimes, though not always (cf. fn. 14), enforces overt realization of the pronoun in case of ambiguity. In (14a), the presence of number morphology on the verbs unequivocally points to the right interpretation of the reference of the NSs, while this is not the case in (14b). On the other hand, overt ɸ-marking, thought impoverished with respect to Old Russian, is present in all verbal forms in Modern Russian (gender and

Old Russian is not the only consistent NS language functioning in this way. Jiménez-Fernández (2016) shows that Spanish is very permissive with regard to the referential identification of NSs. For instance, successive Topics in a topic chain are licensed by any topical antecedent, whatever its nature (A-Topics, G-Topics, or even contrastive Topics), as far as they convey the [+given] feature, meaning that their reference is mentioned in (or inferred from) the previous context or shared knowledge of the situation. The fact that a pronominal subject has to be realized as null, in absence of a [+focus] or [+contrastive] feature, implies that a topic feature (no matter which one) is always available at CP in Spanish. A similar picture emerges in the case of Old Russian.

From this point of view, we do not need to "dissect" the left-periphery in specific heads in order to account for NSs in Old Russian, while, paradoxically, we must consider the possibility of distinguishing at least some dedicated position for A-Topics in Modern Russian (in contrast to G-Topics) as relevant for the distinction between null vs. overt pronominal subjects (see Section 2.1).[20]

As I explained in Section 1, for consistent NS languages, I follow Frascarelli (2007) and Holmberg & al. (2009) in stating that T is endowed with an unvalued D-feature, which has to be valued. The reference of a NS is specified in an indirect way: the referential index of a null Topic in [Spec,CP] is copied by the unvalued D-feature of T, and, finally, through Agree, by the ϕP (=NS), which at the same time matches its ϕ-features, resulting in rich verbal agreement.[21]

(15) $[_{CP}$ Topic$_i$ C $[_{TP}$ ϕP$_i$ T$_{D:\_}$ $[_{VP}$ V. . .]]]

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number for past forms, person and number for non-past forms), but there is still a clear contrast in the licensing of NSs between the two varieties.

20 Incidentally, a short survey that I conducted among the speakers of standard peninsular Spanish reveals that pronominal topical subjects are null, regardless of A-Topic shifts. For space reasons, I just give a brief example in (i), in which the A-Topic 'Pedro' shifts back at a certain point to the initial subject 'Juan' and, still, we do not need (and the speakers surveyed do not accept) an overt pronoun to recover Juan's reference.

(i)   *Juan$_i$ se había tomado un café y ___$_i$ se iba a tomar otro, pero entonces vino Pedro$_j$ y le$_i$ dijo que olía muy bien a café, que a ver si ___$_j$ podía tomarse uno. Y como no quedaba más, ___$_i$ / *[??]él$_i$ decidió darle$_j$ el suyo.*
      'Juan$_i$ had some coffee and ___$_i$ was going to have some more, but Pedro$_j$ came in and told him$_i$ that there was a nice smell of coffee, that ___$_j$ would like to have some. And, as there was no more left, ___ / *[??]he$_i$ (=Juan) decided to give him$_j$ his own coffee.'

21 Holmberg et al. (2009: 75ff) argue that the D-feature of T and ϕ-feature matching on the NS are intimately related for the following reason: as long as the D-feature of T has no morphological expression of its own, the only way it can be spelled out is by spelling out the person and number features, which is typically found in consistent NS languages with rich verbal morphology.

I assume that this is the basic mechanism of licensing NSs in Old Russian, too. As a complementary condition, Old Russian displayed V-to-T movement, evidenced by the raising of overt verbal auxiliaries and the position of clitics (Jung 2018) – see examples (13) and (16a) below. V-to-T movement was crucial for licensing NSs in Old Russian, as it ensured that T checked the EPP and, after valuing its D-feature, was able to transmit the corresponding reference to the NS together with Agree. (Recall that, in Modern Russian, T lacks a D-feature, V does not raise, and T does not take part in the referential index transmission to the NS).

