Mixed Gender Agreement in Russian DPs

Katherine E. King

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Barbara Citko

Karen Zagona

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Abstract

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Chair of the Supervisory Committee:
Barbara Citko, Professor
Linguistics

This thesis provides a new account of mixed gender agreement in Russian, incorporating the joint strengths of several previous accounts. Mixed agreement results when some elements in a sentence agree with the grammatical gender of a hybrid noun, while other elements agree with the semantic gender of the referent. In the present proposal, grammatical gender is a feature on N, and agreement with grammatical gender propagates up from N. D is the locus of reference and introduces the referent-derived φ-features. Via feature sharing, features on D can value not only elements further up in the derivation, as in previous proposals, but also elements downward in the DP, allowing DP-internal modifiers to display semantic agreement. A null blocking morpheme Б prevents feature sharing between the two agreement domains.

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1   Introduction

As in many languages, nouns in Russian are classified into genders. For most nouns in Russian, gender is derived from the noun's declension class and unrelated to semantics. This lexically-assigned gender, whether based on declension class or semantics, is the grammatical gender of the noun. Within a phrase or a clause, other elements (e.g. modifiers, predicates, and personal pronouns) must generally all agree with the noun, meaning they are marked for the same gender as the noun. Many animate nouns have one gender grammatically (masculine, feminine, or neuter) but may refer to individuals of any gender. For some of these, called hybrid nouns, some elements in a sentence may agree with the gender of the referent instead of the grammatical gender of the noun, producing mixed agreement. For example, the noun *vrač* 'doctor' is grammatically masculine, but may refer to either a male or female doctor.[1] When *vrač* refers to a male doctor, all agreement is masculine (1),[2] but when *vrač* refers to a female doctor, some elements may take feminine agreement, as in (2). The syntax of mixed agreement is the main topic of this thesis.

(1)   Naš   vrač   prišël.   Russian
        our-M doctor arrived-M
        'Our doctor arrived.' (referring to a male doctor)

(2)   Naš   vrač   prišl-a.   Russian
        our-M doctor arrived-F
        'Our doctor arrived.' (referring to a female doctor)   (Corbett 1991:180)

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[1] The study of gender agreement with referents who identify neither as male nor as female is an interesting topic that is out of the scope of this thesis.

[2] The following abbreviations are used in the glosses: 1 = 1st person, 2 = 2nd person, 3 = 3rd person, DIM = diminutive, F = feminine, INSTR = instrumental, ITER = iterative, M = masculine, N = neuter, NOM = nominative, PL = plural, PRS = present, REFL = reflexive, SG = singular. Only the relevant information is indicated in each example.

There have been numerous syntax proposals that attempt to explain mixed agreement, but in my view none of them contains the entire answer. Existing proposals may be divided into two main categories. The first category of proposals (including Wechsler and Zlatić 2003; Pereltsvaig 2006; Rappaport 2013) distinguish between DP-internal agreement (concord) and subject-predicate agreement for animate referents. Concord is based on the grammatical gender of the noun, while subject-predicate agreement is based on the semantic gender of the referent. In most of these proposals, D is the locus of reference and introduces the referent-derived φ-features for the predicate to agree with. These models correctly account for the common case of mixed agreement as in (2). However, while subject-predicate mixed agreement is by far the most common case in Russian, Corbett (1991) points out that it is also sometimes possible for DP-internal modifiers to display semantic agreement, as in (3). None of the above models can account for this.

(3)   Ivanova -- xoroš-aja vrač   Russian
        Ivanova   good-F   doctor
        'Ivanova is a good doctor.'   (Corbett 1991:231)

Proposals in the second category (Matushansky 2013; Pesetsky 2013; Landau 2015) do allow attributive adjectives to agree with semantic gender, and even mixed agreement inside a DP. Each of these proposals makes use of a movable boundary that prompts switch in the gender (or number) feature. Elements below the boundary agree with the grammatical gender of the noun, while elements above the boundary (both inside and outside DP) agree with the gender introduced at the boundary. These proposals account for the data, but they do so in a way that does not provide for a locus of reference. The boundary element may be introduced at various

points inside DP, or in some cases even adjoined to or outside DP. This leaves no fixed location for reference, and no reason given for semantic gender to enter the derivation where it does.

In this thesis, I offer an account that incorporates the strengths of each of these types of accounts, without their main shortfalls. I assume that grammatical gender is a feature on the noun, similar to other proposals discussed. Agreement with grammatical gender propagates up from N via feature sharing. Additionally, I assume that reference is on D, as in the first category of proposals. However, instead of reference features only being able to able to value elements further up in the derivation, they can also value elements downward in the DP, again via feature sharing. A null blocking morpheme Б (the Cyrillic letter B, pronounced /be/) prevents feature sharing between the two agreement domains.

Section 2 provides background on gender, agreement, interpretability, and theoretical framework. Section 3 discusses mixed agreement and the Agreement Hierarchy, and introduces the research question in more detail. Section 4 outlines previous syntactic approaches to mixed gender agreement. Section 5 contains my proposal. Section 6 concludes.

2 Background

2.1 Gender

In many languages, some or all nouns are classified by gender. For example, Romance languages use a masculine/feminine division (4), as does Dizi (5). German (6), Russian (7), Tamil (8) and many others use a masculine/feminine/neuter division. The Algonquian languages use an animate/inanimate classification (9). The Bantu languages have ten or more genders, usually referred to as noun classes (10). As we see in the examples below, even in systems with similar gender divisions, nouns may fall into different genders in different languages.

(4)   French
       FEMININE: *pomme* 'apple', *fleur* 'flower', *maison* 'house', *femme* 'woman', *fille* 'girl'
       MASCULINE: *arbre* 'tree', *ananas* 'pineapple', *homme* 'man'

(5)   Dizi (Omotic) (Corbett 1991:11)
       FEMININE (females and diminutives): *dade* 'girl', *kuocin* 'woman, *kieme* 'small pot'
       MASCULINE (all others) *dad* 'boy', *yaaba* 'man, *kiemu* 'pot'

(6)   German
       FEMININE: *Blume* 'flower', *Birne* 'pear', *Ananas* 'pineapple', *Frau* 'woman'
       MASCULINE: *Baum* 'tree', *Tisch* 'table', *Apfel* 'apple', *Pfirsch* 'peach', *Mann* 'man'
       NEUTER: *Haus* 'house', *Wasser* 'water', *Mädchen* 'girl'

(7)   Russian
       FEMININE: *gruša* 'pear', *voda* 'water', *tablitsa* 'table', *ženščina* 'woman', *devuška* 'girl'
       MASCULINE: *persik* 'peach', *tsvetok*, 'flower', *dom* 'house', *mužčina* 'man'
       NEUTER: *jabloko* 'apple', *derevo* 'tree'

(8)   Tamil (Dravidian) (Corbett 1991:9)
       FEMININE (gods and male humans): aaɳ 'man', civaɴ 'Shiva'
       MASCULINE (goddesses and female humans): peɳ 'woman', kaaɭi 'Kali'
       NEUTER (all others): maram 'tree', viiʈu 'house'

(9)   Ojibwa (Algonquian) (Corbett 1991:20)
        ANIMATE: *enini* 'man', *enim* 'dog', *mettik* 'tree', *epatemiss* 'button'
        INANIMATE: *essin* 'stone', *peka:n* 'nut', *mettik* 'piece of wood'

(10)   Kilega (Bantu) noun classes (1-10) in singular/plural pairs (Carstens 2010)
        a. musikila/basikila   b. mubili/mibili
            1young man/2young man   3body/4body
            'young man/men'   'body/bodies'

        c. liínyo/ményo   d. kishúmbí/bishúmbí
            5tooth/6tooth   7chair/8chair
            'tooth/teeth'   'chair/s'

        e. nzogu/nzogu
            9elephant/10elephant
            'elephant/s'

Corbett (2006) describes a typological survey of 256 languages. In this survey, just under half have some kind of gender system. Of those 112 languages, 50 have two genders, 26 have three genders, 12 have four genders, and 24 have five or more genders.

2.1.1 Gender assignment systems

Among languages that use gender classifications, different languages use various systems to assign gender to nouns. Many systems are wholly or mostly semantic; others are mostly formal (nonsemantic). In the above survey, the split is fairly even: 53 languages have a strict semantic or predominantly semantic assignment system, while 59 have a mostly formal system.

In languages that use semantic gender assignment, nouns are assigned gender based on their meaning. In some, there are few if any exceptions, and apparent exceptions have meaning within the culture; for example, certain animals being assigned genders reserved for humans because they are important in the mythology. In other languages, most gender assignment is

based on semantic properties, but there are significant exceptions. In the Dravidian language Tamil (8), there are three genders: gods and male humans are masculine (male rational), goddesses and female humans are feminine (female rational), and all others are neuter (non-rational) (Corbett 1991). English also has a semantic gender system, reflected only on the pronouns: *he* refers to male humans, *she* refers to female humans, and *it* is used for all others, with some variation with animals, infants, and a small number of others (Corbett 1991).

Other languages use mostly formal, nonsemantic assignment systems. For example, gender in Russian generally corresponds to the declension class of the noun, which is based on morphology. Noun gender in Bantu languages is also based on morphology. Other languages use a phonological gender assignment system. French gender appears to be random; however, Corbett (1991) cites evidence that it too is phonological in nature.

According to Corbett, there are no purely formal systems. All have at least some semantic basis, and semantic rules usually take precedence over the formal ones. For example, the Russian word *djadja* 'uncle' has a form usually used for feminine words, but *djadja* is masculine because it can only refer to a male. There are exceptions in the other direction, too. German *Mädchen* 'girl' is neuter, even though it refers to a female. We will see further on how exceptions of this nature can have other consequences.

2.1.2 Gender agreement

The main evidence for gender is agreement, meaning that the forms of other elements in a sentence vary with features on the noun. Following Corbett (2006), I use *agree* and *agreement* (lower-case) to denote that lexical items are marked for the same gender (or other feature),

regardless of how that agreement comes about, whether by Chomsky's (2000, 2001) Agree or by some other mechanism. I discuss Agree and other mechanisms in §2.2.4.

Following Corbett (1991, 2006), agreement requires a *controller* and one or more agreement *targets*. The targets surface in different forms based on the features of the controller. In the case of nominal agreement, the noun is the controller, and other items in the sentence (determiners, adjectives, verbs, pronouns) are the targets.

In (11) we see examples of gender agreement with Russian nouns. In (11a), the noun *gruša* 'pear' is feminine, and the targets – the determiner *èta*, the adjective *spelaja*, and the verb *upala* – are likewise all marked feminine. In (11b), the noun *persik* 'peach' is masculine, and the determiner, adjective, and verb are all marked masculine. In (11c), the noun *jabloko* 'apple' is neuter, and the targets are all marked neuter.

(11) a. Èt-a   spel-aja gruša sejčas upal-a.   Russian
          this-F ripe-F   pear.F just   fell-F
          'This ripe pear just fell.'
      b. Èt-ot   spel-yj persik   sejčas upal.
          this-M ripe-M peach.M just   fell-M
          'This ripe peach just fell.'
      c. Èt-o   spel-oje jabloko sejčas upal-o.
          this-N ripe-N   apple.N just   fell-N
          'This ripe apple just fell.'

The nouns in (11) are all inanimate. The gender and gender agreement of nouns with animate referents is more nuanced. Some animate nouns can refer only to individuals of one sex, which may or may not match the grammatical gender. For example, the feminine Russian noun *sestra* 'sister' can refer only to female individuals, and always takes feminine agreement. Likewise, the Polish noun *babsztyl* 'hag' can refer only to women, but it is grammatically

masculine and always takes masculine agreement (Rappaport 2013). Agreement with these nouns is straightforward, and always follows the grammatical gender of the noun.

Other animate nouns can refer to either male or female individuals. These can be divided into three types. The first type is what Rappaport (2013) refers to as *fixed gender* nouns. These nouns have a fixed agreement pattern (either masculine or feminine) regardless of the sex of the referent. For example, Russian *kit* 'whale' may refer to either a male or female whale, but always takes masculine agreement. Likewise, Russian *osoba* 'person' always takes feminine agreement, but may refer to either a male or female person. (Corbett (1991) and others call these nouns *epicene*, but as epicene is also used variously for other categories, I will use the more descriptive term *fixed gender*.)

The second type Rappaport calls *dual gender* nouns; they are often referred to as *common gender* nouns or sometimes also as epicenes. The gender of these nouns depends on the sex of the referent, if there is one, or a default if not. An example is Russian *sirota* 'orphan'. These nouns may be thought of as not having an inherent grammatical gender, and agreement is always semantic.

The third type are *hybrid* nouns (Corbett 1991), or mixed gender nouns in Rappaport's terminology. Examples are Russian *vrač* 'doctor' and *èkspert* 'expert'. These nouns have an inherent grammatical gender, but can take different agreement on different agreement targets, in the same sentence, as shown in (12).

(12) Naš   vrač   prišl-a.   Russian
      our-M doctor arrived-F
      'Our (female) doctor arrived.'   (Corbett 1991:180)

Hybrid nouns are introduced in more detail in §3.1, and are the primary topic of this thesis.

Agreement is frequently divided into two domains. The first is concord, in which determiners and adjectives must all be marked for the same gender as the noun. The second is predicate agreement, in which the predicate (verb or adjective) must be marked for the same gender as the noun. In addition, bound pronouns and personal pronouns display agreement with their antecedents. Regardless of whether concord, predicate agreement, and pronoun agreement are the same mechanism or different mechanisms, I follow Corbett (2006) in referring to them all as agreement. I distinguish specific agreement targets (e.g. modifiers, predicates, DP-internal elements) as needed. This thesis focuses primarily on DP-internal agreement, and on its relationship with predicate agreement. Pronoun agreement is out of the scope of this thesis.

2.2 Theoretical background

2.2.1 DP structure

Abney (1987) proposed the DP Hypothesis, according to which the functional projection for a nominal phrase is a Determiner Phrase (DP), headed by D and taking an NP complement (13).

(13)

```
          DP
         /  \
      Spec   D′
            /  \
           D    NP
```
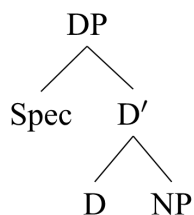
Articles reside on D, whereas other determiners such as demonstratives and possessive pronouns are in SpecDP, possibly originating lower. Since then, there has been some controversy as to whether the DP Hypothesis applies to all languages. Some (e.g. Chierchia 1998; Baker 2003; Bošković 2005) argue that languages without articles, such as Chinese and

most Slavic languages, lack the DP projection. Others (Longobardi 1994; Pereltsvaig 2007b; Rappaport 2013) maintain that these languages still have a DP projection, with an obligatorily null D.

I assume here that the DP layer exists, even in article-less languages such as Russian. I use a simplified structure, DP > NP, with adjectives adjoined to NP and little *n* omitted. This simplified structure does not deny the presence of other functional projections between DP and NP, such as NumP, DemP, PossP, *n*P, or AP.

(14)   'a/the new house'

```
            DP
          /    \
        D        NP
        Ø      /    \
             A        NP
           novyj      /\
           'new'    dom
                   'house'
```
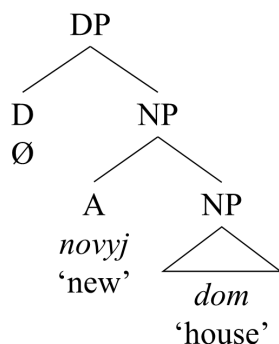
2.2.2 Location of gender in the nominal phrase

Numerous proposals have been made for where the gender feature is located, both where it originates and where it is interpreted. Some put gender on its own functional projection, GenderP or the like: for example, Picallo (1991) proposes GenP for Catalan; Bernstein (1993) proposes WMP (Word Marker) for Romance; and Picallo (2008) proposes cP (class) for Romance in general. All of these hierarchies are similar to (15).

(15)   DP > NumP > GenP > NP

Others do away with a separate projection for gender, arguing instead that gender is a feature on some other head, either NumP or NP. Accounts vary as to whether the category

hierarchy and the locations of φ-features hold crosslinguistically. Ritter (1993) proposes the same categories crosslinguistically (DP > NumP > NP), but argues that the gender feature enters in different places for Hebrew and Spanish. Carstens (2010) also uses this structure for Romance, placing person on D, number on Num, and gender on N, as in (16), but proposes a different structure for Bantu involving NP adjunction.

(16)   DP [Person] > NumP [Number] > NP [Gender]

Danon (2011) presents crosslinguistic evidence that the φ-features person, number, and gender are valued on different nodes (also D, Num, and N, respectively), and uses the same structure across languages. The structure in (16) is commonly proposed, though not universal, for φ-features in nominals, though, accounts vary as to whether category hierarchy and φ-feature locations hold crosslinguistically. None of these proposals distinguish between formal and semantic gender. This is not unexpected, given that the language groups under consideration – Romance and Bantu – use mostly nonsemantic gender assignment (Corbett 1991). Next I present two accounts that do make that distinction.

Kramer (2009) argues that no single feature can account well for both formal and semantic gender, which she calls natural gender. Instead, focusing on Amharic, Kramer (2009) uses two gender features to distinguish natural gender from formal gender (grammatical gender that is not semantically assigned). Formal gender is located on √root. Natural gender (generally for animates of known gender) is on little *n*. Agreement is with the higher feature: natural gender if it is specified, otherwise, formal gender if it is specified, and otherwise default (masculine for Amharic).

Kramer (2014) modifies the earlier proposal, putting both formal gender and natural gender on little *n*, based on evidence from Amharic including the interaction of gender and

number and the morphosyntax of nominalizations. In the modified proposal, formal gender is uninterpretable, while natural gender is interpretable. If natural gender is known, little *n* is licensed with i[±FEM]. If natural gender is unknown, irrelevant, or not applicable, then little *n* is licensed with u[±FEM], or simply *n* (with no gender feature) to indicate default agreement. In this way, Kramer (2014) also accounts for a nominal having either interpretable or uninterpretable gender. Neither Kramer (2009) nor Kramer (2014) distinguishes a referential gender that is different from natural gender, and neither accounts for mixed agreement.

Dobrovie-Sorin (2012) also incorporates both interpretable gender and uninterpretable gender into a proposal for Romance and English. Dobrovie-Sorin uses a nominal hierarchy of DP > *n*P > NP. Gender features are valued on little *n*, and they may be interpretable or uninterpretable. If the gender feature on little *n* is checked by lexical gender features of N, it is uninterpretable. If the gender feature on little *n* remains unchecked (in the case of Romance Adj-to-N conversion, for which the DP contains no N), then it is interpretable. In either case, Det has unvalued gender features, which are valued by concord agreement and are then visible outside the nominal. Again, while this proposal allows for both interpretable and uninterpretable gender, it cannot account for mixed agreement of grammatical and referent gender. In §4, we will look at proposals that do account for mixed gender agreement.

2.2.3 Interpretability of gender

There are various views on whether gender is interpretable. Some researchers consider a noun's grammatical gender to be always interpretable (e.g. Danon 2011) or always uninterpretable (e.g. Picallo 2008). Matushansky (2013) says nominal gender is interpretable if it is semantic (based on inherent properties of nouns), but uninterpretable if it is purely grammatical (e.g. based on

declension class); it depends on the language which type of assignment is predominant. Dobrovie-Sorin (2012) proposes a system for feature checking that leaves gender sometimes interpretable and sometimes uninterpretable. Kramer's (2014) model also says semantic gender is interpretable and grammatical gender is uninterpretable; in her system only one may exist in a given nominal.

Carstens (2010) argues that grammatical gender is intrinsically valued (it enters on N) but uninterpretable (it has no semantic meaning) for both Romance and Bantu languages. This position forces a distinction between valued/unvalued features and interpretable/uninterpretable features. It also requires reconsidering the need for uninterpretable features to be checked and deleted, and the need for all features to be interpretable in some location (Brody's (1997) Thesis of Radical Interpretability, as cited in Carstens (2010)).