As for embedded NSs in Old Russian, as compared to Modern Russian, they did not undergo control requirements in most contexts in either finite (16a) or infinitive clauses (16b).

(16) a. *Kde   es(tъ) konъ*ᵢ   *mъi*ⱼ   *jegože*ᵢ   ___ⱼ   *bě*
         where   is   horse.NOM   my.NOM   which.ACC   AUX.1.SG
         *postavilъ kormiti i   bljusti   jego*ᵢ?
         put.M.SG feed   and   take care him.ACC
         '(Oleg said) Where is my horse, whom I ordered to feed and take care of?'
         [*Laur. Chr.*, 19R]
   b. *Molisja* [*za mja*ᵢ]   *otče   čestnyi* [___ᵢ *izbavlenu*ᵢ   *byti*
         pray   for me.ACC father dear   released.DAT   be.INF
         ot   seti neprijazniny].
         from   this devilment
         'Honorable Father, pray for me to be saved (me) from devilment.'
         [*Laur. Chr.*, 71v]

In (16), I illustrate two instances of embedded NSs which lack a local c-commanding antecedent and would require an overt pronoun in Modern Russian. Example (16a) includes a finite relative embedded clause. Here, the embedded subject refers to the first person and is realized as null, even if the only potential antecedent in the matrix clause is the possessive *moi* 'mine', which is not in a c-commanding position (cf. (9) and (10) above in Modern Russian, in which the NS must be bound by the matrix subject). Example (16b) illustrates a non-finite embedded clause and, again, the semantic antecedent of the NS is not a proper controller because it is located within a PP (*za mja* 'for me').

The parallelism between finite and non-finite embedded clauses in Old Russian was not restricted to their common lack of a local antecedent to license embedded NSs (see Madariaga 2015, 2018 for a detailed account). In Old Russian, overt dative subjects in embedded infinitive clauses depending on declarative and desiderative verbs (17) were almost as common as nominative subjects in finite clauses.

(17) *Ty*ᵢ [*so mnoju*ⱼ] *cĕlovalъ kr(e)stъ* [*xoditi **nama**ᵢ₊ⱼ po odinoj*
    you with me kissed.M.SG cross go.INF we.DAT by one
    *dumĕ obĕma*ᵢ₊ⱼ].
    decision both.DAT
    'You and me swore (lit. kissed the cross) that we both will do it the same way.' [*Laur. Chr.*, 170v]

Example (17) illustrates an embedded infinitive clause, the complement of a declarative verb *cĕlovatъ krestъ* 'to swear', containing an overt dative pronominal (emphatic) subject *nam* 'us', coreferential with two split antecedents.

    There are various differences between embedded infinitive clauses in Old Russian and Modern Russian; the most relevant one for the purposes of this chapter is that an embedded clause, the complement to a volitive matrix verb with non-coreferential subjects, as in (16b), cannot be realized as an infinitive clause nowadays; an obviation finite structure (with *čtoby*) is used instead (18).[22]

(18) *Molis', čtoby ja byl izbavlen ot neprijatnostej.*
    pray so that I.NOM be.M.SG released.M.SG from problems
    'Pray, so that I am saved from the problems.'

Regardless of the widespread lack of control in finite and non-finite clauses in Old Russian, there are certain configurations which suggest that obligatory control could exist in Old Russian. Namely, some instances of embedded infinitive clauses that performed as complements of volitive verbs with coreferential subjects, such as (19), were indistinguishable from control structures of the Modern Russian type (Madariaga 2011).[23]

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22 Infinitival clausal complements of declarative verbs, like the one in (17), were lost in favor of finite CPs introduced by the complementizer *čto*.