Following Pesetsky and Torrego (2007), Carstens (2010), and Matushansky (2013), I reject the Valuation/Interpretability Biconditional (Chomsky 2001), which states that a feature F is uninterpretable iff F is unvalued. Instead, I consider formal grammatical gender features to be inherent in the lexicon but uninterpretable, and semantic gender features to be interpretable. Following Carstens (2010), I also assume that it is not necessary for uninterpretable features to be checked and deleted; the uninterpretable gender feature on a noun may be inherently valued without ever undergoing Agree, and it does not need to delete.

2.2.4 Agree and feature sharing

The traditional definition of Agree (Chomsky 2000, 2001) requires a single unvalued, uninterpretable probe and a single valued, interpretable goal. When Agree applies, the uninterpretable feature is valued and deletes. As discussed in §2.2.3, it is desirable that

uninterpretable gender features can be inherently valued without deleting. For the purposes of concord, it is also desirable for one valued feature (e.g. on the head noun) to value multiple unvalued features (e.g. on modifiers) without them deleting, so that they are all available at the PF interface. To accommodate such patterns, we turn to feature sharing.

Feature sharing (Frampton and Gutmann 2000; Pesetsky and Torrego 2007) is an alternative to traditional Agree. It is a mechanism that allows interpretable or uninterpretable features to be shared among elements inside DP, regardless of where they are initially valued, and without any of them deleting. Values are not simply copied from one feature location to another; rather, two features join to become one feature, collocated on two (or more) elements. Features may be valued or unvalued regardless of their interpretability.

A sample derivation is shown in (17). In (17a), A enters with a valued feature iF, while B enters with an unvalued feature uF. (The interpretability of the features on A and B could also be switched, with no effect on feature sharing.) Agree applies (17b), and F is now shared between A and B, with one value for the two locations. The italicized *val* denotes that the value was not inherent at that location but determined by Agree. However, once the features are shared, there is no distinction between inherent and non-inherent feature values; the font simply helps us visualize where the value originated. I follow Pesetsky and Torrego (2007) in assuming that the interpretability of a feature stays tied to a location even after sharing. If C is merged with an unvalued feature F, as in (17c-i), Agree again applies between C and B, and C is now valued with the same value. If, instead, C is merged with an already-valued feature F, as in (17c-ii), then Agree cannot take place because C and B are both valued, and no new sharing happens.

(18)   a.

```
              BP
           ╱      ╲
         B          AP
       [iF:_]      ╱  ╲
                  A     X
                [uF:_]
```

b.

```
              BP
           ╱      ╲
         B          AP
       [iF:_]      ╱  ╲
           ⁝      A     X
           ⁝    [uF:_]
         Agree
```

c.

```
                 CP
              ╱       ╲
            C           BP
         [uF:val]     ╱    ╲
                    B        AP
                  [iF:_]    ╱  ╲
                      ⁝    A     X
                      ⁝  [uF:_]
                    Agree
```

d.

```
                 CP
              ╱       ╲
            C           BP
         [uF:val]     ╱    ╲
             ⁝      B        AP
             ⁝    [iF:val]  ╱  ╲
           Agree     ⁝    A     X
                     ⁝  [uF:val]
                   Agree
```

I follow these authors in redefining Agree as a feature sharing mechanism. I assume that valuation can happen in either direction, as outlined by Frampton and Gutmann (2000) and described above.[4]

---

[4] See also Rappaport (2013) for a formal definition of Agree as symmetrical feature sharing.

3   Mixed Agreement

3.1   Hybrid nouns

Some nouns take different agreement depending on the type of agreement target (Corbett 1991, 2006). For example, the German noun *Mädchen* 'girl', while semantically female, always produces neuter agreement, except in the case of a personal pronoun, where either feminine *sie* 'she' or neuter *es* 'it' may be used, as seen in (19).

(19)   Schau dir   dieses Mädchen an, wie gut   sie/es Tennis spielt   German
       look   you this-N girl   at how good she/it tennis plays
       'Do look at this girl, see how well she plays tennis.'   (Corbett 1991:228)

Nouns such as this are referred to as *hybrid nouns*. Agreement with hybrid nouns can be with their grammatical gender (neuter, in the case of 19), or with the gender that matches the sex of the referent (feminine for a female referent). I follow Corbett (2006) in referring to agreement with the grammatical features of the noun as *syntactic agreement*, and agreement based on real properties of the referent as *semantic agreement*. This does not imply that the mechanism for either of these is or is not syntactic in nature. When different agreement targets can show different agreement with the same controller, this is called *mixed agreement*. Hybrid nouns occur across languages, and semantic agreement may happen with various agreement targets, as shown in the examples below.

The Russian noun *vrač* 'doctor' normally produces masculine agreement. However, when it refers to a female doctor, a predicate may take either masculine or feminine agreement, as in (20).

(20)   vrač   prišël/prišl-a   Russian
         doctor arrived-M/ arrived-F
         'The (female) doctor arrived'   (Corbett 1991:232)

In Swahili, the noun *rafiki* 'friend' is in morphological class 9/10, but because it is animate, it can also take 1/2 agreement. In (21) we see syntactic agreement in the possessive *y-angu* 'my' and semantic agreement in the predicate *a-mefika* 'arrived'. In (22), both attributive elements show semantic agreement.

(21)   rafiki y-angu a-mefika   Swahili
         friend 9-my   1-arrived
         'My friend has arrived'   (Corbett 1991:252)

(22)   rafiki mw-ema w-angu   Swahili
         friend 1-good   1-my
         'my good friend'   (Corbett 1991:253)

In Spanish, the title *Majestad* 'Majesty' is feminine, whether it refers to a male or female sovereign. Attributive modifiers take syntactic (feminine) agreement (23), but predicate adjectives may show semantic (masculine) agreement (24).

(23)   Su Majestad suprem-a   Spanish
         His majesty   supreme-F
         'His Supreme Majesty'   (Corbett 1991:230)

(24)   Su Majestad está content-o   Spanish
         His majesty is   happy-M
         'His Majesty is happy.'   (Corbett 1991:230)

The equivalent French title is similar, and can show semantic agreement in personal pronouns, as seen in (25).

(25)   Sa   Majesté fut inquiète,   et   de nouveau il envoya La Varenne   French
        his-F   majesty was worried-F and of new   he sent   La Varenne

        à   son minister
        to   his minister

        'His Majesty was worried, and again he sent La Varenne to his minister.'

                                                                    (Corbett 1991:227)

It is far less common for French to show semantic agreement in any other position, and Corbett

(2006) says that it is not allowed at all. However, Matushansky (2013) says that either syntactic

or semantic agreement is possible in the predicate in (26). Syntactic agreement is required on the

possessive.

(26)   Mon   médecin   est inquiet/inquiète   French
        my-M   doctor.M is   worried-M/F
        'My doctor is worried.'   (Matushansky 2013:289)

A Google search shows that this pattern is uncommon but apparently in use, as shown by (27)

and (28).

(27)   J' ai   perdu 20,8 lbs   en 5 semaine et   mon   médecin   est   French[5]
        I have lost 20.8 pounds in 5 weeks   and   my-M doctor.M is

        inquiète! Elle sais   que …
        worried-F she   knows   that

        'I have lost 20.8 pounds in 5 weeks and my doctor is worried! She knows that …'

---

[5] https://www.fr.weightwatchers.ca/community/mbd/post.aspx?page_size=25&rownum=5&page_noHidden=1&threadpage_no=1&sincedate=2010-07-20+00%3A00%3A00&thread_id=7795538&thread_name=Recette+pas+bonne+et+m%26%23233%3Bdecin&forum_id=1&board_id=2&setview=TRUE&daterange=2days&viewchange=OPENDATEDESC, accessed 22 Oct 2015

(28) Le   médecin est inquiète, elle me retransfuse et   me caresse   French[6]
The-M doctor.M is worried-F she me retransfuses and me caresses

silencieusement la   tête.
silently   the head

'The doctor is worried; she retransfused me and silently stroked my head.'

This discrepancy highlights a facet of mixed agreement study: data from different sources can

conflict, especially in the case of uncommon usage. For mixed agreement, usage tends to change

over time, generally in the direction of more semantic agreement. The examples above were

dated 2011 and 2012, so I infer that semantic agreement on French predicates may be a very

recent change.

Mixed agreement can also occur when the grammatical gender is semantically assigned.

Myths in several Algonquian languages show that animate reference can be applied to

personified inanimates. In the shared myth of the Rolling Skull, the head of a decapitated

woman comes to life, rolls around, and talks. The word for 'head' is inanimate in gender, but in

the tale, in referring to the particular head, both inanimate and animate gender agreement is used.

Straus and Brightman (1982) analyze excerpts from a Plains Cree version of the myth

(Bloomfield 1930:8–9, 14–16). Glosses are directly from source material. PI = inanimate

pronoun; AI = animate intransitive verb; AI* = inanimate actor form of animate intransitive verb.

(29) äkwah awa   iskwäw kitahtawä Tōhkāpīmakan ōmah pisisik mistikwānis
      and   this.PA woman presently it opens its eyes (AI*) this.PI   mere little head [sic]
      'And that woman, that severed head presently opened its eyes.'

      "Here, the reference to the head as 'that woman' is predictably animate, but 'head' is
      shown to be inanimate by the pronoun and inanimate actor form of the verb."

                                                              (Straus and Brightman 1982:115)

---

(30) äkwah kītahtawä kā-pīkiskwät   um   ōstikwān
      and   presently it speaks (AI) this (PI) her head [sic]
      [no translation given]

      In this sentence, "the head is the agent of an animate verb, but retains the inanimate
      demonstrative."   (Straus and Brightman 1982:116)

3.2   The Agreement Hierarchy

Hybrid nouns can take syntactic or semantic agreement. However, not all agreement targets are

equally able or likely to take semantic agreement. Corbett (1979, 1991, 2006) defines the

Agreement Hierarchy (31) to describe the distribution of syntactic and semantic agreement.

(31) *The Agreement Hierarchy*
      attributive > predicate > relative pronoun > personal pronoun

      As we move rightwards along the hierarchy, the likelihood of semantic agreement will
      increase monotonically (that is, with no intervening decrease).
                                                                      (Corbett 1991:226)

In any given language, personal pronouns are most likely to show semantic agreement, then

relative pronouns, then predicates; and attributives are most likely to show syntactic agreement.

For example, as we saw in (25)-(28) above, French personal pronouns may frequently show

semantic agreement, but predicate adjectives may only rarely, and attributive modifiers may only

show syntactic agreement. In Russian, discussed in the next section, we see that semantic

agreement on predicates is found more often and is acceptable to more speakers than semantic

agreement on prenominal modifiers. Corbett (2006) also describes a Predicate Hierarchy ([verb

> participle > adjective > noun] in increasing likelihood of semantic agreement) and suggests a

possible Attributives hierarchy to describe the relative frequencies of different types of attributive adjectives.

Another aspect of the Agreement Hierarchy operates at the sentence level. While syntactic and semantic agreement can occur on different agreement targets in the same sentence, not all combinations are possible. When two elements in a sentence show different agreement, the closer agreement is syntactic and the farther agreement is semantic. For example, some languages, such as Chichewa, allow stacked adjectives to display different agreement. However, if there is semantic agreement on the modifier nearer to the noun, then there must also be semantic, not syntactic, agreement on the further modifier, as we see in (32).

(32)   a. ngwazi y-athu y-oyamba   Chichewa
            hero   9-our 9-first
        b. ngwazi y-athu w-oyamba
            hero   9-our   1-first
        c. ngwazi w-athu y-oyamba
            hero   1-our   1-first
        d. *ngwazi w-athu y-oyamba
            hero   1-our   9-first
        'our first hero'   (Corbett 1991:239)

Likewise, if a prenominal modifier and a predicate show different agreement, then the predicate agreement is semantic and the modifier agreement is syntactic, as in the Russian example in (33). The agreement pattern in (33c) is disallowed.

(33)   a. Nov-yj vrač   skazal   Russian
               new-M doctor said-M

        b. Nov-yj vrač   skazal-a
               new-M doctor said-F

        c. *Nov-aja vrač   skazal
               new-F   doctor said-M

        d. Nov-aja vrač   skazal-a
               new-F   doctor said-F
               'The new (female) doctor said…'   (Corbett 1983:66)

Corbett emphasizes that the Agreement Hierarchy makes predictions about corpora, not individual utterances, and notes that it may be violated in individual sentences. However, the Agreement Hierarchy does seem to apply strictly in some languages, such as Russian (Rappaport 2013).

3.3   Mixed gender agreement in Russian

According to Rappaport (2013), mixed agreement in Russian was first noticed in the 1920s, as nouns that used to be fixed gender started being open to semantic agreement on predicates. Initially it was stigmatized, but today semantic agreement on predicates is common, possibly even preferred for some nouns.

There are numerous hybrid nouns in Russian, largely words for professions. The vast majority are grammatically masculine nouns that can also refer to females, such as *vrač* 'doctor', *buxgalter* 'accountant', *upravdom* 'house manager', *brigadir* 'foreman', and *skulptor* 'sculptor' (Steriopolo and Wiltschko 2010; Pereltsvaig 2006). According to Pereltsvaig (2000), Graudina et al (1976) lists 393 such nouns, and notes that that number is increasing over time. Additionally, there is at least one example of a feminine noun that can also refer to males: *kinozvezda* 'movie

star' (Pereltsvaig 2006), and a neuter noun that can refer to males or females: the honorific

blagorodie 'lordship' (Rappaport 2013).

The most common pattern for agreement in Russian is semantic agreement on predicates

and syntactic agreement within DP, as in (34)-(37).

(34) Naš   vrač   prišl-a.
      our-M   doctor   arrived-F
      'Our (female) doctor arrived.'   (Corbett 1991:180)

(35) Pol'sk-ij   èkspert   Anna Gurska otmetil-a, čto ...
      Polish-M   expert.M A.G.   noted-F   that ...
      'The Polish expert Anna Gurska noted that ...'   (Rappaport 2013:354)

(36) V sentjabre 1920 goda v Moskve pobyval-a anglijsk-ij skul'ptor,   plemjannica
      In September 1920 year in Moscow visited-F English-M sculptor.M niece
      Čerčilja   Klèr   Šeriden.
      Churchill Claire Sheridan
      'In September 1920 the English sculptor, Churchill's niece Claire Sheridan, visited
      Moscow.'   (Pereltsvaig 2006:486, from "Izvestija", 19 March 1961)

(37) Filippinsk-aja kinozvezda Fernando Po mlads-ij …   oficial'no zajavil…
      Philippine-F   star.F   Fernando Po younger-M officially declared-M
      'The Philippine movie star Fernando Po, Jr. … officially declared ...'
                                                                        (Pereltsvaig 2006:486)

Some authors (Pereltsvaig 2006, Wechsler and Zlatić 2003, etc.) argue that this agreement

pattern, with syntactic agreement for concord and semantic agreement on predicates, is the only

possible pattern, and their models are designed to reflect this. However, semantic agreement on

attributives is possible, as in (38), albeit less common than semantic agreement on predicates.

(38) nov-aja vrač
      new-F   doctor
      'the new (female) doctor'   (Corbett 1991:178)

In a 1968 study cited by Corbett (1991:232, 251), 40-55% of respondents chose the feminine agreement in (39), while only 5-20% of respondents chose feminine agreement in (40). In both cases, younger respondents were more likely to choose semantic agreement.

(39)   vrač   prišël/prišl-a
       doctor arrived-M/ arrived-F
       'The (female) doctor arrived'   (Corbett 1991:231-232)

(40)   Ivanova -- xoroš-aja vrač
       Ivanova   good-F   doctor
       'Ivanova is a good doctor.'   (Corbett 1991:231-232)

It appears that semantic agreement on adjectives inside DP is a relatively new phenomenon, and that not very long ago it was indeed extremely rare or only colloquial, as some authors claim. Modern corpus examples are not hard to find. Examples (41)-(45) show a sampling from the Russian National Corpus.[7] Although the majority of DP-internal semantic agreement examples that I found were post 2000, several were dated earlier, and there were a few examples even from the 1960s, such as (45).

(41)   naš-a vrač   daže ne ožidal-a   takogo
       our-F doctor even not expected-F this
       'our doctor didn't even expect this'

                                              Naši deti: Malyši do goda (forum) (2004)
                                              (retrieved from the Russian National Corpus)

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[7] http://ruscorpora.ru/

(42) est'   odn-a vrač   kotor-aja nabljudajet Katerinu (očen' titulovann-aja vrač
      there-is one-F doctor who-F   oversees   Katerina very titled-F   doctor

      s   bol'šim avtoritetom)
      with great   authority

      'There is one doctor who oversees Katerina (a very titled doctor with great authority)'
                                    Krasota, zdorov'je, otdyx: Krasota (forum) (2005)
                                    (retrieved from the Russian National Corpus)

(43) A   u vas, kak vy skazali ? – Èto Tsvetkova – èt-a   tolst-aja vrač –   skazal-a!
      and of you how you said   it Tsvetkova that-F fat-F   doctor-M said-F
      'And you, was it you who said it? It was Tsvetkova – the fat doctor – who said it!'
                                    Asar Eppjeli. Dva tovita (1991)
                                    (retrieved from the Russian National Corpus)

(44) Bax, vy xoroš-aja vrač.
      bah you good-F   doctor.
      'Bah, you're a good doctor.'
                                    Ljudmila Petruševskaja. Skamejka-premija (1983)
                                    (retrieved from the Russian National Corpus)

 (45) Drug-aja vrač,   priexal-a iz GDR i   privez-la   …
      another-F doctor came-F   from GDR and brought-F
      'Another doctor came from East Germany and brought …'
                                    I. Grekova. Damskiy master (1963)
                                    (retrieved from the Russian National Corpus)

Mixed agreement within DP, as in (46)-(48), is even possible for some speakers:

(46) Mamin-a lečašč-ij   vrač, t-a,   čto obratil-a-s'   ko mne v sadu,
      mother's-F attending-M doctor that-F that appealed-F-REFL to me in garden
      byl-a   v nedoumenii
      was-F in puzzlement
      'Mother's main doctor, the one that appealed to me in the garden, was at a loss.'
                                    Rodion Naxapetov. Vljublennyj (1998)
                                    (retrieved from the Russian National Corpus)

(47)   moj-a nov-aja klassn-yj rukovoditel'   vsë   pričital-a...
       my-F new-F class-M supervisor.M   ITER complained-F
       'my new (female) class supervisor continually complained (that)...'

(48)   V 17 — očen' xoroš-aja glavn-yj vrač i zam u neë super.
       In 17   very good-F   head-M   doctor ...
       'In [maternity hospital] no. 17 there is a very good (female) head doctor, and her deputy
       is super.'

As we saw in §3.2, not all patterns of mixed agreement are possible within a clause, such

as the pattern in (49):

(49)   Presupposition: our doctor is a woman
       a. Naš   vrač   prišël.
           our-M   doctor arrived-M
       b. Naš   vrač   prišl-a.
           our-M   doctor arrived-F
       c. *Naš-a vrač   prišël.
           our-F   doctor arrived-M
       d. Naš-a vrač   prišl-a.
           our-F   doctor arrived-F
           'Our doctor arrived.'   (Pereltsvaig 2006:485; Matushansky 2013:275)

Whether (49a), (49b), or (49d) is preferred appears to vary among idiolects (Pereltsvaig 2006;

Matushansky 2013); however, (49c) is universally unacceptable: if the predicate takes syntactic

agreement, then any attributives must also take syntactic agreement. Likewise, if there is both

semantic and syntactic agreement in DP, elements further from the noun display semantic

agreement and elements closer to the noun display syntactic agreement.

3.4   Mixed agreement in number and person

All of the mixed agreement examples thus far have involved gender agreement. Mixed

agreement is also possible in number and person. An example of mixed number agreement

occurs in British English, with *committee*-type nouns. The noun *committee* is morphologically

singular, but refers to a collective. In (50), the demonstrative must be singular, but the verb may

be singular or plural.

(50)   This committee is/are
         *These committee is/are

Another example is the Hebrew word *be'alim* 'owner/owners', which is morphologically singular

but may refer to either singular or plural entities. If referring to a singular owner, either singular

or plural agreement may be used, as seen in (51).