23 Infinitive clauses headed by a non-coreferential overt dative subject, complements to volitive verbs, albeit rare, are found in older Russian texts. In even older stages, i.e. Old Church Slavonic, a volitive verb could sometimes take an infinitive clause headed by an overt coreferential subject (i):

(i) ___ᵢ *moljaaxǫ* *i*ⱼ [*prijti* **jemu**ⱼ].
    beg.3PL him.ACC come.INF he.DAT
    'They begged him to come.' (Old Church Slavonic: *Codex Suprasliensis* 16, 103v)

(19) *Egdaž(e)   trebuetъ   na voinu iti, sii*$_i$ *xotjat(ъ)* [___$_i$
      if   is needed to war   go   these.NOM   want.3PL
      počti   c(ěza)rja vaše(go)]   (. . .) *da budutъ.*
      honour.INF tsar.ACC   yours.ACC   let be.3PL
      'If you need to gather an army (lit. to go to war), and these (=the Russians)
      want to join your king (. . .), so be it.'
      [*Laur. Chr.*, 18R]

The similarity between finite and non-finite embedded clauses, as well as the
existence of at least some structures that could be interpreted as "controlled" in
Old Russian, will be significant for the diachronic development of embedded NSs
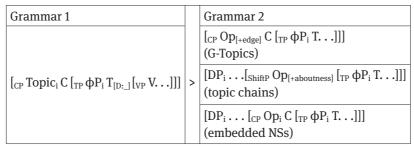in the new system, to be explained in Section 4.

4 Shifting from Grammar 1 into Grammar 2

Following the mainstream in formal accounts of diachronic syntax, I follow
Lightfoot (1979, 1999) in stating that language change is driven by the abductive
reanalysis of the input the learner receives. The input can become slightly
modified because of some previous related or unrelated change, and this gives
the possibility for some learners to analyze the data in a new way, giving rise to a
structure that is different from that which previous generations had acquired.[24] In
this section, I explain the diachronic development from the Old Russian system
of NSs (Grammar 1) into the new system found from Late Middle-Modern Russian
(Grammar 2) on.

 This could not be a one-to-one change, as we go from a homogeneous mech-
anism of licensing NSs in Old Russian into a heterogeneous system of different
mechanisms, depending on the specific configuration of the NS in later Russian.
Before elaborating on the details of the change, I schematize the relevant struc-
tures in (20):

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24 I will assume a cue-based approach in a broad sense: learners detect in the input the relevant
portion of structure to set a parameter, or to posit a structure or a feature (Lightfoot 1999).

(20)   Shift from Grammar 1 to Grammar 2

Grammar 1	Grammar 2
$[_{CP}$ Topic$_i$ C $[_{TP}$ φP$_i$ T$_{[D:\_]}$ $[_{VP}$ V. . .]]] $>$	$[_{CP}$ Op$_{[+edge]}$ C $[_{TP}$ φP$_i$ T. . .]]] (G-Topics)
	$[DP_i$ . . .$[_{ShiftP}$ Op$_{[+aboutness]}$ $[_{TP}$ φP$_i$ T. . .]]] (topic chains)
	$[DP_i$ . . . $[_{CP}$ Op$_i$ C $[_{TP}$ φP$_i$ T. . .]]] (embedded NSs)

The historical development we observe in the texts evidences a series of changes that ended up in the loss of the consistent NS status of Russian (Borkovskij 1949, 1978; Ivanov 1990; Jung 2018; Kibrik 2013; Meyer 2011; Migdalski 2013; Zaliznjak 2004, 2008, among others). The process was complex and took at least five centuries to complete.

Meyer (2011) observes that non-emphatic subjects were null until the 15th century, but then, between the 16th and 17th century, 1st and 2nd person weak pronouns experienced a notable increase. According to Zaliznjak (2004), by the 15th century, verbal auxiliaries started to be generated in a lower position, and verbs remained lower than raised pronominal elements (clitics). In other words, V-to-T movement was lost at that time. In formal terms, this change sparked a whole range of consequences. For instance, T could no longer check the EPP by itself, and pronominal clitics and verbal clitic auxiliaries began to disappear. Another important consequence was that the input that learners received became slightly modified and gave rise to a change in the *pro*-drop character of the language too.