(51)   ha-be'al-im   ha-xadašim hexlit   al picul   Hebrew
        the-owner-PL the-new-PL decided.3SG on demerger
        The new owner decided on demerger   (Landau 2015:11)

        Mixed person agreement occurs most commonly with nominals that Collins and Postal

(2012) refer to as *imposters*. Imposters are generally 3rd person nominal phrases that denote the

speaker or the addressee.[8] For example, in (52a-c), the italicized phrase denotes the speaker, and

in (52d-e), the italicized phrase denotes the addressee.

(52)   a. You won't have *Nixon* to kick around any more.
        b. *Yours truly* is unhappy.
        c. *The present authors* are professionals.
        d. Is *Madam* not feeling well?
        e. Would *the baroness* like more wine?   (Collins and Postal 2012:1-3)

---

[8] There can also be 1st or 2nd person imposters, e.g. *How are we today?* spoken by a nurse to a patient.
Additionally, while Collins and Postal (2012) focus solely on person imposters, they note that there could also be
number imposters or gender imposters.

In English, the verb must agree syntactically with the person of the subject DP, as seen in (53).

(53)   a. Yours truly is/*am unhappy.
        b. Is/*are Madam not feeling well?   (Collins and Postal 2012:3)

However, this is not always the case in other languages, as shown in (54).

(54)   Mohan   peecur-een   Tamil
        Mohan (man's name) speak-PRS.1SG
        'Mohan speaking' (literally 'Mohan am speaking')
                                   (Corbett 2006:161; originally from Levinson 1983:71-2)

Additionally, while the verb in English is 3rd person, the reflexive may sometimes be non-3rd person, agreeing either semantically or syntactically with the subject DP, as seen in (55).,

(55)   a. Daddy and Mommy are enjoying ourselves on the beach.
                                      (Collins and Postal 2012:20)
        b. The present authors consider themselves/ourselves to have been slandered.
                                        (Collins and Postal 2012:94)

This thesis focuses on mixed gender agreement; however, the principles apply to mixed agreement in other φ-features, and many of the proposals discussed here apply to mixed agreement in any φ-feature.

3.5 The syntax of mixed agreement

The interesting puzzle here is how the syntax works to allow for mixed agreement, and particularly DP-internal mixed agreement. Here I outline a few alternatives to the proposals detailed in the next section.

One possibility is that the mechanism for semantic agreement is not syntactic at all, but semantically or pragmatically based. If this were the case, we would expect that semantic agreement could happen throughout the derivation. Yet the agreement overwhelmingly obeys

the Agreement Hierarchy, even in individual sentences. This implies that there is a syntactic mechanism at work.

Another possibility is that there is a locus of reference, but it is outside DP, in the left periphery (e.g. topic, focus, etc.), and that referential agreement comes from there (Karen Zagona, p.c.). This could help to account for DP-external semantic agreement (e.g. predicate, personal pronouns), and may be useful in further research into these areas. However, I assume that DP-internal agreement (syntactic or semantic) comes from within the DP.

Yet another possibility is the one that Collins and Postal (2012) propose for imposters. Collins and Postal reject the view that imposters are syntactically regular 3rd person DPs that denote the speaker or addressee only in their semantic or discourse properties. They argue that imposters have a distinctive syntax that explains the mismatch between their surface structure and their denotations. Collins and Postal analyze imposters as related to appositives. Whereas in (56a) both DPs appear in the surface structure, in (56b) only one DP surfaces. However, the other is still present in the syntax. In their model, the second DP (the imposter) raises, and the first DP is covert.

(56)   a. I, Nixon, am going to get even.   b. Nixon is going to get even.
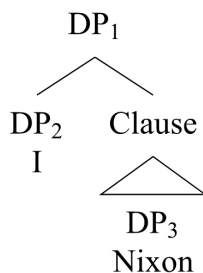
(Collins and Postal 2012:48-49)

While it is plausible for imposters to consist of one DP covert inside another, this approach does not work as well for lexical hybrids, for which there are not necessarily two referring DPs that could be involved.

This thesis focuses primarily on DP-internal agreement, and on its relationship with predicate agreement. Pronoun agreement is out of its scope. In the case that all elements in the DP as well as the predicate take syntactic agreement, but personal pronouns take semantic agreement, a separate mechanism is needed. While Corbett says that personal pronouns should be part of the Agreement Hierarchy along with everything else, many authors assume that there is a different method of agreement for personal pronouns. As with other comparable proposals, this thesis also does not address any other mismatches that are seen only outside DP, for example, mismatches between a verb and a bound pronoun. This topic is addressed by Collins and Postal (2012) and Smith (2013).

The next section explores various proposals that have been offered to explain mixed agreement.

4 Previous Proposals

There have been numerous proposals that attempt to solve the mixed agreement mystery. Most of these proposals make some sort of use of multiple levels of gender features, in order to differentiate between the grammatical gender of the noun and the semantic gender of the referent. Existing proposals may be divided into two main categories, proposals that distinguish between DP-internal agreement (concord) and subject-predicate agreement, and proposals with a movable agreement boundary.

4.1 Proposals that distinguish concord and predicate agreement

The first category of proposals includes Wechsler and Zlatić (2000, 2003), Sauerland (2004), Pereltsvaig (2006), Steriopolo and Wiltschko (2010), and Rappaport (2013), among others. These proposals distinguish between DP-internal agreement (concord) and subject-predicate agreement. DP-internal gender agreement (concord) is based on the grammatical gender of the noun. For most of these proposals, D is the locus of reference, and introduces the referent-derived φ-features for the predicate to agree with. There is considerable support in the literature for placing reference on D, including Abney (1987), Longobardi (1994), Longobardi (2005), and others. These reference features are visible outside the DP, allowing predicates to agree with the semantic gender of their subject's referent.

These models correctly account for the common case of mixed agreement, between subject and predicate, as in (57). The modifier agrees with the grammatical gender of the masculine noun, while the predicate agrees with the semantic gender of the female referent.

(57)   [DP naš   vrač   ] prišl-a.
            our-M doctor   arrived-F
        'The (female) doctor arrived.'

However, while subject-predicate mixed agreement is the most common case of mixed

agreement in Russian, it is also sometimes possible for DP-internal modifiers to display semantic

agreement, as in (58). None of the above models can account for this.

(58)   xoroš-aja vrač
        good-F   doctor
        'good (female) doctor'

        In all of these proposals, the syntactic-to-semantic gender switch happens at D. Semantic

gender may be used only by elements outside the DP, not by adjectives inside DP. Most of these

authors consider nominal-internal semantic agreement to be very rare. While it is less common

than subject-predicate mixed-agreement, nominals such as (58) are attested, especially in more

recent years, and must be accounted for. The following subsections discuss the proposals in the

first category.

4.1.1 Concord vs. Index agreement (Wechsler and Zlatić 2000, 2003)

Wechsler and Zlatić's (2000, 2003) proposal is a nonderivational account that lays some

important groundwork in the domain of mixed agreement. In Wechsler and Zlatić's model,

nouns have two separate sets of agreement features, Concord features and Index features.

Concord features are used by adjectives and other DP-internal modifiers (concord); while Index

features are used in predicate agreement, which Wechsler and Zlatić call index agreement.

According to Wechsler and Zlatić (2000:801), concord and index agreement "result from

different grammatical processes" and differ in their domains and relevant features.

Wechsler and Zlatić outline the relationship chain shown in (59), where the normal case is that all features match. Mismatches between any adjacent pair are possible but marked.

(59)   Declension ⇔ Concord ⇔ Index ⇔ Semantics

In Slavic languages, Concord features usually follow the declension class of the noun, although they can differ, as in Russian *djadja* 'uncle', which has a usually-feminine morphological form but always takes masculine agreement. Index features usually match semantics, but they can also differ, as with the Serbian/Croatian word *devojce* 'girl', which denotes a female individual but takes neuter agreements. Finally, Concord and Index features usually match, but sometimes do not; this produces mixed agreement. For example, the Serbian/Croatian word *deca* 'children' has feminine singular morphology and takes feminine singular concord, but it denotes a plural entity and takes plural predicate agreement, as seen in (60).

(60)   Ta   dobra   deca   dolaze.   Serbian/Croatian
        That-F.SG good-F.SG children come.3PL
        Those good children came.   (Wechsler and Zlatić 2003:51)

In Wechsler and Zlatić's model, relative pronouns use index agreement. Referential pronoun agreement is considered to be pragmatic, not syntactic. Wechsler and Zlatić (2003) admit to semantic agreement on adjectives, describing it as variation. They explain it as a different grammar available to some speakers, in which Concord is semantic agreement. Mixed syntactic/semantic agreement within DP is not allowed.

4.1.2 Multiple levels of φ-feature interpretation (Sauerland 2004)

Sauerland (2004) proposes a φP projection on top of DP, as in (61), where all φ-features are interpreted. Sauerland writes from a semantic perspective, and does not hypothesize as to the nature of lower projections or where the features entered the derivation.

(61)   φP > DP

Sauerland allows for more than one φ-head above DP, where the feature values on each may differ. For example, in Russian example (62), the features [fem, sg] on the higher φ-head are interpretable and are used for predicate agreement, while the features [masc, sg] on the lower φ-head remain uninterpretable and are only available for concord agreement within the DP.

(62)   a. vrač   prišl-a
        doctor arrived-F
        'The (female) doctor arrived.'
       b.
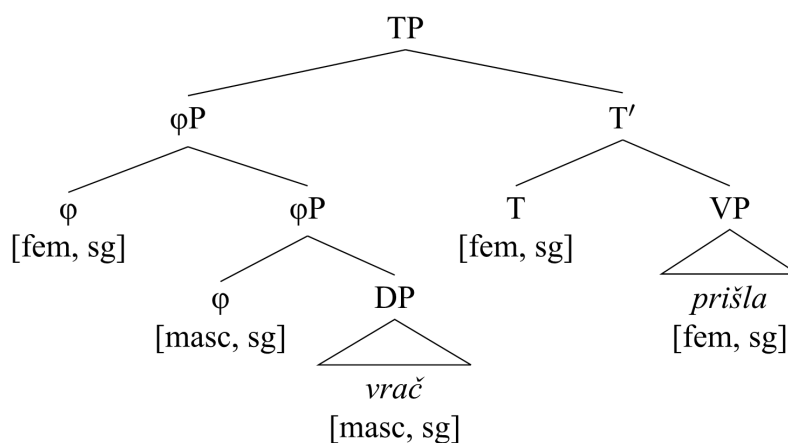
(Sauerland 2004:9)

Sauerland makes use of the Minimal Link Condition, in which agreement (concord or predicate agreement) must be with the closest head available with matching features. He uses the same model to account for other types of agreement mismatches, including number or person mismatches and coordination.

Sauerland's proposal can distinguish only between DP-internal agreement and predicate agreement, because φP can only be located outside DP. The entire nominal phrase agrees with the noun's grammatical gender, interpreted on the lower φ-head, while the predicate may agree

with a different gender, interpreted on the higher φ-head. Thus it cannot account for mixed agreement within DP.

4.1.3 Reference gender vs. grammatical gender (Pereltsvaig 2006, 2007a)

Pereltsvaig (2006, 2007a) places reference on D, following Longobardi (1994) and others, contra Baker (2003). Pereltsvaig distinguishes grammatical φ-features, used only for agreement, from referential φ-features, corresponding to semantic properties of the referent.[9] DPs and NPs each carry a set of referential φ-features (gender, number, and person) and a set of grammatical φ-features (gender and number)[10]. However, at the NP level, only the grammatical features are valued; the referential features are unvalued.[11] D inherits the grammatical features from N and values the referential features, which may have the same or different values than the corresponding grammatical features. This is illustrated in (63), adapted from Pereltsvaig (2006).

(63)   DP brigadir   NP brigadir

      [ref. gender: FEM]   [ref. gender: _____]
      [ref. number: SG]   [ref. number: _____]
      [ref. person: 3]   [ref. person: _____]
      [gram. gender: MASC]   [gram. gender: MASC]
      [gram. number: SG]   [gram. number: SG]

Concord, including determiner marking, reflects grammatical features. Subject-predicate agreement reflects reference features, if any. For example, *brigadir* 'foreman' in (64) is grammatically masculine but can refer to males or females.

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[9] Pereltsvaig uses *φ-gender*, *φ-number*, and *φ-person* only for the referential features, and *grammatical gender*, etc. for the others, while most authors use *φ-features* to mean gender, number, and person, regardless of whether they are referential or grammatical. This is simply a difference in terminology, and I follow the majority here.
[10] Person agreement never appears below D, and as such, person is usually considered to originate at D.
[11] Pereltsvaig does not distinguish between interpretable and uninterpretable features, only valued and unvalued features. As we have seen, this is not an uncommon position in the study of grammatical gender.

(64) a. ... naš   brigadir   naxodilas' v dekretnom otpuske.   Russian
     Our-M   foreman.M   was-F   in maternity   leave
     'Our foreman was on maternity leave.' ["Komsomols'kaya Pravda", 17 Feb. 1962]
                                                          (Pereltsvaig 2006:485)

b.

```
                                    TP
                       ┌─────────────┴─────────────┐
                      DP                            T′
               ┌───────┴───────┐            ┌───────┴───────┐
             naš              D'             T               VP
         (agrees with   ┌─────┴─────┐   (agrees with      ┌──┴──┐
        gram-gender:m)  D          NP   ref-gender:f)   naxodilas'...
                   [gram-gender:m] ┌──┴──┐
                   [ref-gender:f] brigadir
                                [gram-gender:m]
                                [ref-gender:_]
```
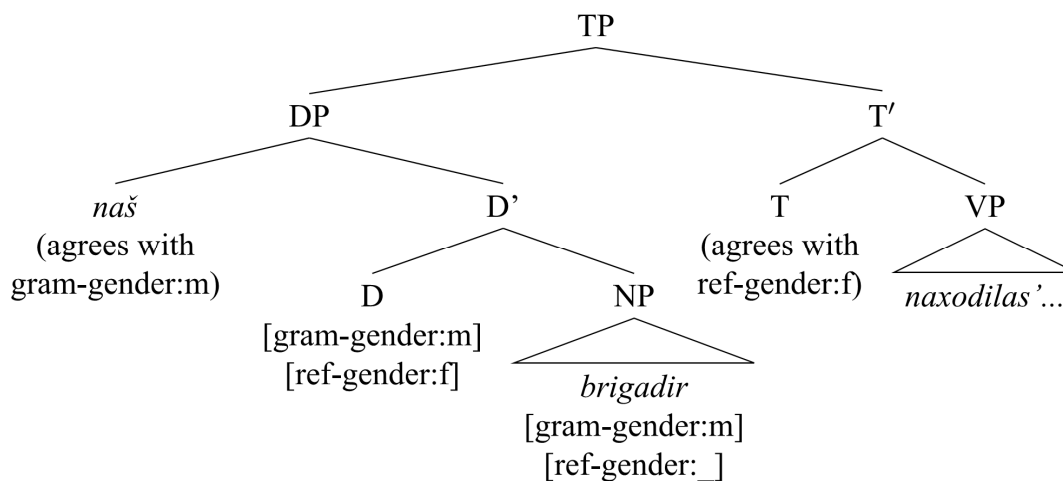
In (64), Concord causes the possessive *naš* agrees with the masculine grammatical gender of the noun. The verb *naxodilas'* agrees with the referential gender on DP, feminine because the referent of 'our foreman' is female, as implied by the maternity leave.

Along the same lines, Pereltsvaig (2006) also proposes the existence of nominals with no DP layer, projecting only to NP or QP, termed Small Nominals. Small Nominals may occur in argument positions, but they cannot be specific or referential, and they cannot trigger external agreement, having no DP. To illustrate, the sentence in (65) does not refer to specific dancers, but simply states that there were two of them. The numeral still agrees with the grammatical gender on the noun. But there is no referential gender because there is no specific referent and thus no D, so the verb has default agreement (neuter).

(65) a. Vcera   tanceval-o   [QP dva   tancovscika].   Russian
          yesterday danced-NEUT   two-M   dancers.M
          'Yesterday danced two male dancers.'   (Pereltsvaig 2006:487)
      b.

Tree diagram:
TP
- QP
  - *dva* (agrees with gram-gender:m)
  - NP
    - *tancovscika* [gram-gender:m] [ref-gender:_]
- T′
  - T (agrees with ref-gender:_)
  - VP
    - *tancevalo...*
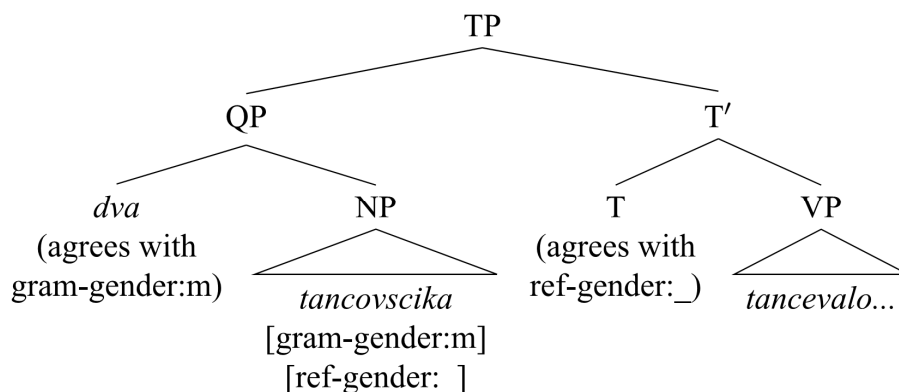
Concord (including elements on D) follows grammatical features, and only nominal-external agreement uses reference features. As such, Pereltsvaig's model correctly predicts (66b) and possibly (66a) to be grammatical, but does not predict (66d) to be so, as it has DP-internal elements that do not agree with the noun's grammatical gender.   (66c) is correctly predicted to be ungrammatical.

(66)   Presupposition: our doctor is a woman
        a.   [DP Naš   vrač]   prišël.   Russian
                our-M   doctor arrived-M
        b.   [DP Naš   vrač]   prišl-a.
                our-M   doctor arrived-F
        c. *[DP Naš-a   vrač]   prišël.
                our-F   doctor arrived-M
        d.   [DP Naš-a   vrač]   prišl-a.
                our-F   doctor arrived-F
        'Our doctor arrived.'   (Pereltsvaig 2006:485; Matushansky 2013:275)

Pereltsvaig (2006) claims that examples like (66d), with semantic agreement on the possessive, are rare or marginal. Even if this construction is less common (and Matushansky (2013) disagrees that it is), it still needs to be accounted for.

4.1.4 Distributed Gender Hypothesis (Steriopolo and Wiltschko 2010)

Steriopolo and Wiltschko (2010) present the Distributed Gender Hypothesis, which divides gender into three levels, shown in (67).

(67)
```
              D                          ← Discourse Gender
            /   \
      D-gender    n                      ← Grammatical Gender
                 /  \
           n-gender  √root               ← Semantic Gender
                    /    \
               √root-gender
```
(Steriopolo and Wiltschko 2010:157)
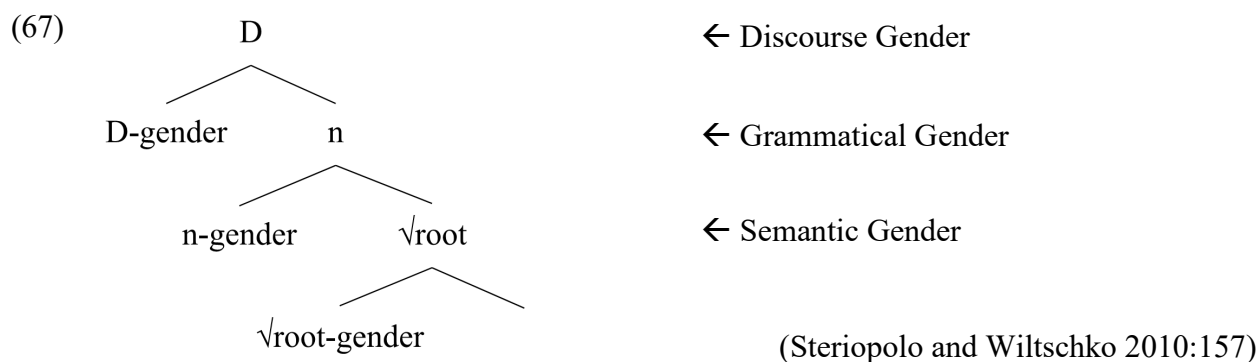
Semantic gender, or √root-gender, is valued male or female as part of the semantic information of the root. It applies to animates, such as 'father' (male, even with no referent) and 'cow' (female, similarly), but also to inanimates in languages where gender is predictable from the meaning of the root. For example, in the Omotic language of Dizi, females (*dade* 'girl') and diminutives (*kieme* 'small pot') are feminine and all others (*dad* 'boy', *kiemu* 'pot') are masculine.   Semantic gender is interpretable.