Once V remained in *v*P, learners did not receive the relevant cue to posit a D-feature in T any more, because V's low position preempted the establishment of the direct syntactic relation between T and C the way it had proceeded before. The loss of the D-feature on T was underpinned by the loss of (fully inflected) verbal clitic auxiliaries in the language (analyzed in detail in Zaliznjak 2008), which had formerly strengthened the acquisition of T as a head clearly hosting φ-features and playing a role in D-feature transmission together with Agree.

As a consequence, pronominal subjects were not able to receive a referential index together with D-feature valuation of T any more and started to be overtly realized. Otherwise, they were interpreted as non-referential (generic, arbitrary. . .). This change is pinpointed in the texts by the sudden rise of overt pronouns of 1st and 2nd person, which had formerly functioned only as emphatic pronouns (focused or contrastive), and now spread as overt pronouns in non-emphatic positions, as well (Borkovskij 1978; Ivanov 1990; Meyer 2011). Dedicated 3rd

person pronouns did not exist and other pronouns (mainly demonstratives) were used instead for emphatic purposes.[25]

Looking at the contrast between both stages of Russian, we need to explain why it is possible that a homogenous mechanism of licensing NSs in Grammar 1 yielded at least three different ways to license them in Grammar 2, as represented in (20). I will argue that Russian became a "non-*pro*-drop language", but rapidly (or maybe in parallel) evolved into a "partial NS language" by reanalyzing residual subject gaps that were persistently present in the learners' input. In the absence of a unique way of licensing NSs (due to the previous changes in T and NSs), learners reanalyzed these residual gaps in the best way they could, according to the conditions available in each specific context.

In Grammar 2, when V-to-T was lost, together with T's D-linking ability, pronominal subjects had to be overtly realized in order to be interpreted as referential. In other words, Russian became factually a non-*pro*-drop language. However, learners of Grammar 2 would still receive referential subject gaps in their inputs, which corresponded to (i) NSs generated by speakers of Grammar 1, i.e. older generations of speakers; and (ii) some instances of PRO, i.e. subject gaps in control infinitive clauses complement to volitive verbs (examples like 19 above).

As is well known in historical linguistics, residual structures and elements after diachronic change can experience different outcomes. Specifically, (i) they can just die out as time goes by, or (ii) be "recycled" or reused with a new value, i.e. further reanalyzed to fulfill a new function. I will argue that residual referential NSs from Old Russian followed this second path.

Learners of Grammar 2 could not interpret subject gaps in the old fashion, that is as referential, in absence of a D-linking T in the language. They regularly interpreted them as generic, arbitrary, and so on. Nonetheless, learners found alternative ways of acquiring at least some of those referential subject gaps they received, namely by "delving" further in the structure for a proper mechanism of index transmission. Sometimes, they found an edge/topic feature at CP that

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25 Zaliznjak (2008) and Meyer (2011) show that 3rd person auxiliaries were lost very early (maybe prehistorically), while 3rd person non-emphatic overt pronouns spread much later, by the 16th –17th centuries. Meyer (2011) argues that the lack of agreement itself marked 3rd person in Old Russian. The further extension of 1st/2nd person pronouns from the 15th century on probably helped reanalyze the former demonstrative pronoun *onъ* 'that' as a 3rd person pronoun, which spread automatically as a non-emphatic pronoun, together with the other persons. This reanalysis can be naturally explained by Input Generalization of the person feature, i.e. the extension of the syntactic behavior affecting 1st and 2nd person also to 3rd person. Input Generalization is a general optimization principle operating in acquisition / diachrony, defined by Biberauer & Roberts (2017: 147ff) in the following way: "[i]f a functional head sets parameter p_j to value v_i, then there is a preference for similar functional heads to set p_j to value v_i."

could transmit a referential index to the NS from a given Topic, which was easily recoverable on the basis of contextual shared information, giving rise to null G-Topics and null Logophoric Topics. On other occasions, learners could recover the reference of a NS by relating it to a higher referential antecedent through CP, whether a null A-Topic in a topic chain (in root clauses) or an embedded subject bound by an antecedent in the matrix clause ("control").