Grammatical gender, or n-gender, is valued masculine or feminine. It is purely grammatical, uninterpretable, and determined arbitrarily. An example is the Russian word *čelovek* 'person', which is not semantically male or female, but is grammatically always masculine. If both are present, grammatical gender overrides semantic gender. For example, the German word *Mann* 'man' is semantically male, and triggers masculine agreement, as in (68). The diminutive suffix *-chen* is grammatically neuter, and triggers neuter agreement even though the noun is still semantically male, as in (69).

(68)   ein   gut-er   Mann   German
        a-M   good-M   man
        'a good man'   (Steriopolo and Wiltschko 2010:166)

(69)   ein   gut-es   Männ-chen   German
        a-N   good-N   man-DIM
        'a good (little) man'   (Steriopolo and Wiltschko 2010:167)

Discourse gender, or D-gender, is again semantic. It is valued male or female as determined by the gender of the discourse referent. When both are present, discourse gender overrides grammatical gender, as in (70). There is no root gender in this DP; the root 'doctor' has no inherent semantic gender. The Russian noun *vrač* is grammatically masculine (n-gender). In (17), *vrač* refers to a female person, so discourse gender is female, and the predicate *prišla* 'arrived' takes feminine gender in agreement with the D-gender of the nominal.

(70)   a. Vrač   prišl-a.
          doctor arrived-F
          'The (female) doctor arrived.'
       b.

$$
\begin{array}{c}
\text{D}_{(female)} \\
\diagup\;\diagdown \\
\text{D}_{(female)}\qquad \text{n}_{[masc]} \\
\diagup\;\diagdown \\
\text{n}_{[masc]}\quad \sqrt{}\text{vrač}
\end{array}
$$
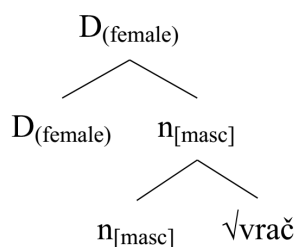
                                 (Steriopolo and Wiltschko 2010:169)

The authors acknowledge that they have no good explanation for why both D-gender and n-gender are available on hybrid nouns such as *vrač* 'doctor' but not on other nouns such as *čelovek* 'person.'

With this proposal, the grammatical-to-referential gender switch happens at D. If both D-gender and n-gender are present, then any lexical items found on D should agree with D-gender, and all adjectives and other items below D should agree with n-gender. As such, although (71d)

is correctly predicted to be grammatical (and (71c) correctly predicted to be ungrammatical), neither (71a) nor (71b) are predicted correctly. Or, if possessives are assumed to sit below D, then (71a) and (71b) will be predicted correctly, and (71d) incorrectly, as with the other proposals discussed so far.

(71)   Presupposition: our doctor is a woman
    a.   [_{DP} Naš   vrač] prišël.   Russian
             our-M doctor arrived-M
    b.   [_{DP} Naš   vrač] prišl-a.
             our-M doctor arrived-F
    c. *[_{DP} Naš-a vrač] prišël.
             our-F doctor arrived-M
    d.   [_{DP} Naš-a vrač] prišl-a.
             our-F doctor arrived-F
        'Our doctor arrived.'   (Pereltsvaig 2006:485; Matushansky 2013:275)

In either case, nominals with semantic agreement on adjectives, such as *xorošaja vrač* 'good doctor' are unaccounted for.

4.1.5 Referential features vs. lexical features (Rappaport 2013)

In Rappaport's (2013) proposal, referential information originates on D, and lexical information originates on N. Agreement manifests as syntactic or semantic depending on whether the agreement is with N or with D.

Rappaport defines two types of features: Formal features (F-features) and Referential features (R-features). F-features represent grammatical properties, and include gender, number, person, case, etc. R-features denote properties of the referent, and include real-world counterparts to F-features, such as sex, cardinality, speech act participant, etc. Both F-features and R-features exist on both N and D, and corresponding features are shared between N and D via feature sharing. F-features must be valued at interfaces; R-features may be left unvalued.

N houses lexical properties. The value of the F-feature for [gender:] is usually lexically specified on N. N may also have a valued R-feature for [sex:] intrinsic to the lexical meaning of the noun, indicating that the noun can only refer to a person of that sex, such as Russian *sestra* 'sister'. As adjectives and other elements are Merged or adjoined to NP, feature sharing unifies their F-features with N's F-features, producing Concord. In (72a), the head noun *vrač* 'doctor' is hybrid, and carries a valued F[gender:masc] feature, which is shared with the modifier, and unvalued R-features (note that Rappaport treats the possessive as adjoined to NP). In (72b), the head noun *sirota* 'orphan' is dual gender, and carries an unvalued F[gender:_] feature as well as unvalued R-features. The unvalued features are still shared between N and modifier(s), waiting to be valued by a future Agree operation. (Only gender features are shown here for simplicity; features for number, person, case, etc. may be assumed to exist as well.)

(72)　a.　*moj vrač* 'my doctor'　　　　　b.　*moj sirota* 'my orphan'
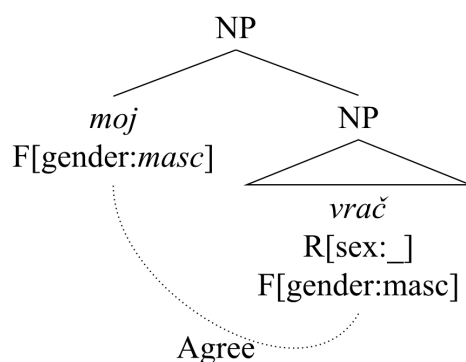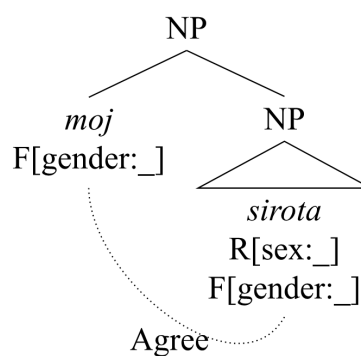
D is the origin of the referential properties of the nominal phrase. For hybrid and dual-gender nouns, the R-feature for [sex:] is valued on D with the sex of the referent. The R-feature [sex:] on D then values the F-feature [gender:] on D. When D is merged, Agree occurs between D and N. If any R-features or F-features were initially valued on only one of D or N, the features are now shared and valued on both, and features that were shared between N and any modifiers

during Concord can also now be valued if they were not before. For inanimate and fixed gender nouns, the F-feature values that originated on N are now also on D, as shown in (73a). For dual gender nouns, the F-feature values that originated on D are now also on N, as shown in (73b). For hybrid nouns, both D and N enter with a valued F-feature [gender:], so this feature does not share, resulting in different values [gender:] on D and N, as shown in (73c). R-features cannot conflict between D and N for semantic reasons, but F-features on D and N may have different values. This produces mixed agreement: DP-internal elements agree with N, producing syntactic gender agreement, while T agrees with D, producing semantic predicate agreement.

(73)   a. *moja kniga* 'my book'

```
                    DP
                 /      \
               D          NP
        F[gender:fem]    /    \
                      moja      NP
                F[gender:fem]   / \
                              kniga
                          F[gender:fem]
```
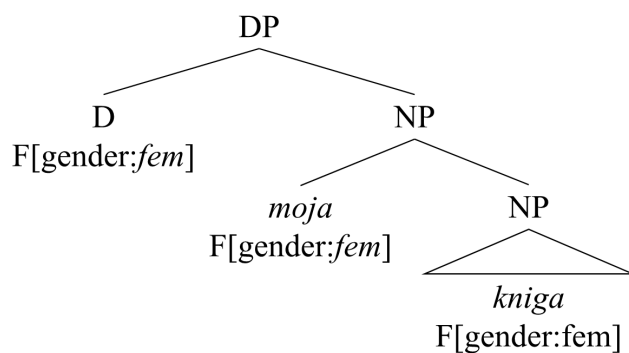
        b. *moj sirota* 'my (male) orphan'

```
                    DP
                 /      \
               D          NP
        R[sex:male]     /    \
        F[gender:masc] moj      NP
                F[gender:masc]  / \
                              sirota
                          R[sex:male]
                          F[gender:masc]
```
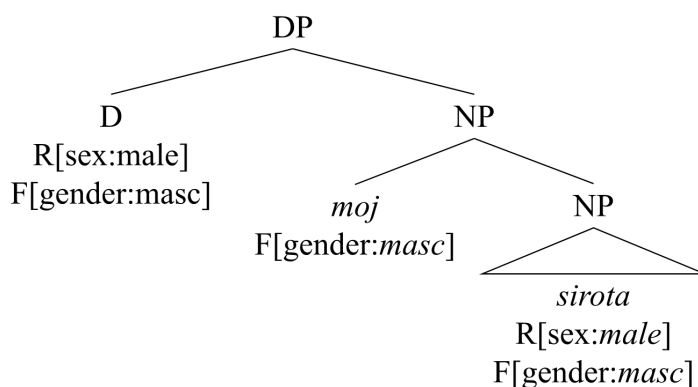
c. *moj vrač* 'my (female) doctor'

```
                    DP
            ┌───────┴───────┐
            D               NP
      R[sex:female]    ┌─────┴─────┐
      F[gender:fem]   moj          NP
                  F[gender:masc]   ╱╲
                                  vrač
                             R[sex:female]
                             F[gender:masc]
```
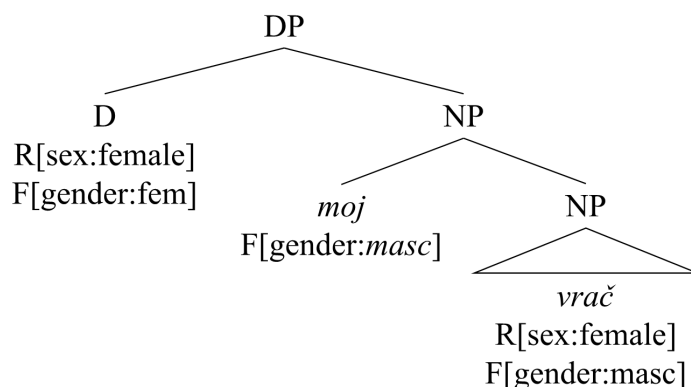
As with the other proposals discussed so far, Rappaport's proposal does not allow for DP-internal semantic agreement, as in *xorošaja vrač* 'good-F doctor'. Rappaport acknowledges the existence of semantic agreement on attributive adjectives, considering it variation in Russian agreement and calling it rare and colloquial. His explanation is that hybrid nouns that allow semantic agreement on attributive adjectives are becoming dual gender, i.e, losing their inherent grammatical gender. This is an appealing hypothesis. However, if it were correct, there could be only syntactic or only semantic agreement within DP. This is not the case: although infrequent and sometimes marginal, there is mixed agreement within DP in Russian, as seen in (47), repeated here as (74).

(74)   moj-a nov-aja klassn-yj rukovoditel'   vsë   pričital-a...
        my-F new-F class-M supervisor.M ITER complained-F
        'my new (female) class supervisor continually complained (that)...'   (Pesetsky 2013:38)

Rappaport's model has a number of advantages. It establishes D as the locus of reference, and accounts for the patterns of agreement usually seen in fixed gender, dual gender, and hybrid nouns, with the exception of mixed agreement within DP. He shows that his model can also be used to generate mixed agreement in number. In Rappaport's model, Concord is agreement with N and predicate agreement is with D, but this division is due to merge order and phase

boundaries (assuming D is a phase head) rather than stipulated; the same mechanism can be used for both types of agreement. In §4.2, I discuss proposals that do allow for mixed agreement within DP.

4.2   Proposals with a movable gender-switch

Proposals in the second category (Matushansky 2013; Pesetsky 2013; Landau 2015) do allow attributive adjectives taking semantic gender, and even mixed agreement inside a DP. Each of these proposals makes use of a movable boundary that prompts a switch in the gender (or number) feature. The nature of the boundary differs between the proposals – Matushansky (2013) uses an optional semantic gender feature; Pesetsky (2013) uses an optional null gender-switching morpheme; and Landau (2015) uses a feature on Num, whose location between N and D is not fixed – but there are important similarities across the models.

In each of these proposals, elements below the boundary agree with the grammatical gender of the noun, while elements above the boundary agree with the gender introduced at the boundary. The movable boundary allows for a gender switch at almost any point inside DP, including between adjectives. The boundary can also be above all lexical items in DP, producing the familiar distinction between concord and predicate agreement. Once a switch from syntactic to semantic gender is made during the derivation, there is no switch back, in line with the Agreement Hierarchy. All of the grammatical variations in (75) are accounted for, while unattested variations are ruled out.

(75) Presupposition: our doctor is a woman

    b.   [$_{DP}$ Naš   vrač] prišël.   Russian

              our-M doctor arrived-M

    c.   [$_{DP}$ Naš   vrač] prišl-a.

              our-M doctor arrived-F

    d. *[$_{DP}$ Naš-a vrač] prišël.

             our-F doctor arrived-M

    d.   [$_{DP}$ Naš-a vrač] prišl-a.

             our-F doctor arrived-F

             'Our doctor arrived.'   (Pereltsvaig 2006:485; Matushansky 2013:275)

While these proposals account for the data, they do so in a way that leaves open where reference is located. It follows intuitively that the semantic features associated with the referent enter at the locus of reference. However, for each of the proposals in this second category, the boundary element may be introduced at various points inside DP, or in some cases even adjoined to or outside DP. This leaves no fixed location for reference, and no reason given for semantic gender to enter the derivation where it does.

4.2.1 Semantic gender feature (Matushansky 2013)

Like most other authors we have discussed, Matushansky (2013) also separates φ-features into two types, *grammatical* features and *semantic* features. Grammatical gender features are uninterpretable. They may be *inherent* (marked as [IGENDER:]), as on a noun, or *non-inherent* (noted as [NGENDER:]), as on an agreeing element such as a determiner or verb. Values for Russian are Masculine, Feminine, and Neuter. Gender features project up, as in (76). (All examples are Russian and are either taken from or based on Matushansky 2013.)

(76)   a. èt-a   xoroš-aja kniga

           this-F   good-F   book.F

           'this good book'

b.

```
                    DP
              _____|_____
             |             |
            èta            NP
      [NGENDER:F]      ____|____
                      |         |
                  xorošaja      NP
                [NGENDER:F]    /\
                              /  \
                             kniga
                          [IGENDER:F]
```
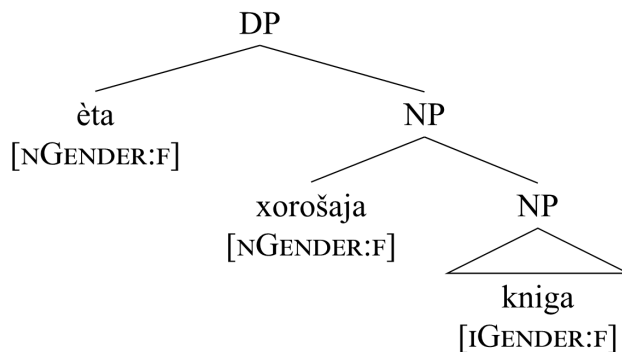
Semantic gender features are interpretable, with values [MALE] and [FEMALE], and may be defined only for human males and females.[12] When a semantic feature is introduced, [MALE] and [FEMALE] are translated to [NGENDER:M] and [NGENDER:F], respectively. The semantic feature overrides the grammatical features for further merges, producing the desired effect for Russian hybrid nouns, as in (77):

(77) a. èt-a   vrač
          this-F   doctor
          'this (female) doctor'
      b.

```
                    DP
              _____|_____
             |             |
            èta            NP
         [FEMALE]         /\
       [NGENDER:F]       /  \
                        vrač
                    [IGENDER:M]
```
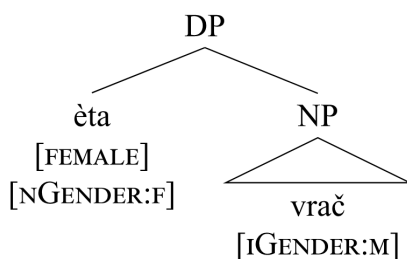
(Matushansky 2013:282)

Semantic features may be introduced at any projection, allowing mixed agreement within the DP, as in (78), or external to the DP, as in (79).

---

[12] Earlier in the paper, Matushansky (2013) calls a φ-feature semantic if it can be determined by inherent properties of the noun, such as sex, animacy, mass/count, or size. In this proposal, Matushansky allows semantic gender to apply only to humans; however, the proposal should be easily extendable to non-sex-based semantic gender systems.

(78) a. èt-a   xoroš-aja vrač
          this-F good-F   doctor
          'this good (female) doctor'

  b.

```
                        DP
              ┌─────────┴─────────┐
             èta                  NP
        [NGENDER:F]       ┌────────┴────────┐
                       xorošaja            NP
                       [FEMALE]          ╱────╲
                      [NGENDER:F]       vrač
                                     [IGENDER:M]
```
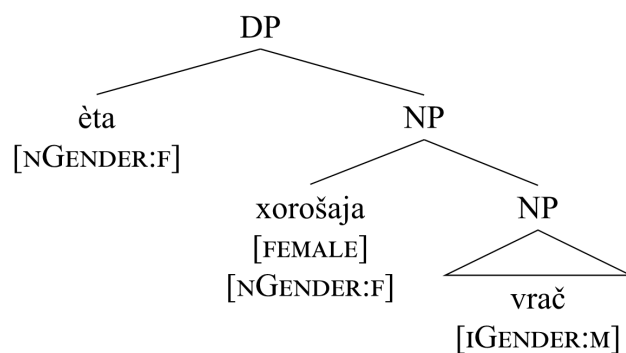
(79) a. Naš   xoroš-ij   vrač   prišl-a.
          our-M   good-M   doctor arrived-F
          'Our good (female) doctor arrived.'

  b.

```
                           TP
              ┌────────────┴────────────┐
             DP                         vP
      ┌───────┴───────┐              ╱────╲
     naš              NP            prišla
  [NGENDER:M]   ┌──────┴──────┐    [FEMALE]
             xorošij          NP  [NGENDER:F]
           [NGENDER:M]      ╱───╲
                           vrač
                        [IGENDER:M]
```
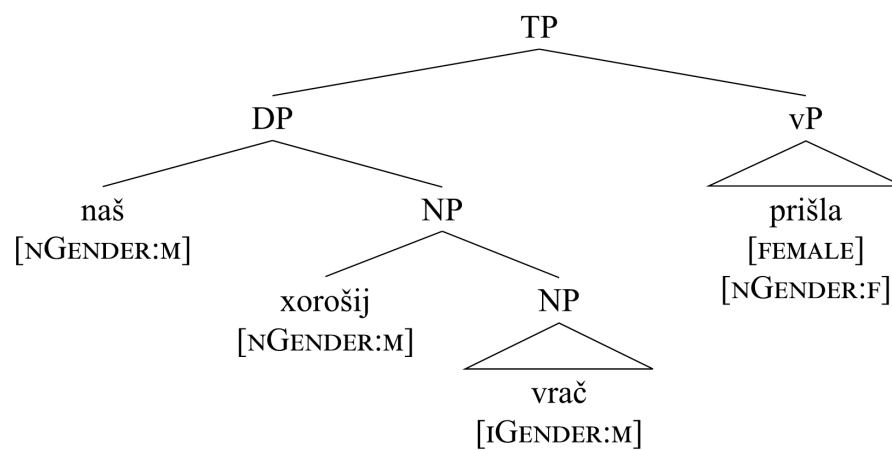
Merging conflicting syntactic or semantic features produces a clash, as shown in (80). No derivation of the ungrammatical (80a) is possible.