In the last two cases, the immediate consequence was the emergence of previously nonexistent locality restrictions. In topic chains, the lower null Topic must be identical to the other copies in the chain and, ultimately, to the closest A-Topic in the discourse. Interveners in the form of any other overt ɸ-feature-equipped element, left-dislocated between the NS and C, break the chain and preclude subject drop.

According to Luraghi & Pinelli (2015), in statistical terms, the loss of NSs in Russian evolved simultaneously in root and embedded contexts until approximately the 16th century.[26] Thereafter, NSs in embedded finite clauses experienced a sudden drop, while their decline was much slower in root contexts. Notice that the breaking point, the 16th century, was right at the same time in which overt non-emphatic pronouns became the norm for 1st and 2nd person. Claudi (2014) confirms the same observation for 3rd person *onъ*, which was reanalyzed as a personal pronoun in subordinate finite clauses (complement and obviation structures) much faster than in root clauses.

These statistical data are consistent with the account presented here. Replacement of subject drop by null Topics (root clauses) in successive generations of speakers had to be progressive, i.e. the decay of NSs was very slow in root contexts. Why? On the one hand, pronominal Topics just need the presence of common and widespread informational features at C to be licensed and, on the other, they do not need to be realized always as overt. In partial NS languages, due to the lack of a D-feature on T, speakers always have the option to use the overt realization of an overt subject, whereas the null variant is also available, depending on the specific pragmatic context in which the Topic occurs.

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26 An anonymous reviewer points out that V2 languages behaved diachronically in a different way as compared to Russian, since the former displayed more NSs in root contexts than in embedded clauses (Cognola & Walkden 2019). This data follows on straightforwardly from the role of V raising to a high position; as argued in this chapter, a high V can help in analyzing T as a D-linker or a mediator between C and the NS in referential index transmission (in a similar way to consistent NS languages). However, Russian was never a V2 language and, once V-to-T movement had been lost, the replacement of NSs by overt subjects was at first similar in embedded and root clauses, as V stayed within *v*P and could not possibly be interpreted as a D-linker any more.

As for embedded NS, learners followed the model of the second type of referential embedded "subject gap" occasionally found in the language, namely, PRO. Referential PRO, which was present in some volitive structures (see (19)), was bound by a close coreferential c-commanding antecedent in the matrix clause. Following the loss of the unique mechanism of licensing NSs in Grammar 1, "control" was virtually the only available mechanism to interpret embedded referential NSs in Grammar 2. But this implies that embedded NSs became severely restricted by a series of new requirements (coreference, the presence of a close c-commanding antecedent, no split antecedents, etc) that root null Topics are not subject to.[27]

As was noted earlier, the inflection point for the change was the 16th century, when the replacement of Grammar 1 by Grammar 2 in 1st and 2nd person was complete. The imposition of control to non-finite clauses had a further consequence. In particular, it led to the loss of overt embedded dative subjects, a loss which took place in the transition between the 16th and 17th century (Borkovskij 1949, 1978; Ivanov 1990; Madariaga 2011). All infinitive clauses in complement position with coreferential subjects were reanalyzed as instances of control. Non-coreferential infinitive subjects, available in Old Russian in declarative and desiderative infinitive clauses (see (17)), could not be reinterpreted in terms of control, because of the lack of a c-commanding antecedent in the matrix clause. In this case, the whole infinitive structure was replaced by an alternative finite construction, i.e. finite complement clauses with declarative verbs (see (18)), and finite obviation structures with volitive verbs (Madariaga 2015).

These remarks are confirmed by the texts. From the 16th century on, we observe a sudden increase of overt pronominal subjects in finite embedded clauses, especially in the newly created obviation structures with *čtoby*, and declarative clauses with *čto* (Claudi 2014; Luraghi & Pinelli 2015). This follows in a straightforward way from the fact that in Grammar 2 non-coreferent subjects in embedded clauses do not have a close c-commanding antecedent, so they had to be overtly realized in a mandatory way.