(80) a. *èt-ot   xoroš-aja vrač
           this-M good-F   doctor
           'this (female) doctor'

b. syntactic clash at *ètot*

```
                    *DP
            _____|_____
           |                 |
          ètot               NP
     [NGENDER:M]      _____|_____
                     |               |
                 xorošaja            NP
                 [FEMALE]          __/\__
                 [NGENDER:F]          |
                                    vrač
                                [IGENDER:M]
```
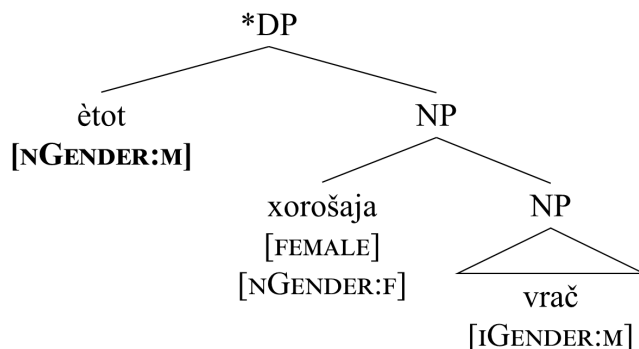
c. syntactic clash at *xorošaja*

```
                    *DP
            _____|_____
           |                 |
          ètot               NP
     [NGENDER:M]      _____|_____
                     |               |
                 xorošaja            NP
                 [NGENDER:F]        __/\__
                                      |
                                    vrač
                                [IGENDER:M]
```

d. semantic clash at *ètot*

```
                    *DP
            _____|_____
           |                 |
          ètot               NP
        [MALE]        _____|_____
     [NGENDER:M]     |               |
                 xorošaja            NP
                 [FEMALE]          __/\__
                 [NGENDER:F]          |
                                    vrač
                                [IGENDER:M]
```
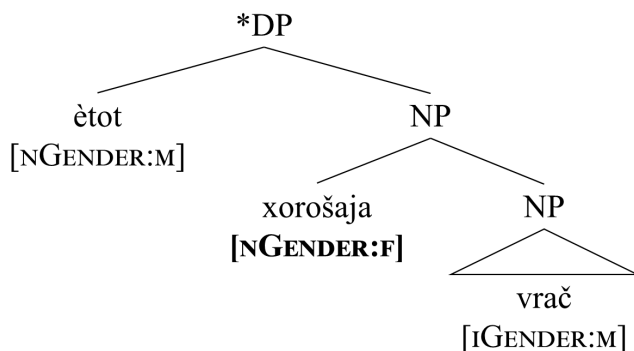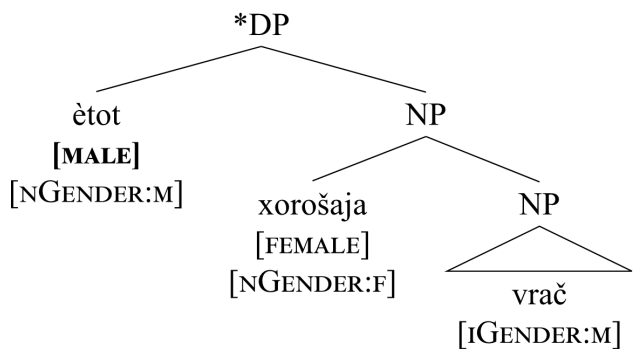
(Matushansky 2013:283)

Matushansky (2013:279) asserts that semantic features "can be inserted only as a last resort option," and are not available if there is an appropriate inherent-gender noun, in order to explain why mixed gender options are available for hybrid nouns such as *vrač* 'doctor' but not on other nouns such as *čelovek* 'person,' for which *ženščina* 'woman' is available. She also notes briefly that whether adjectives agree with grammatical gender or discourse gender depends on the

semantics of the adjective, but offers no syntactic explanation for the difference. I discuss adjective types further in §5.4.3.

The way that semantic features can be introduced at any point in the derivation means that there is no fixed location for reference. In particular, in sentences like (79), where the DP *naš xorošij vrač* has only syntactic gender, the semantic feature is introduced outside DP altogether, on TP. This leaves no place for reference inside this DP.

To recap, Matushansky's proposal allows for a grammatical-to-semantic gender switch at any point in the derivation, inside or outside a nominal phrase. Elements inside the nominal, including attributive adjectives, may agree with either grammatical or semantic gender (but must follow the Agreement Hierarchy). It doesn't explain why semantic agreement is allowed on some types of adjectives but not others. It makes no mention of a locus of reference.

4.2.2 Feminizing morpheme (Pesetsky 2013)

Pesetsky (2013) proposes that for Russian *vrač*-class nouns (i.e., professions that are grammatically masculine but may refer to females), a null feminizing morpheme Ж can optionally be inserted at any point in the derivation, with some restrictions. From that point up the tree, gender agreement is feminine instead of masculine. Consider the derivations in (81):

(81) a. Nov-aja vrač   prišl-a.
          new-F   doctor arrived-F

TP
├─ DP
│ ├─ D
│ └─ NP
│   ├─ *novaja* [fem]
│   └─ NP
│   ├─ Ж [fem]
│   └─ NP
│   └─ N
│   *vrač* [masc]
└─ T′
   ├─ T
   └─ VP
      prišla [fem]
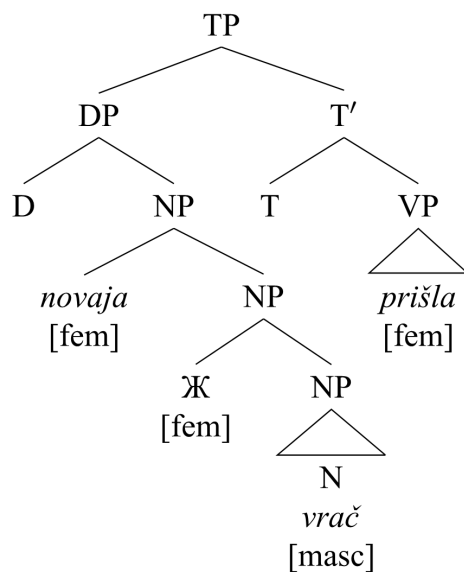
b. Nov-yj vrač   prišl-a.
    new-M   doctor arrived-F

TP
├─ DP
│ ├─ D
│ └─ NP
│   ├─ Ж [fem]
│   └─ NP
│   ├─ *novyj* [masc]
│   └─ NP
│   └─ N
│   *vrač* [masc]
└─ T′
   ├─ T
   └─ VP
      prišla [fem]
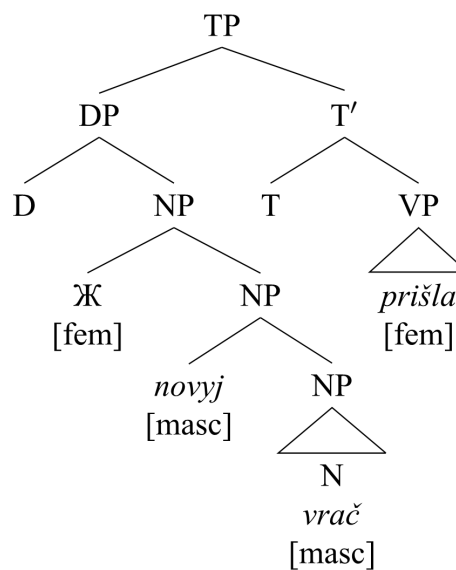
c. Nov-yj vrač   prišël.
    new-M   doctor arrived-M

TP
├─ DP
│ ├─ D
│ └─ NP
│   ├─ *novyj* [masc]
│   └─ NP
│   └─ N
│   *vrač* [masc]
└─ T′
   ├─ T
   └─ VP
      prišël [masc]
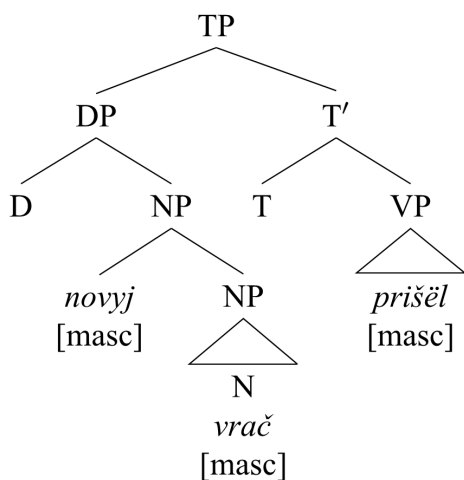
d. *Nov-aja vrač   prišël.
     new-F   doctor arrived-M

*TP
├─ DP
│ ├─ D
│ └─ NP
│   ├─ *novaja* [fem]
│   └─ NP
│   ├─ Ж [fem]
│   └─ NP
│   └─ N
│   *vrač* [masc]
└─ T′
   ├─ T
   └─ VP
      prišël [masc]
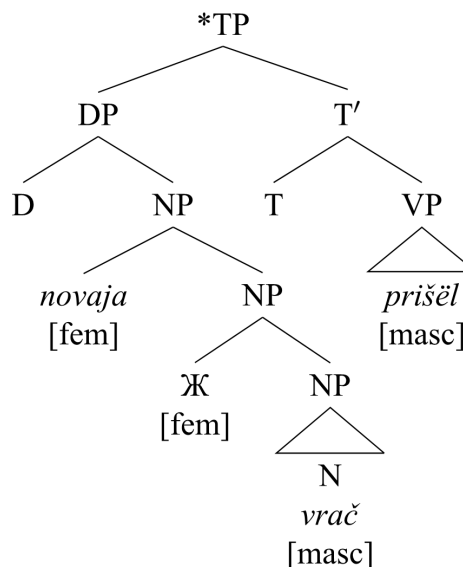
In (81a), Ж is inserted immediately above the masculine noun *vrač*, and all agreement is feminine. In (81b), Ж is inserted above the adjective, producing masculine agreement on the adjective but feminine agreement on the predicate. In (81c) the optional Ж is omitted, and all agreement is masculine. In (81d), Ж is inserted above the noun *vrač*, producing feminine

agreement on the adjective – but then the predicate reverts to masculine. This sentence is ungrammatical. The morpheme Ж may also be inserted between adjectives, although some positions result in sentences that are marginal or not attested.

Pesetsky points out that there are certain types of adjectives in Russian which may never agree with semantic gender. These are adjectives that are tightly bound to the noun, such as in *zubnoj vrač* 'dentist' ('dental doctor') (106a), *glavnyj vrač* 'head doctor' (106b), and *klassnyj rukovoditel* 'class supervisor' (106c). Pesetsky (2013:37) informally calls these "low adjectives" and describes them as having "non-intersective, idiomatic or argumental interpretation."

(82)   a. xoroš-aja   zubn-oj/*zubn-aja   vrač
            good-F   dental-M/*dental-F doctor
            'a good (female) dentist'   (Pesetsky 2013:38)

        b. Glavn-yj/*Glavn-aja vrač   poliklinik-i skazal-a, čtoby ...
            head-M/*head-F   doctor   clinic   said-F   that ...
            'The (female) head doctor of the clinic ordered that...'   (Pesetsky 2013:37)

        c. Klassn-yj/*Klassn-aja rukovoditel soobščil-a   Česnokovu, čto...
            class-M/*class-F   supervisor   informed-F   Chesnokov that
            'The (female) class supervisor informed Chesnokov that...'   (Pesetsky 2013:37)

The morpheme Ж is restricted from being inserted below low adjectives and paucals, as shown in (83), accounting for the fact that these modifiers may never take semantic agreement. Pesetsky does not go into detail about how this restriction would work. Asarina (2009) contains a possible explanation, which I adopt in my proposal (§5.4.3).

(83) a. xoroš-aja zubn-oj vrač   b. *xoroš-aja zubn-aja vrač
          good-F   dental-M doctor   good-F   dental-F doctor

```
              DP                                        DP
            /    \                                    /    \
           D      NP                                 D      NP
               /      \                                  /      \
          xorošaja    NP                            xorošaja    NP
           [fem]    /    \                            [fem]    /    \
                   Ж      NP                              *zubnaja    NP
                  [fem]  /    \                            [fem]    /    \
                    zubnoj   NP                                 *Ж       NP
                    [masc]  / \                                [fem]    / \
                           /___\                                       /___\
                            N                                          N
                           vrač                                       vrač
                          [masc]                                     [masc]
```

Pesetsky's proposal accounts for much of the same data as Matushansky (2013), in that the syntactic-to-semantic gender switch is optional and can enter at (almost) any point up the tree – inside the nominal phrase, or adjoined to DP above all lexical items in the nominal phrase. It differs in what causes the switch – a null morpheme rather than a floating semantic feature. It also differs in specifying a lower threshold for the switch, explaining why semantic gender agreement is allowed on some types of adjectives but not on others.

In Pesetsky's proposal, the Ж morpheme may only switch agreement from (grammatically) masculine to (referentially) feminine. However, there is at least one set of Russian nouns that go the other way: *zvezda* 'star' and *kinozvezda* 'movie star' are grammatically feminine but may take masculine agreement when referring to males, as seen in (84) and (85).

(84)   Filippinsk-aja kinozvezda   Fernando Po mlads-ij   ... oficial'no zajavil ...
       Philippine-F   movie-star.F Fernando Po younger-M   officially declared-M
       'The Philippine movie star Fernando Po, Jr. ... officially declared ...'

<div align="right">(Pereltsvaig 2006:486)</div>

(85)   Na poslednem festival v Kol'mare nov-aja francuzskaja zvezda   Loran
       at last   festival in Colmar   new-F   French-F   star.F   Laurent

       Korsia   skazal: ...
       Korcia   said-M

       'At the latest festival in Colmar the new French star Laurent Korcia said ...'

<div align="right">(Rappaport 2013:371)</div>

To account for mixed agreement with a grammatically feminine head noun and a male referent in Pesetsky's model, a second, parallel, masculine-inducing morpheme would be needed.

Like Matushansky's model, Pesetsky's model leaves no fixed location for reference. The feminizing morpheme Ж may be introduced at various points inside DP, or even adjoined to DP above all lexical items in the nominal phrase.

A similar phenomenon occurs with number in Lebanese Arabic:

(86)   a.   [tleetiin walad   mnazzam]   daras   Lebanese Arabic
                thirty   child.SG organized-SG studied-SG
       b.   [tleetiin walad   mnazzam]   daras-u
                thirty   child.SG organized-SG studied-PL
       c.   [tleetiin walad   mnazzam-iin] daras-u
                thirty   child.SG organized-PL studied-PL
       d. *[tleetiin walad   mnazzam-iin] daras
                thirty   child.SG organized-PL studied-SG
            'Thirty organized children studied.'   (Pesetsky 2013:47, from Ouwayda 2013)

Ouwayda (2013, 2014) proposes a similar account to Pesetsky's, in which the switch occurs at #P (number). As with Ж, # causes the agreement switch (and only in one direction, from singular to plural), although there is mention of D having reference and passing that to #.

4.2.3 NumP as the host of INDEX features (Landau 2015)

Landau (2015) offers a derivational account of mixed agreement based on the Index-Concord distinction from Wechsler and Zlatić (2003) and associated works, discussed in §4.1.1. His account is based on mixed number agreement in Hebrew, but he extends it to gender agreement and to other languages.

Like Wechsler and Zlatić, Landau posits two types of features, CONCORD and INDEX features. As before, CONCORD features usually match the morphological form of the noun, and INDEX features usually correspond to semantics, although there may be exceptions in either case. In Wechsler and Zlatić's proposal, CONCORD agreement is DP-internal only, while INDEX agreement is with the predicate. Landau modifies this division to allow INDEX agreement within DPs as well.

Landau's account is centered around the Hebrew noun *be'alim* 'owner', which has masculine plural morphology, but may refer to either singular or plural entities of either sex. In addition, adjective and predicate agreement may agree with either the noun or the referent, as shown in (87).

(87) Hebrew (Landau 2015:10-11)
    a. ha-be'al-im   ha-kodem   maxar   et   ha-makom lifney šana.
        the-owner-**PL** the-previous.**SG** sold.**3SG** ACC the-place   before year
        'The previous owner sold the place a year ago'

    b. ha-be'al-im   ha-kodm-im   maxru   et   ha-makom lifney šana.
        the-owner-**PL** the-previous-**PL** sold.**3PL** ACC the-place   before year
        'The previous owners sold the place a year ago

    c. (?) ha-be'al-im   ha-kodm-im   maxar   et   ha-makom lifney šana.
         the-owner-**PL** the-previous-**PL** sold.**3SG** ACC the-place   before year
         'The previous owner sold the place a year ago'
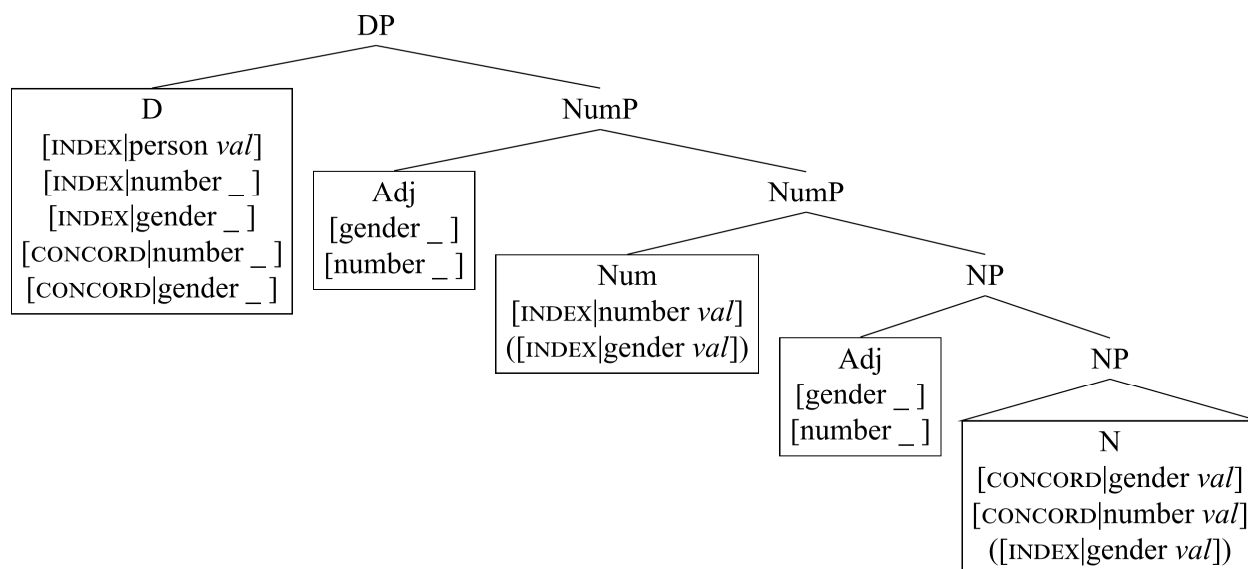
    d. * ha-be'al-im   ha-kodem   maxru   et   ha-makom lifney šana.
       the-owner-**PL** the-previous.**SG** sold.**3PL** ACC the-place   before year
       intended: 'The previous owner(s) sold the place a year ago'

In (87a), the referent is a single entity, and both the adjective and the verb display singular agreement. In (87b), the referent is a plural entity, and both the adjective and the verb display plural agreement. Like other examples we have seen, mismatches are only allowed in one direction. Sentences like (87c) are attested, and allowed by some speakers; sentences like (87d) are never allowed.