The only instances of silent subjects in finite embedded clauses that "survived" in Grammar 2 were those residual coreferential embedded NSs that had been reanalyzed as "finite control", which appeared in a very restricted syntactic

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27 Control as the mechanism licensing embedded NSs, spread in the same way to finite and infinitive constructions with coreferent subjects (cf. Madariaga 2015). I do not intend to identify embedded NSs in finite and nonfinite contexts completely. I just contend that the finite variants are a historical *extension* of nonfinite NSs = PRO, resulting in a pool of shared properties between both. Nonetheless, as it is stated in Section 2.2, I acknowledge that finite and nonfinite clauses are irreducible to a single phenomenon.

environment, i.e. were c-commanded by a local antecedent. In contrast, all the other types of embedded subjects that were newly created in the language, such as (optionally) overt coreferential G-Topics and (always) overt non-coreferential pronouns, were much less restricted from the point of view of their potential suitable environments and, thus, experienced a sharper increase in the number of occurrences, with the advent of the new system of referential NSs.

5 Conclusion

In this chapter, I reviewed the licensing conditions of referential NSs in Modern Russian root and embedded clauses in Modern Russian (a partial NS language) and Old Russian (a consistent NS language), and explained the change between the two stages.

Our Grammar 2 is represented by Modern Russian. Here, we can distinguish at least three mechanisms of licensing referential NSs. In root contexts, NSs match their unvalued ϕ-features with T, but still need to get a referential index in order to be correctly interpreted (given that T lacks an unvalued D-feature). This referential index can be transmitted by D-linking in one of the following configurations: (i) G-topical subjects, whenever the corresponding logophoric or situational/contextual features are accessible at C (root or embedded contexts), (ii) root NSs in a topic chain, licensed by a null operator in the C-layer which shares its features, including the referential index, with every link of the chain, the antecedent, and the NS below, and (iii) embedded coreferential NSs, bound by a c-commanding antecedent, in similar conditions in finite and non-finite contexts.

In Old Russian, our Grammar 1, the type of Topic or the degree of embedding (root or subordinate) was not relevant to license NSs and every NS could be dropped given that its reference was recoverable from the context, i.e. that it was bound by a Topic that was able to anchor the reference of the NS. On the other hand, embedded subjects displayed no control, even in non-finite clauses; the only control-like constructions occurred in infinitive clauses with coreferent subjects that performed as complements to some volitive verbs. In Old Russian, T was endowed with an unvalued D-feature, and it was V-T, located high in the structure, which "mediated" in referential index transmission from a null Topic/operator at CP to the ϕP (NS), when T valued its own D-feature.

The change from Grammar 1 into Grammar 2 started with the loss of V-to-T movement, which left the T position empty, canceling the ability of T to mediate as a referential index transmitter from CP to the referential NS (i.e. T was reanalyzed as having no unvalued D-feature). Under regular circumstances, pronominal

subjects had to be realized as overt. However, residual instances of the old system of subject drop did not disappear, but were reanalyzed by learners of Grammar 2. The reanalysis was performed in different ways depending on the specific configurations, as far as learners were able to interpret the reference of the subject gap. Thus, three mechanisms were put into use: (i) null G-Topics, when the adequate features at CP (logophoric or situational/contextual features) were available; (ii) topic chains, in case the NS could be interpreted as a coreferential successive copy of an overt A-Topic; (iii) anaphoric embedded NSs, i.e. those bound by an antecedent in the matrix clause.

The last one of these was an already existing mechanism in the language in some volitive infinitive structures with coreferential subjects. The reanalysis of residual coreferential embedded NSs as "controlled" was performed in non-finite and finite clauses in a parallel way, only that in the case of non-finite clauses, the immediate consequence was the loss of overt infinitive dative subjects (which fell outside the requirements of control), while in finite control the newly reanalyzed controlled NSs could alternate with the old and the newly created (non-controlled) overt pronominal subjects.

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