In Landau's account, CONCORD number and gender are specified on N. N may also specify INDEX gender, for a noun that, semantically, may only refer to one gender. INDEX number and INDEX gender (if it was not introduced on N) are specified on Num. INDEX features determine verb agreement. NumP is a functional projection between NP and DP, and Landau cites Ritter (1995), Wechsler and Zlatić (2003), among others, in support for placing INDEX features on Num. Adjectives have unvalued gender and number features, but are unspecified for CONCORD or INDEX, and may agree (via feature sharing) with either CONCORD or INDEX values. It is not clear how the untyped [number] (e.g.) feature on adjectives can match either the [INDEX|number] or [CONCORD|number] features. D introduces and values the INDEX|person feature, and inherits other INDEX and CONCORD features, so that it ends up with both sets of φ-features. The distribution of φ-features is shown in (88):

(88)

```
                                    DP
                    ┌───────────────┴───────────────┐
                    D                              NumP
        ┌────────────────────────┐      ┌───────────┴────────────┐
        │ D                      │    Adj                       NumP
        │ [INDEX|person val]     │ ┌───────────┐      ┌──────────┴──────────┐
        │ [INDEX|number _ ]      │ │ [gender _ ]│    Num                    NP
        │ [INDEX|gender _ ]      │ │ [number _ ]│ ┌────────────────────┐  ┌──┴──┐
        │ [CONCORD|number _ ]    │ └───────────┘ │ [INDEX|number val]  │ Adj   NP
        │ [CONCORD|gender _ ]    │               │ ([INDEX|gender val])│
        └────────────────────────┘               └────────────────────┘
```

Tree (88):

DP
- D
  - [INDEX|person *val*]
  - [INDEX|number _]
  - [INDEX|gender _]
  - [CONCORD|number _]
  - [CONCORD|gender _]
- NumP
  - Adj
    - [gender _]
    - [number _]
  - NumP
    - Num
      - [INDEX|number *val*]
      - ([INDEX|gender *val*])
    - NP
      - Adj
        - [gender _]
        - [number _]
      - NP
        - N
          - [CONCORD|gender *val*]
          - [CONCORD|number *val*]
          - ([INDEX|gender *val*])

If an INDEX value is not inherent on N, then it must be specified on Num. In this case (e.g. Hebrew *be'alim* or Russian gender hybrids), NumP may be merged at various points: below all adjectives, between adjectives, or above all adjectives. Adjectives below NumP agree with N (CONCORD agreement). Adjectives between NumP and DP agree with Num (INDEX agreement). If Num merges between two adjectives, different agreement results, as in (89). In this case the adjective closer to the noun shows CONCORD agreement and the further one, along with the predicate, shows INDEX agreement.

(89) a. ha-be'alim   ha-pratiyim   ha-axaron   šel ha-tmuna   haya
          the-owner   the-private.PL   the-last.SG of   the-painting was.3SG

          ha-psixo'analitika'i   Jacques Lacan.
          the-psychoanalyst   Jacques Lacan

          'The last private owner of the painting was the psychoanalyst Jacques Lacan'

b. * ha-be'alim ha-prati　　　　ha-axron-im　šel　ha-tmuna　　haya/hayu
　　the-owner　the-private.SG　the-last-PL　　of　the-painting　was.3.SG/PL

　ha-psixo'analitika'i　Jacques Lacan.
　the-psychoanalyst　　Jacques Lacan

intended: 'The last private owner of the painting was the psychoanalyst Jacques Lacan'

<div align="right">(Landau 2015:31)</div>

D has both INDEX and CONCORD features, and may express either set, depending on lexical specification of the determiner; Landau leaves it as an open question why features in line with the Agreement Hierarchy are always chosen. Elements outside DP see a phase boundary and must always agree with the INDEX features on D.

Landau does not discuss reference, although he does refer to semantic gender and semantic number. In fact, reference may not be determinable in this proposal at all: Landau presents the sentence in (90), indicating that [INDEX|number] denotes semantic number but seems not to require specific reference.

(90)　yeš　　be'al-im　xadaš(-im)　la-binyan.　　　　　　　　　　Hebrew
　　　there.is　owner-PL　new(-PL)　to.the-building
　　　'There is/are (a) new owner(s) to the building.'　　　　(Landau 2015:36)

5   Proposal

In this section, I offer an account that places reference on D while still accounting for DP-internal mixed agreement.
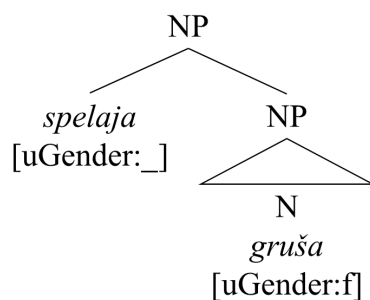
5.1   Grammatical gender

I assume, following much of the field, that grammatical gender is a feature on *n*. Grammatical gender here includes both semantically assigned gender and purely formal gender. As we saw in §3.3, the gender of nearly all Russian nouns is formal, based on declension class, while the gender of some nouns is semantically derived, e.g. *djadja* 'uncle' is masculine despite its morphology. In other languages, grammatical gender is all or mostly semantically assigned.

A number of authors have models that distinguish formal and semantic gender on or below *n*P. Steriopolo and Wiltschko (2010) place semantic gender on the root. Kramer (2014) allows either interpretable or uninterpretable gender on *n*, depending whether it is semantic or formal. Matushansky's semantic gender features may be introduced on N itself in the case of semantically-assigned gender. Rappaport and Landau allow optional semantic gender on N. My model does not preclude any of these options, but does not distinguish at N between grammatical gender that is semantically assigned and grammatical gender that is formally assigned. The justification for this lack of distinction is that mixed agreement can occur irrespective of whether the grammatical gender is assigned formally or semantically. Recall that noun gender in Algonquian languages is assigned mostly semantically, but in the Algonquian myths described in §3.1, animate agreement markings can be used when referring to an inanimate gender noun that is personified.
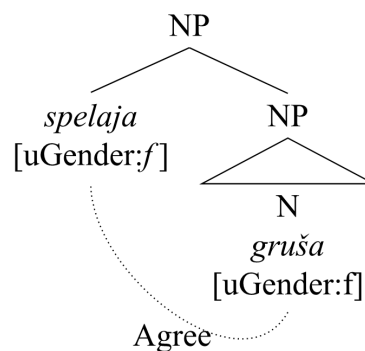
In (91), we see the derivation of a phrase with only grammatical agreement. For ease of exposition, I use simplified tree structures, with adjectives adjoined to NP. I do not exclude the possibility of other functional projections between DP and NP. I further assume that Agree is feature sharing, as discussed in §2.2.4. An italicized gender value denotes that the value was not inherent at that location but determined by Agree; however, once features are shared, there is no distinction between inherent and non-inherent feature values.

(91) a. èt-a   spel-aja gruša
         this-F   ripe-F   pear.F
         'this ripe pear'

b.

NP
├── *spelaja*
│   [uGender:_]
└── NP
     └── N
          gruša
          [uGender:f]

c.

NP
├── *spelaja*
│   [uGender:*f*]
│   Agree
└── NP
     └── N
          gruša
          [uGender:f]

d.

DP
├── *èta*
│   [uGender:*f*]
│   Agree
└── D′
     ├── D
     │   [uGender:*f*]
     │   Agree
     └── NP
          ├── *spelaja*
          │   [uGender:*f*]
          │   Agree
          └── NP
               └── N
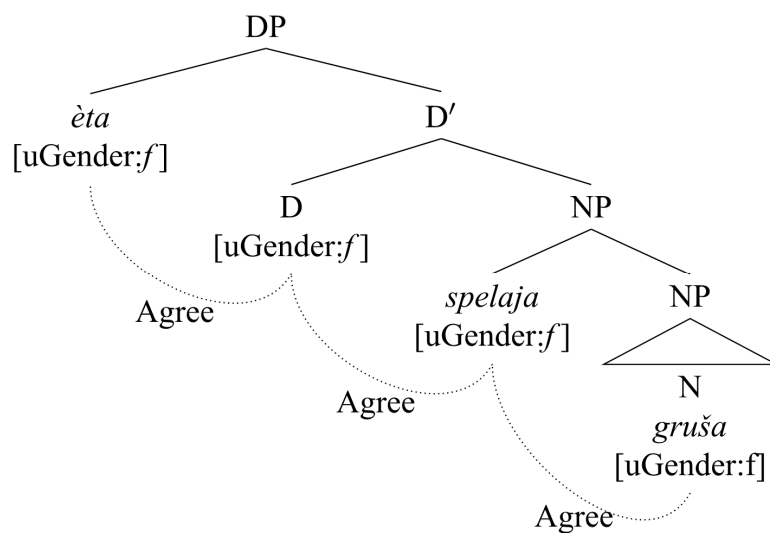   *gruša*
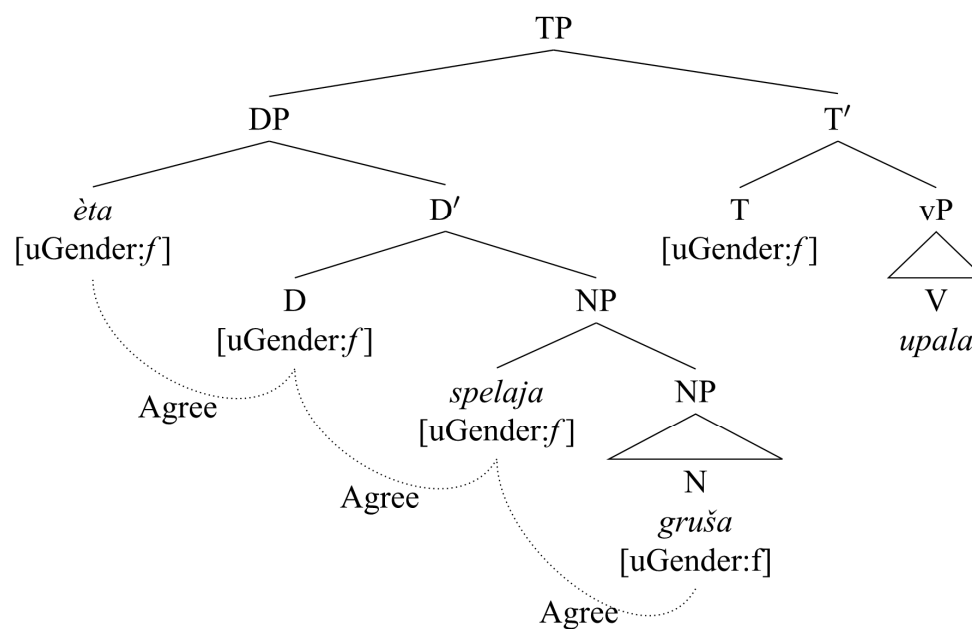   [uGender:f]

The inanimate noun *gruša* 'pear' enters the derivation with an uninterpretable, valued gender feature, [uGender:f]. The demonstrative, adjective, and D° enter with uninterpretable, unvalued gender features, [uGender:_] (91b), which are valued when they are shared with the noun (91c-d). For an inanimate noun or fixed gender animate noun, all gender values must match the grammatical gender of the noun; there can be no gender mismatch, as shown in (92).

(92) *èt-ot spel-aja gruša
       this-M ripe-F   pear.F

The gender feature on D is visible outside the DP and is used for predicate agreement (93).

(93)   a. Èt-a   spel-aja gruša   upal-a.
           this-F ripe-F   pear.F fell-F
           'This ripe pear fell.'

       b.

5.2 Reference and semantic gender

I assume that there is a locus of reference in a referring nominal, that this locus is D, and that semantic features associated with the referent enter at this location.

There is considerable support in the literature for placing the locus of reference on D. Abney (1987:50) writes that a noun is a predicate, and that "the function of the determiner is to specify the reference of a noun phrase." Longobardi (1994, 2005) also argues that NPs are predicates and DPs are arguments, with D being the locus of reference. Pereltsvaig (2006, 2007a) argues for the existence in Russian of DPs and nominals with no DP layer (NP/AP/QP), citing different behaviors between the two. Pereltsvaig (2006) provides evidence that DP subjects have specific reference and NP do not (although Corbett (2006:196) claims that the difference in meaning is not clear-cut). Pereltsvaig (2007a) gives evidence that post-copular nominals in nominative case are DPs, while those in instrumental case are bare NPs; and also that bare NPs behave syntactically in several ways like APs, without reference.

On the other side of the argument, Baker (2003) claims that nouns (and only nouns) have reference, and that DPs simply inherit their reference from N.

I follow the majority of authors above in assuming that the locus of reference is on D. With reference on D, it follows that semantic gender, based on the sex of the referent, enters at D. In particular, it is widely agreed (by Pereltsvaig (2006), Pereltsvaig (2007a), Matushansky (2013), among others) that semantic agreement is not available in oblique cases, such as (94a); c.f. (94b), which Pereltsvaig (2007a) says have no DP layer. (Corbett (1991:238) says that examples of semantic agreement in oblique cases "have begun to occur" in Russian but cites no examples.)

(94) a. My interesujemsja izvestnym/*izvestnoj kompozitorom Paxmutovoj.
       we are.interested famous-M/*famous-F composer.M.INSTR Pakhmutova.INSTR
       'We are interested in the famous composer Pakhmutova.'

      b. %Izvestn-aja kompozitor Paxmutova interesujetsja živopisju.
       famous.F composer.M.NOM Pakhmutova.NOM is-interested painting.INSTR
       'The famous composer Pakhmutova is interested in painting.' (Pereltsvaig 2006:485)

Consider (95), in which the referent is female, and D° has an interpretable feminine gender feature. This semantic gender feature is shared with the adjective *xorošaja* 'good,' resulting in a gender value that is shared downward from D° to the adjective. Recall that with Agree by feature sharing it does not matter where the value originated, as long as at most one of the feature locations being shared already has a value. In this way, attributive adjectives may display semantic gender agreement. The head noun *vrač* 'doctor' is still grammatically masculine. I will expand on the part of the tree marked "…" in §5.3.

(95) a. xoroš-aja vrač
       good-F doctor
       'a/the good (female) doctor'

      b.
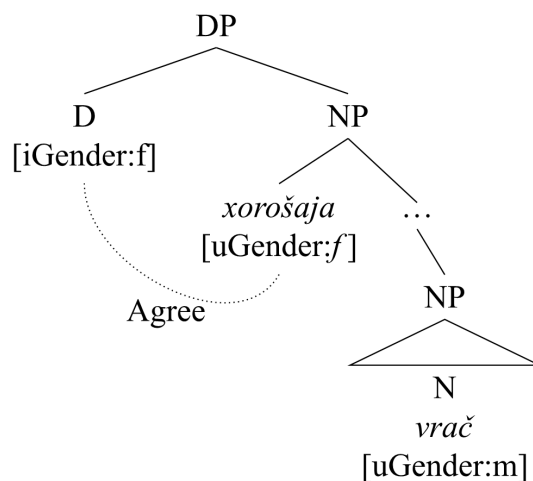
As above, the gender feature on D is visible outside the DP and is used for predicate agreement, as in (96).

(96)   a.   xoroš-aja   vrač   prišl-a
            good-F   doctor arrived-F
            'a/the good (female) doctor arrived'

b.
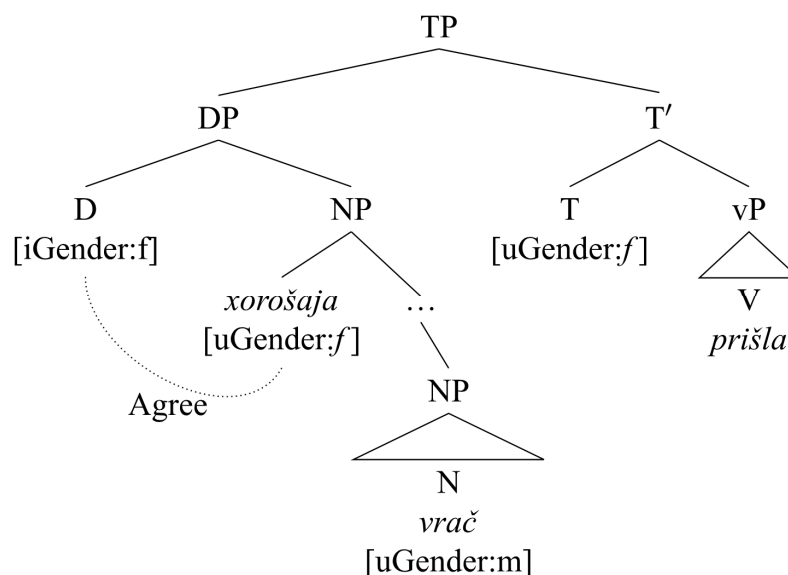
5.3   Meeting in the middle

In some cases, Russian allows mixed agreement within a single DP, as in (97). Note that the adjective *xorošaja* 'good' is feminine, matching the referent, while the adjective *glavnyj* 'head' is masculine, matching the noun.

(97)   xoroš-aja glavn-yj vrač
       good-F   head-M   doctor
       'a/the good (female) head doctor'

The adjective *glavnyj* shares its gender feature with the noun *vrač*, getting a masculine value to match the grammatical gender of the noun (98a). When the adjective *xorošaja* is merged (98b),

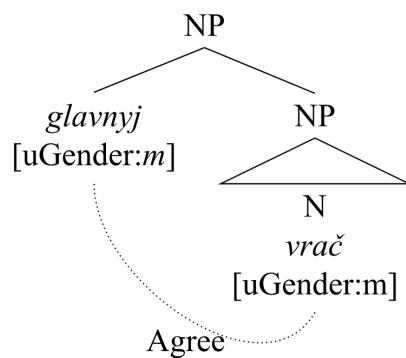it must not share its gender feature with *glavnyj* and *vrač*, or it would also be valued masculine. It must wait until D is merged, with its valued gender feature, and share with D instead (98c). Something must block *xorošaja* from sharing its gender feature with *glavnyj*.

(98)   a.

NP
├── *glavnyj* [uGender:*m*]
└── NP
    └── N
        vrač [uGender:m]

Agree

b.

NP
├── *xorošaja* [uGender:_]
└── NP
    ├── *glavnyj* [uGender:*m*]
    └── NP
        └── N
            vrač [uGender:m]

~~Agree~~

Agree

c.

DP
├── D [iGender:f]
└── NP
    ├── *xorošaja* [uGender:*f*]
    └── NP
        ├── *glavnyj* [uGender:*m*]
        └── NP
            └── N
                vrač [uGender:m]

Agree

Agree
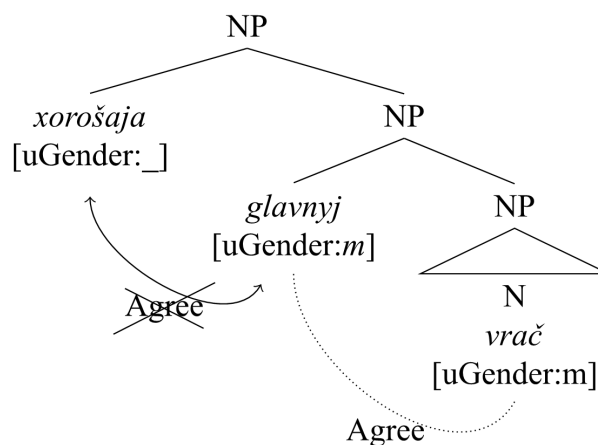
I propose that a null blocking morpheme Б is inserted into the derivation above the adjective, as in (99). This morpheme Б (Cyrillic B /be/, named for Russian *blok* 'block') does not participate in feature sharing, either with the elements below it or with the elements above it. Thus, in (99), *xorošaja* can only feature share with D, not with Б or elements below Б.

(99)

```
                    DP
            ┌────────┴────────┐
            D                 NP
      [iGender:f]      ┌───────┴───────┐
            ╎      xorošaja            NP
            ╎      [uGender:f]    ┌─────┴─────┐
          Agree                  Б           NP
                            [uGender:0]  ┌────┴────┐
                                     glavnyj       NP
                                   [uGender:m]      ╱╲
                                       ╎           N
                                       ╎          vrač
                                       ╎       [uGender:m]
                                     Agree
```
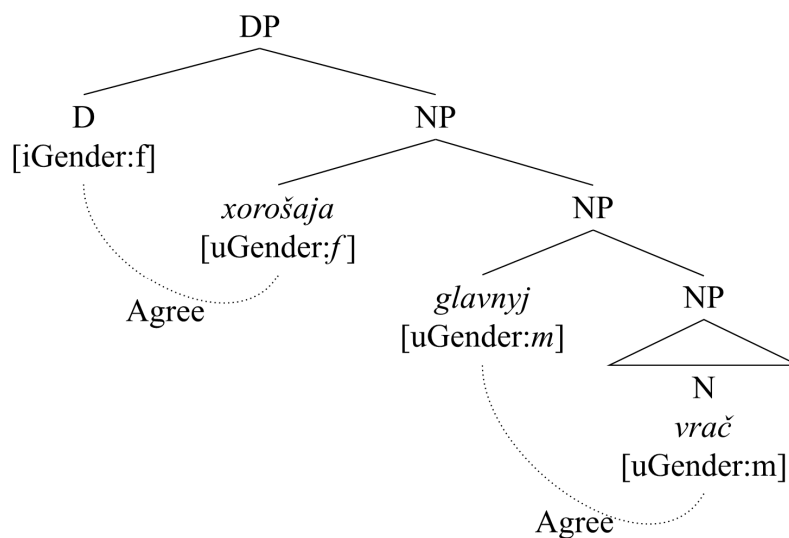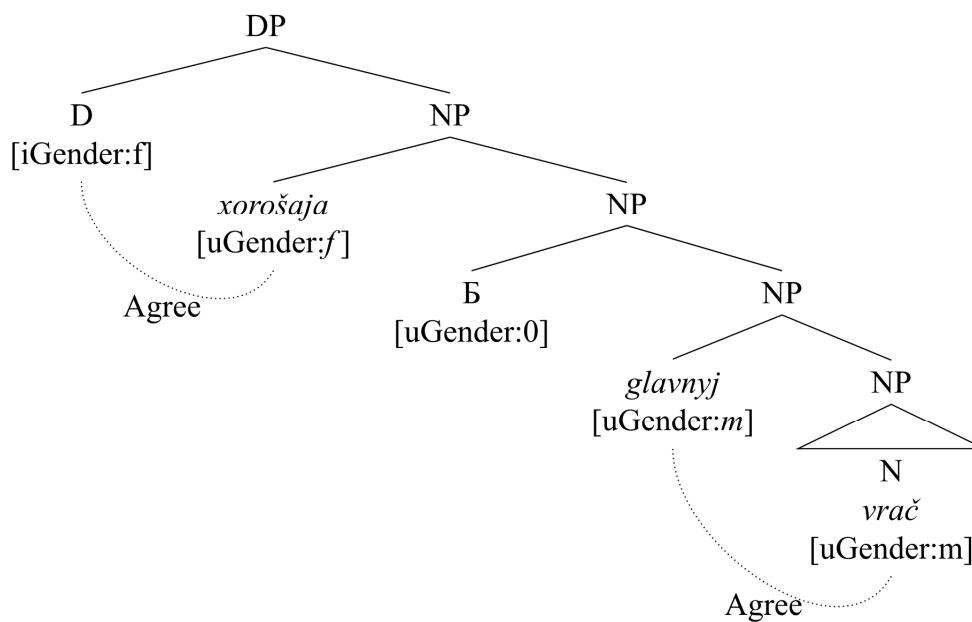
I propose that Б has gender feature [uGender:0]. This feature is valued with a "zero" gender, rather than unvalued, so it blocks Б from feature sharing with *vrač* and *glavnyj*. However, the zero value also blocks it from sharing its gender feature with other elements, too. Other possible mechanisms for the blocking nature of Б are discussed below.

We can now fill in the missing bit of the tree in (95) above, corrected here as (100). Here, Б blocks *vrač* from sharing its gender feature upward to the adjective *xorošaja*, and *xorošaja* instead shares semantic gender with D.

(100) a. xoroš-aja vrač
           good-F   doctor
           'a/the good (female) doctor'

b.

```
                          DP
              ┌────────────┴────────────┐
              D                         NP
         [iGender:f]          ┌──────────┴──────────┐
              ⋮            xorošaja               NP
              ⋮            [uGender:f]     ┌────────┴────────┐
              └·····Agree·····┘            Б               NP
                                      [uGender:0]      ┌────┴────┐
                                                           N
                                                         vrač
                                                      [uGender:m]
```
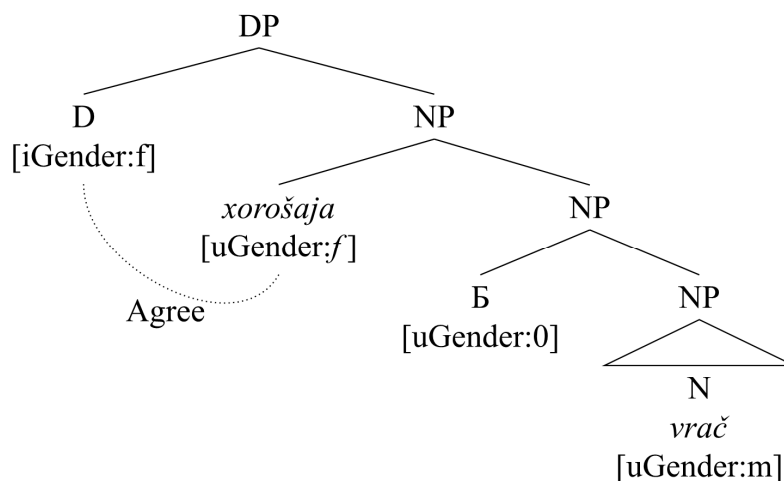
Б is modeled after Pesetsky's (2013) feminizing morpheme Ж, but it is crucially different. Like Ж, Б may be introduced at nearly any point in the derivation of the nominal phrase (I discuss exceptions in §5.4) and it marks a transition between grammatical and semantic gender agreement. However, while Ж introduces feminine gender and causes the gender switch, Б doesn't introduce reference gender. Reference gender originates on D, and Б simply marks the transition point by blocking feature sharing above and below it.

Additionally, in Pesetsky's proposal, the Ж morpheme may only switch agreement from masculine to feminine; a second, parallel, masculine-inducing morpheme would be needed to account for mixed agreement with a grammatically feminine head noun and a male referent, such as *kinozvezda* 'movie star' in example (84), reproduced here as (101).

(101)   Filippinsk-aja kinozvezda   Fernando Po mlads-ij   ... oficial'no zajavil ...
        Philippine-F   movie-star.F   Fernando Po younger-M   officially declared-M
        'The Philippine movie star Fernando Po, Jr. ... officially declared ...'

<div align="right">(Pereltsvaig 2006:486)</div>

My proposal uses the same mechanism regardless of the sex of the referent and the grammatical gender of the noun. My proposal would also work in a multi-gender system such as Swahili,

while the Ж system would need several additional parallel morphemes. In (102) we see an example of mixed agreement in Swahili (reproduced from (21)). The noun *rafiki* 'friend' is in morphological class 9/10, but because it is animate, it can also take class 1/2 agreement.

(102)   rafiki   y-angu   a-mefika   Swahili
       friend   9-my   1-arrived
       'My friend has arrived'   (Corbett 1991:252)

My model reinforces the idea that the gender switch in mixed agreement must follow the semantic gender of the referent, and there is no other restriction on which of the language's genders may result.

How exactly the Agree-blocking morpheme Б works is an open question. In the current model, Б is a null morpheme, similar to the null Ж morpheme in Pesetsky (2013). Б must have a gender feature of its own, and enter with a valued gender feature, so that it does not participate in feature sharing with elements below it. If Б had no gender feature of its own, then it would be transparent to feature sharing between elements above and below it. In addition to not feature sharing with elements below it, Б must also not participate in feature sharing with elements above it. These higher elements must remain unvalued until D is merged, at which point they can feature share with D and receive D's semantic gender value. Thus, the value of Б's gender feature cannot be any existing gender value (masculine, feminine, or neuter), because this value would be sharable. I use a zero value, perhaps something like [-Masc, -Fem, -Neut]. Why this value does not participate in feature sharing is left as an open question.

An alternative would be for Б to be a functional head that serves as a phase boundary. In such a model, Б would not have a gender feature of its own, and thus would not participate in feature sharing with lower elements. As a phase boundary, Б would also keep elements above it

from feature sharing with elements below it. Higher elements would only see features on Б, and thus would have no valued gender feature to share with, and would remain unvalued until D is merged with its semantic gender value. However, Б is only merged if there is an animate referent, and requires that D will introduce the referent's gender. The existence of a DP-internal phase head is not problematic, but a DP-internal phase head is that only exists in some nominals – and whose location is varible – seems speculative. Landau's (2015) proposal (§4.2.3) also uses a functional head (Num) as the boundary between syntactic and semantic agreement. However, Landau does not require Num to be a phase boundary, because it always introduces a new gender value which is then shared with higher elements.

5.4 Further illustration

This section shows derivations for some grammatical and ungrammatical examples.

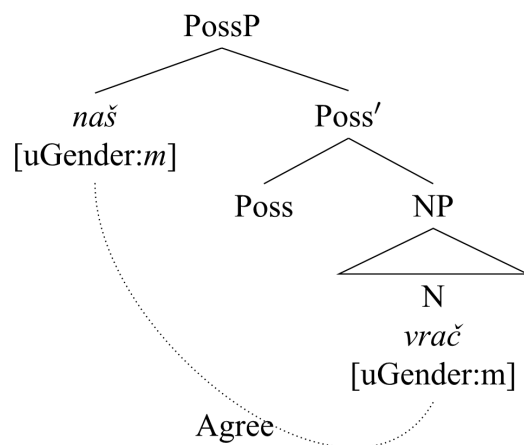### 5.4.1 Syntactic agreement on SpecDP elements

In the sentence in (103), the possessive *naš* 'our', which I assume to be in SpecDP, agrees with the syntactic gender of the noun, while the predicate agrees with the semantic gender.

(103)   [naš   vrač] prišl-a
        [our-M doctor] arrived-F
        'our (female) doctor arrived'

Semantic agreement on the predicate implies a reference gender, introduced at D. It seems that the SpecDP element should agree with the gender on D, but it does not. The reason is that the possessive is merged below DP, in PossP, as shown in (104b). After Б and D are merged, introducing reference gender on D°, *naš* can move to its final location in SpecDP (104c). The predicate still sees the semantic gender on D for agreement.

(104) a. naš   vrač
          our-M doctor
          'our (female) doctor'

b.

c.
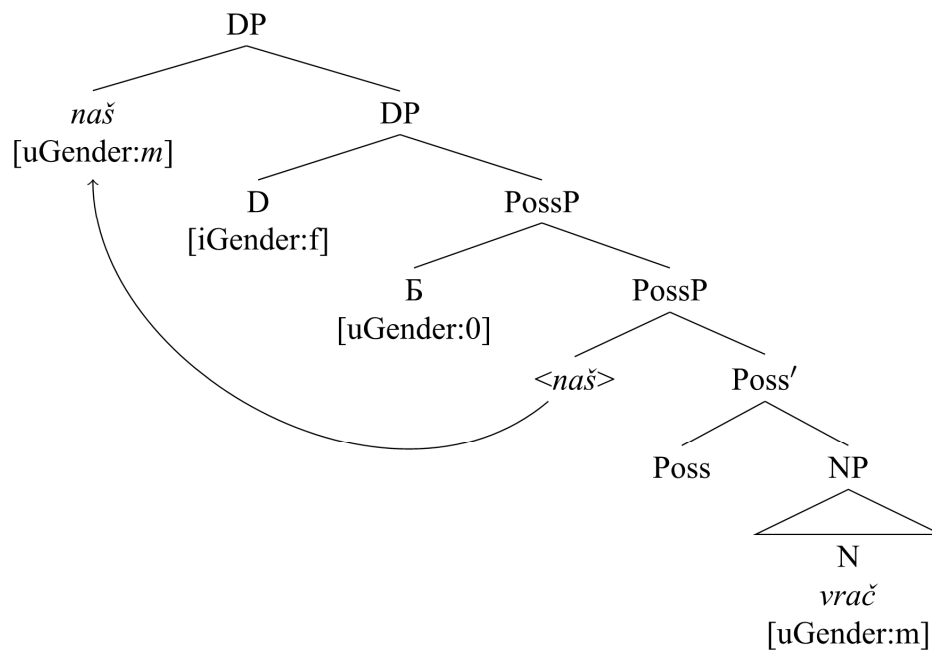
Likewise, demonstratives are merged in DemP (following Brugè 2002) and move to SpecDP.

5.4.2 Semantic agreement on SpecDP elements

If, on the other hand, the possessive takes semantic agreement, the derivation is as in (105). Б is

merged below Poss, causing *naša* to agree in gender with D instead of *vrač* (105b). Then *naša*

moves to SpecDP as shown in (105c), analogous to what we saw in the previous section.

(105) a. naš-a   vrač
         our-F   doctor
         'our (female) doctor'

   b.

c.

```
                        DP
              ┌──────────┴──────────┐
           naša                     DP
        [uGender:f]          ┌──────┴──────┐
              ↑              D            PossP
              │          [iGender:f]   ┌───┴────┐
              │            <naša>    Poss′
              └───────────────────┐ ┌──┴────┐
                                Poss        NP
                                       ┌─────┴─────┐
                                       Б           NP
                                  [uGender:0]      ╱╲
                                                  N
                                                 vrač
                                              [uGender:m]
```
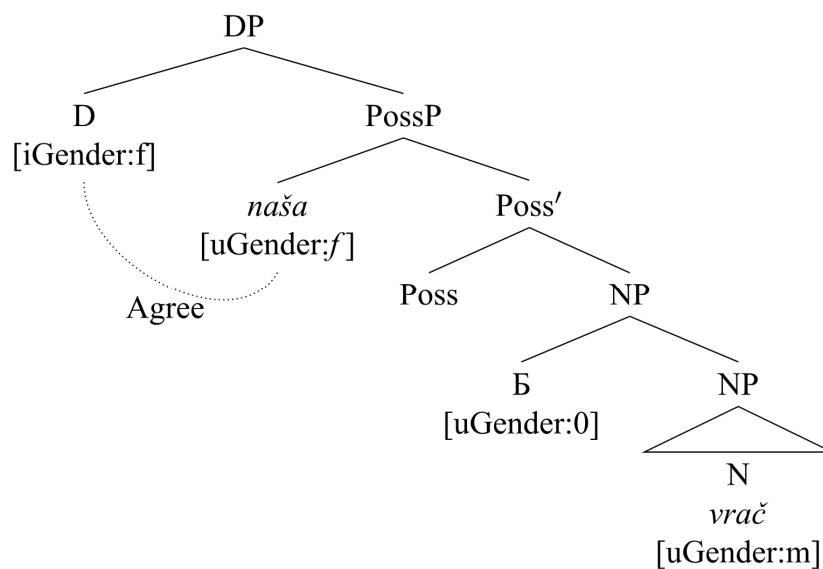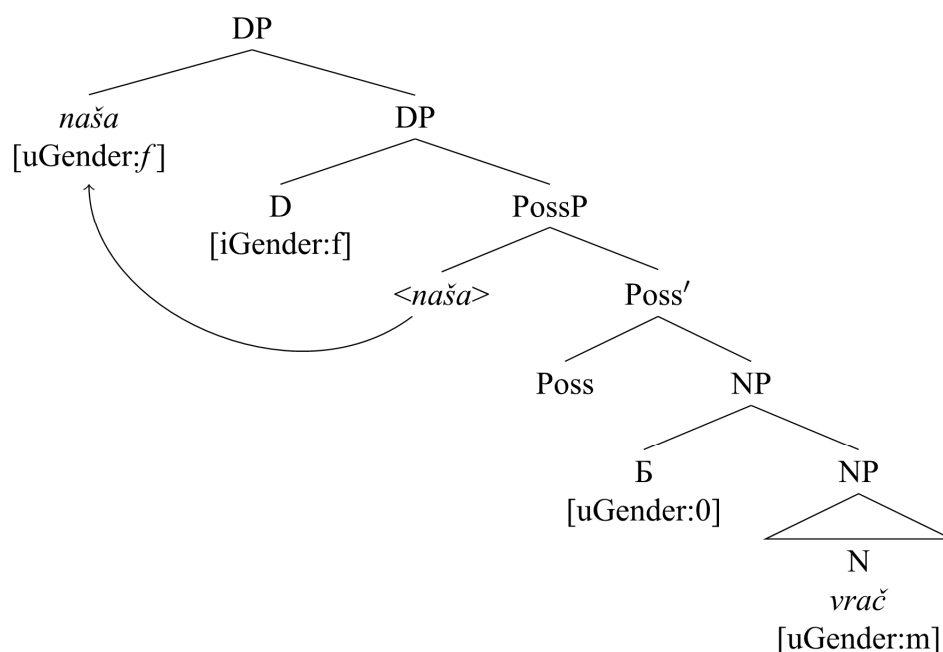
5.4.3   Restricting semantic agreement on "low" adjectives

As we saw in §4.2.2, there are certain types of adjectives in Russian which may never agree with

semantic gender (Asarina 2008; Asarina 2009; Pesetsky 2013). These are non-intersective

adjectives that are tightly bound to the noun, such as in *zubnoj vrač* 'dentist' ('dental doctor')

(106a), *glavnyj vrač* 'head doctor' (106b), and *klassnyj rukovoditel* 'class supervisor' (106c).

(106)   a.   xoroš-aja   zubn-oj/*zubn-aja   vrač
             good-F   dental-M/*dental-F   doctor
             'a good (female) dentist'   (Pesetsky 2013:38)

        b.   Glavn-yj/*Glavn-aja   vrač   poliklinik-i   skazal-a, čtoby ...
             head-M/*head-F   doctor   clinic   said-F   that ...
             'The (female) head doctor of the clinic ordered that...'   (Pesetsky 2013:37)

        c.   Klassn-yj/*Klassn-aja   rukovoditel   soobščil-a   Česnokovu, čto...
             class-M/*class-F   supervisor.M   informed-F   Chesnokov that
             'The (female) class supervisor informed Chesnokov that...'   (Pesetsky 2013:37)

While other agreement targets, and even other adjectives in the same sentence (such as *xorošaja* 'good' in (106a)), may agree either with the grammatical or semantic gender, this class of adjectives (Pesetsky's "low adjectives") must always agree with the grammatical gender of the noun. Asarina (2008) talks more about the semantics of these adjectives, and Asarina (2009) uses a semantic approach to explain why these adjectives must always show masculine agreement. In short, "dental doctor" can be thought of as "someone who does dental doctoring," represented by the structure in (107), from Asarina (2009):
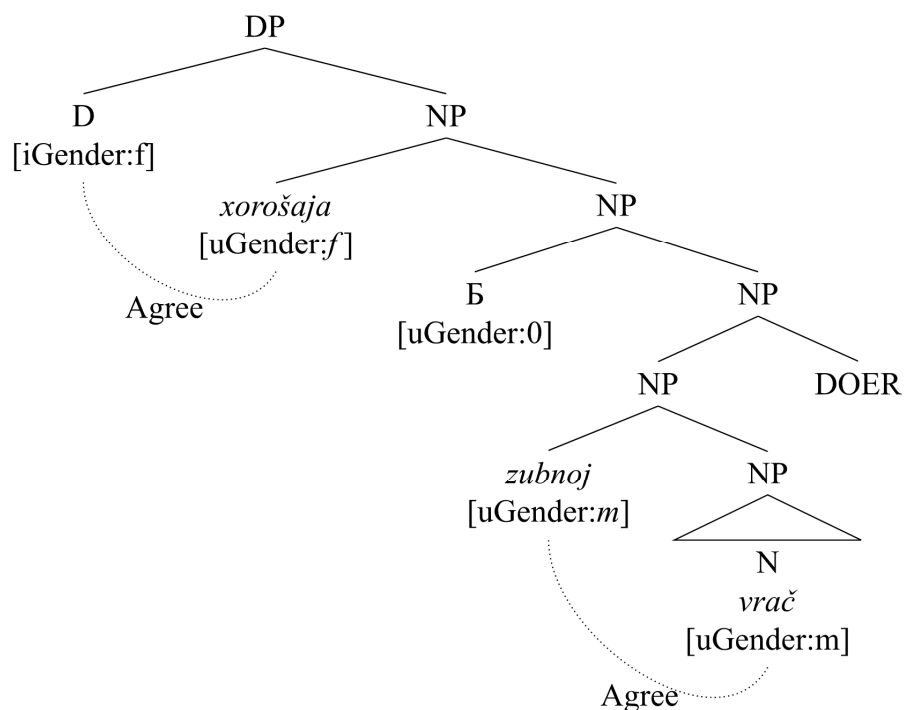
(107)   [[zubnoj vrač] DOER]
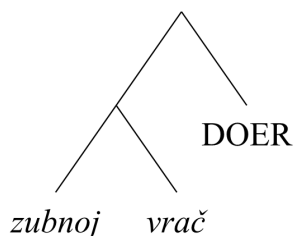
(Asarina 2009)

This entire structure is needed to denote a person. A switch to referential gender must apply to an NP denoting a person, and therefore must happen above DOER. The result is shown in (108).

(108)   a.   xoroš-aja   zubn-oj/*zubn-aja   vrač
             good-F   dental-M/*dental-F   doctor
             'a/the good (female) dentist'

b.

```
                        DP
              _____/  _____
             D                     NP
      [iGender:f]          _____/  _____
           ⋮             xorošaja          NP
           ⋮            [uGender:f]     ___/  \___
        Agree                          Б          NP
                                  [uGender:0]   __/  \__
                                              NP        DOER
                                          ___/  \___
                                       zubnoj       NP
                                    [uGender:m]     /\
                                         ⋮         N
                                         ⋮       vrač
                                      Agree   [uGender:m]
```

## 5.4.4 Semantic/syntactic agreement split between "high" adjectives

The example in (109a) shows a semantic/split agreement split between two adjectives, neither of which is a non-intersective "low" adjective. Pesetsky (2013) found (109a) to be marginal, but in definite contrast to the ungrammatical (109b).

(109)   a. ?U menja očen' interesn-aja nov-yj vrač.
           by me   very   interesting-F new-M doctor
           'I have a very interesting new (female) doctor.'

       b. *U menja očen' interesn-yj   nov-aja vrač.
           by me   very   interesting-M new-F doctor
           intended: 'I have a very interesting new (female) doctor.'   (Pesetsky 2013:38)

Assuming (109a) is even marginally allowed, (110) shows its derivation. Б is inserted between the two adjectives, producing syntactic agreement on *novyj* and semantic agreement on *interesnaja*.

(110) a. interesn-aja   nov-yj   vrač
         interesting-F new-M   doctor
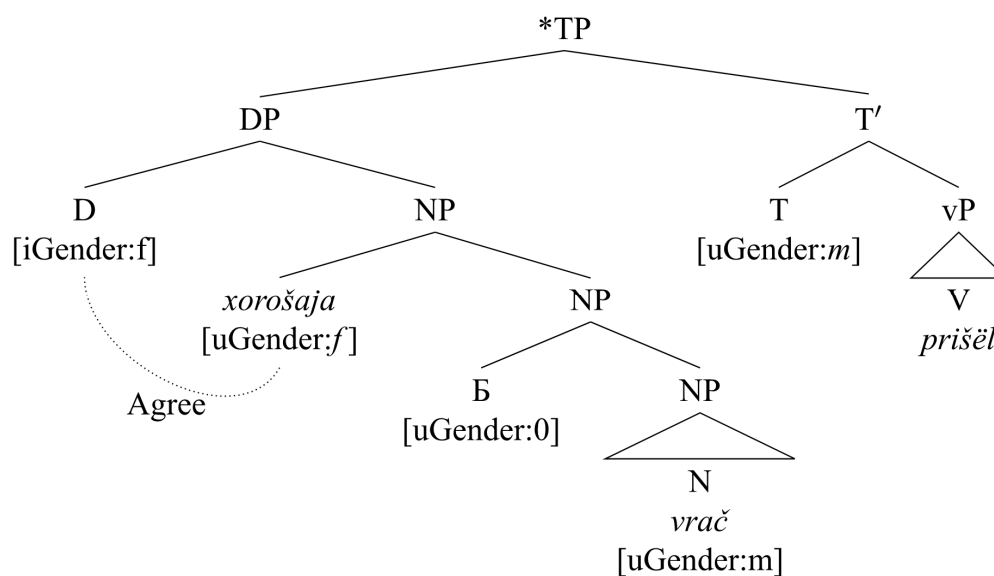   'interesting new (female) doctor'

b.
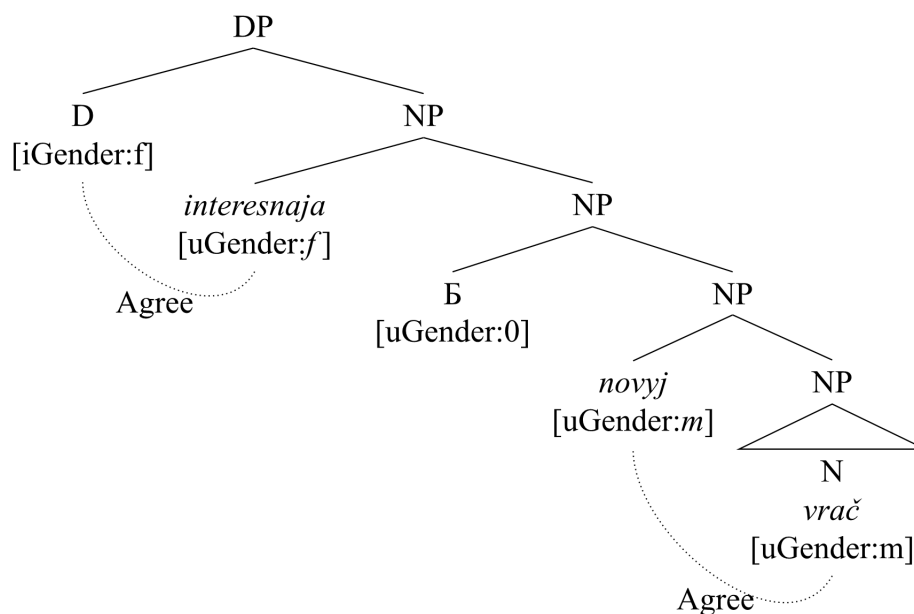
5.4.5 Restricting syntactic agreement on predicate with semantic agreement in DP

An important generalization is that the predicate must agree with the gender features on D, because only the gender features on D are visible to T. Since reference features are always introduced at D in this model, once a reference gender is introduced, the predicate must agree with the semantic gender and cannot take syntactic agreement:

(111) a. *[xoroš-aja   vrač   ] prišël
          [good-F   doctor] arrived-M
          intended: 'a/the good (female) doctor arrived'

b.

```
                            *TP
                ┌────────────┴────────────┐
               DP                         T′
        ┌───────┴───────┐          ┌──────┴──────┐
        D              NP          T             vP
   [iGender:f]   ┌─────┴─────┐ [uGender:m]       △
                xorošaja    NP                    V
                [uGender:f] ┌──┴──┐             prišël
          Agree            Б     NP
                      [uGender:0]  △
                                   N
                                  vrač
                               [uGender:m]
```
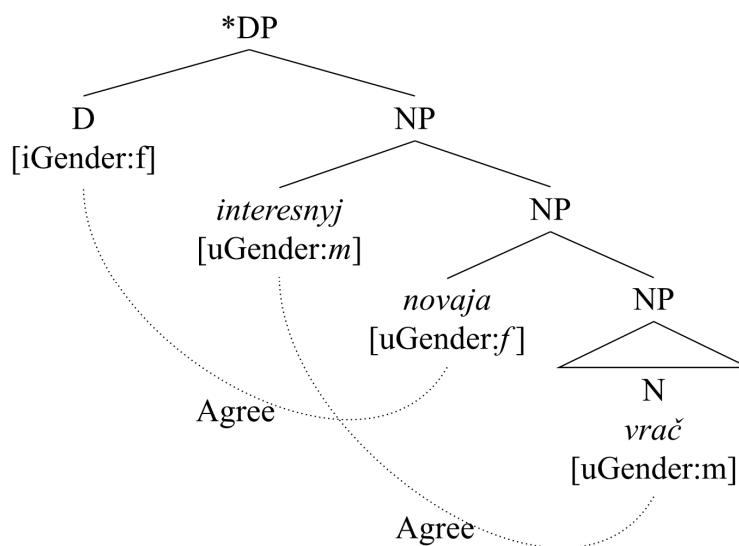
5.4.6 Restricting syntactic agreement above semantic agreement

In (112), the outer adjective takes syntactic gender and the inner adjective takes semantic gender.

The derivation in (112b) makes it clear that this cannot be grammatical.

(112) a. *interesn-yj   nov-aja   vrač
          interesting-M   new-F   doctor
          intended: 'interesting new (female) doctor'
       b.

```
                      *DP
             ┌─────────┴─────────┐
             D                   NP
        [iGender:f]      ┌────────┴────────┐
                      interesnyj          NP
                      [uGender:m]   ┌──────┴──────┐
                                  novaja         NP
                                  [uGender:f]    △
                Agree                            N
                                                vrač
                                             [uGender:m]
                         Agree
```

5.4.7 Relative pronouns

Relative pronouns are further toward the semantic side than attributive adjectives on Corbett's Agreement Hierarchy, and they may take semantic agreement in Russian even when attributive modifiers in the same DP take syntactic agreement:

(113) Èto edinstvenn-yj vrač,   kotor-aja menja nastorožil-a.
       This sole-M   doctor.M which-F   me   alarmed-F
       'That was the sole doctor who alarmed me.'   (Pereltsvaig 2007:56)

(114) Ona vrač,   kotor-aja pri operacii zanimaetsja   tem, čto ...
       She doctor which-F   at   sugery   takes-care of such that
       'She is a doctor who during surgery takes care of ...'   (Pereltsvaig 2007:56)

Pereltsvaig (2007a) notes that relative pronouns follow the gender of the referent. Likewise, Wechsler and Zlatić (2003) state that relative pronouns show Index agreement. Past that, relative clauses have not received much analysis in the study of mixed agreement. I suggest that my proposal is compatible with the agreement pattern observed by these authors, using a head-raising analysis of relative clauses (described in Bhatt (2002) and references therein). For example, the structure of the predicate DP in (113) would be as shown in (115).

(115)   [DP D° [NP [NP edinstvennyj vrač]j [CP [DP-rel kotoraja tj]i [C′ C° [TP ti menja nastorožila]]]]]
                      sole-M   doctor.M   which-F   me   alarmed-F
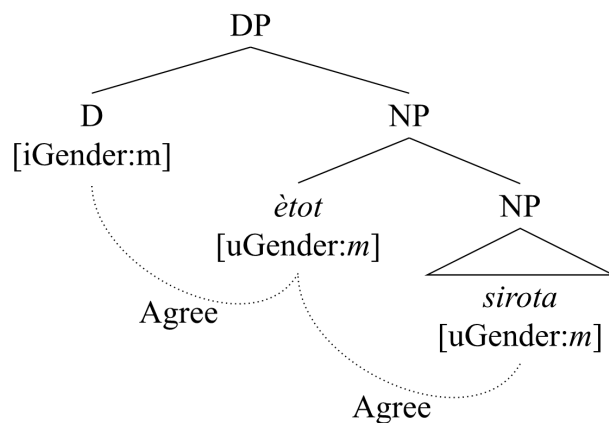
Notably, the relative pronoun *kotoraja* 'which' is a D° that introduces reference gender (feminine) and shares it with the predicate of the relative clause, while the head NP *edinstvennyj vrač* 'sole doctor' has internal syntactic agreement (masculine). The relative pronoun and head NP then both raise, keeping their original gender features. This topic is open for future work.

5.4.8 Dual gender and fixed gender nouns

This section examines how dual gender and fixed gender nouns (see §2.1.2 for definitions) are implemented under the present proposal. Structures for these two types of nouns are modeled after their implementation in Rappaport's (2013) proposal.
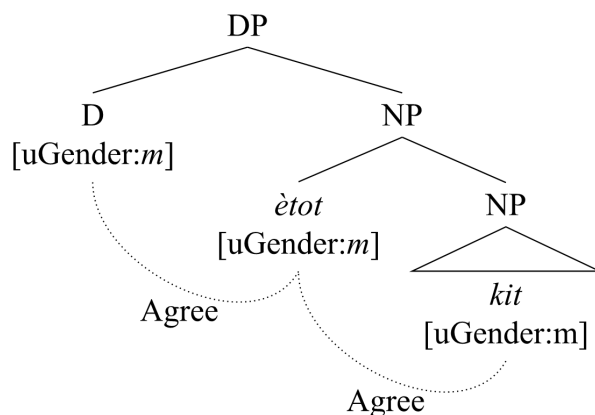
For a dual-gender noun such as Russian *sirota* 'orphan', agreement always matches the gender of the referent. This type of noun enters the derivation with an unvalued gender feature on N, which is shared with modifiers. Reference gender is introduced on D, as with hybrid nouns. No Б morpheme is inserted, so the reference gender is shared all the way down to N, as seen in (116).

(116) *ètot sirota* 'this (male) orphan'

```
                        DP
                 _____/ _____
               D                 NP
        [iGender:m]         ____/ \____
                          ètot          NP
                       [uGender:m]      /\
                                    sirota
                                  [uGender:m]
              Agree
                          Agree
```
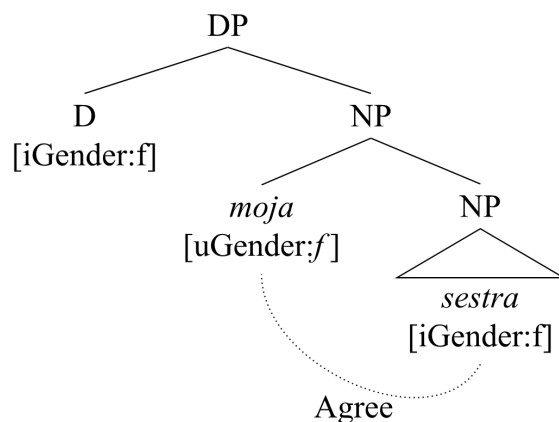
For a fixed gender noun such as Russian *kit* 'whale' or *osoba* 'person', agreement always matches the grammatical gender of the noun. For this type of noun, no reference gender is introduced, as seen in (117).

(117) *ètot kit* 'this (male or female) whale'

```
                          DP
                  _____|_____
                 D                 NP
            [uGender:m]       _____|_____
                             ètot          NP
                         [uGender:m]      __|__
                                              kit
                     Agree                [uGender:m]

                              Agree
```

For a semantically gendered noun such as Russian *sestra* 'sister', N has a valued (feminine) interpretable gender feature. No Ь morpheme is introduced, and grammatical gender is shared throughout the DP. At D, *sestra* may behave like a fixed gender noun, simply continuing to share grammatical gender throughout the derivation. Alternately, a separate referent gender, matching the semantic grammatical gender, can appear on D, as shown in (118).

(118) *moja sestra* 'my sister'

```
                          DP
                  _____|_____
                 D                 NP
            [iGender:f]       _____|_____
                             moja          NP
                         [uGender:f]      __|__
                                            sestra
                                         [iGender:f]
                              Agree
```

Recall from §5.1 that mixed agreement can still occur with some types of semantically-gendered nouns. For those nouns like *sestra* that may only refer to one gender, I assume the restriction is semantic rather than a syntactic. Empirically, we cannot distinguish between an obligatorily-matching reference gender and no reference gender; the result is the same.

5.5 Crosslinguistic variation

This section examines how restrictions on mixed agreement imposed by different languages may fit with the present proposal. First, we look at languages that allow semantic agreement on the predicate but not inside DP, such as the Spanish sentence (119). In this example, reference gender is introduced on D. No Б morpheme is inserted, so all agreement up to D is syntactic.[13] The predicate can then agree with the reference gender on D.

(119) a. Su Majestad suprem-a está content-o   Spanish
            His majesty supreme-F is happy-M
            'His Supreme Majesty is happy.'

  b.
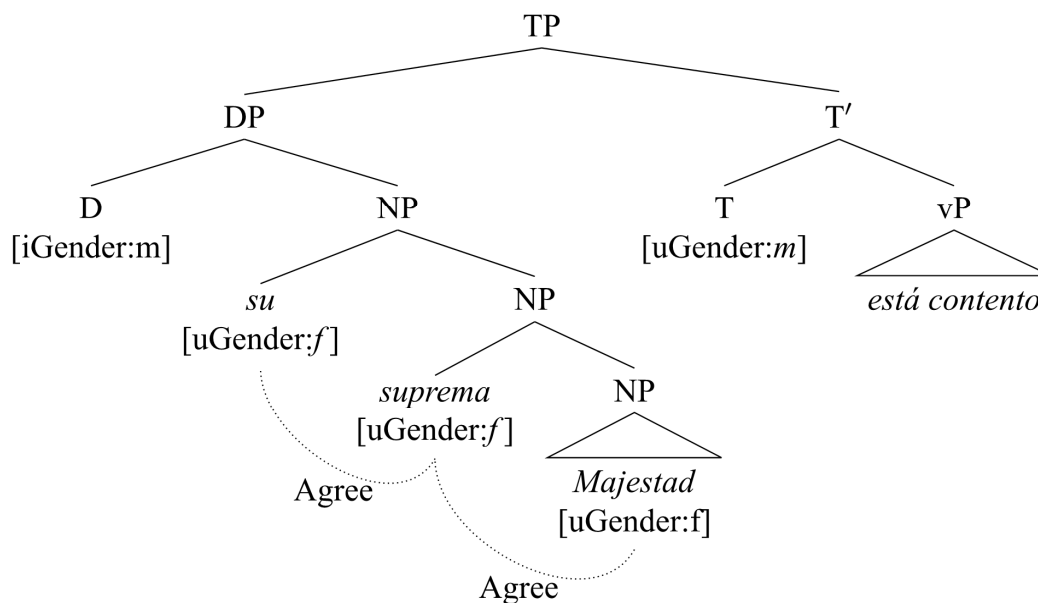
A language that only uses grammatical agreement and not semantic agreement would simply never introduce reference gender on D, as with fixed gender nouns in Russian. Likewise, if semantic agreement occurs only on referring pronouns but not on modifiers or predicates, as

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[13] The question of how elements on D itself (e.g articles) can take syntactic agreement in the presence of a reference gender is left open.

seen in the German example (120), then no reference gender is introduced, and the pronoun must

get its gender via some other mechanism. How pronoun agreement works is out of the scope of

this thesis.

(120) a. Schau dir   dieses Mädchen an, wie   gut   sie/es Tennis spielt   German
           look   you this-N   girl   at how good she/it tennis plays
           'Do look at this girl, see how well she plays tennis.'   (Corbett 1991:228)
       b.
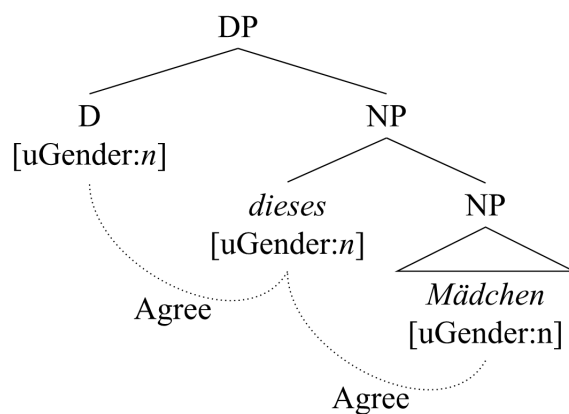
In all of these cases, the variation is due to lexical properties of the language: either the existence

of the Б morpheme, or properties of D° that allow reference gender to be represented

syntactically.

6   Conclusion

We have seen that the grammatical gender of nouns may be determined either by semantic or nonsemantic means, and that other elements in a phrase or clause agree in gender with the nouns. In Russian, many animate nouns that are grammatically one gender may refer to either men or women. Some of these nouns are hybrid nouns, meaning that some elements may agree with the gender of the referent instead of the grammatical gender of the noun, producing mixed agreement.

In this thesis, I have offered an account of mixed agreement in Russian that incorporates the joint strengths of two types of previous accounts. In my proposal, grammatical gender is a feature on the noun. Agreement with grammatical gender propagates up from N via feature sharing. D is the locus of reference and introduces the referent-derived φ-features. However, instead of reference features only being able to value elements further up in the derivation, as in previous proposals, they can also value elements downward in the DP, again via feature sharing. This allows DP-internal modifiers to display semantic agreement, which we have seen is possible in Russian. A null blocking morpheme Б prevents feature sharing between the two agreement domains.

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