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[HUMAN] MATTERS
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1.   INTRODUCTION

Usual view: φ-features are interpretable at most in one position, where they are inherent.

Use gender as a diagnostic because it clearly distinguishes formal and semantic feature values on the one hand and inherent and non-inherent features on the other.

I will look at some cases of interaction between gender agreement and semantic interpretation (the so-called *mixed agreement* patterns) in order to argue for the following points:

- All φ-features are valued and interpretable in narrow syntax. Only some of them are interpretable at LF/PF. Inherent features are not necessarily LF-interpretable, and LF-interpretable features are not necessarily inherent. (I will not discuss PF-interpretability here)

- As all φ-features are valued, I will propose an agreement algorithm based on the standard notion of *unification* (Gazdar et al. 1985, Shieber 1986, Pollard and Sag 1994, etc.)

- Mixed agreement patterns arise from the appearance of non-inherent semantic φ-features

- Unlike in the standard view of agreement, where it is based upon the Spec-head configuration or on the syntactic c-command relation, under the unification view of agreement, the primary relation involved is that of simple *merge*.

Agreement is different from pronoun coreference, where both the antecedent and the pronoun have features that are interpretable (= "interpretable at LF", i.e., having a semantics).

2.   WHAT IS GENDER?

Gender/noun class: An inherent property of a noun affecting its agreement patterns.

(1) a. Eta   strannaja   kniga   porazila   nas.   Russian
        this-F   strange-F   book.F   impressed-F   us-ACC
        This strange book impressed us.

    b. Etot   strannyj   roman   porazil   nas.
        this-M   strange-M   novel.M   impressed-M   us-ACC
        This strange novel impressed us.

    c. Eto   strannoe   proizvedenie   porazilo   nas.
        this-N   strange-N   oeuvre.N   impressed-N   us-ACC
        This strange oeuvre impressed us.

The gender of the head noun determines the inflection on the attributive adjective, determiner and predicate.

2.1. Gender patterns

Gender can be semantic and formal (syntactic, morphological…):

- Semantic gender of a noun is determined by the properties of entities belonging to its extension (e.g., sex, animacy, non-flesh food – see Corbett 1991)

- Formal gender is random or determined by some morphological properties of the noun (e.g., its declension class)

- Gender systems seem to always have a semantic core

The Omotic language Dizi, a.k.a. Maji (Allan 1976 via Corbett 1991) and the Salish language Halkomelem (Steriopolo and Wiltschko 2008):
- **feminine gender**: animates whose reference is distinctly female and diminutives
- **masculine gender**: the residue

Russian (Corbett 1991):
- **nouns denoting males are masculine**
- **nouns denoting females are feminine**
- declinable nouns of the declensional type I (in his terminology) are masculine
- declinable nouns of the declensional types II and III are feminine
- declinable nouns of the declensional type IV are neuter
- animate indeclinable nouns are masculine
- inanimate indeclinable nouns are neuter
- the gender of indeclinable acronyms is determined by the gender of the head

Important: sex is not the only real-life characteristic determining semantic gender; animacy, rationality, size or more exotic divisions (non-flesh food forms a separate gender in Dyirbal (Dixon 1982:178)) also exist

Mixed systems may give rise to mixed agreement (see below)

NB: A noun may acquire a different gender in the plural: thus in French, *amour*, *délice* and *orgue* are masculine in the singular and feminine in the plural (Grevisse 2006:715-717, §461)

2.2. Gender covariance and its failure

The gender of a noun may determine the inflection of a variety of items:
- attributive modifiers ⎤
- determiners   ⎬ agreement
- predicates   ⎦
- relative pronouns
- pronouns

GB: **φ-feature covariance** is assumed to be semantic for pronouns and syntactic otherwise.

However, even clause-internal "syntactic" agreement can be semantic:

(2) Sa   Majesté   est inquiet/inquiète.   French
     3FSG-POSS majesty.F   is   worried-M/F
     His Majesty is worried.

If the referent of the subject DP *sa majesté* is male, it may (though it doesn't have to) trigger masculine agreement on the predicate.

NB: Mixed agreement patterns are not limited to gender – number (cf. Sauerland and Elbourne 2002 on British English collective nouns) and person (Harmer and Norton 1957:270 via Corbett 2006:132) may also show such effects; see also Neeleman 2008.

Thus, when the sex (or other relevant semantic properties) of the referent of definite specific DP is known, agreement can be determined by the gender defined on semantic grounds:

(3)   Naša   vrač –   umnica.   Russian
      our-FSG doctor.M clever.person
      Our doctor is very clever.

Although the noun *vrač* 'doctor' is inherently masculine, feminine marking is possible on the determiner, attributive modifiers and the predicate (constrained by **Agreement Hierarchy**, see Corbett 1979 and later work).

In different languages and idiolects different options for mixed agreement arise:
- Russian: any agreement can be semantic
- German: only pronouns can co-vary semantically
- French: only pronouns and predicates may co-vary semantically
- Spanish titles: syntactic agreement only DP-internally

This is one locus of cross-linguistic variation.

2.3.   Other overt φ-feature mismatches

Certain agreement mismatches between the subject and the predicate suggest that agreement is not purely syntactic:

(4)   a.   "Mamen'ka **plačut**," – šepnula   ona […]   Russian
           mother   cry-**3PL** whispered-3F 3FSG
           "Mother is crying," – she (the maid) whispered. (Turgenev, *Nakanune*, 'On the Eve', 1860 via Corbett 2006:3)

      b.   Moj   brat   tam toža **žyli**.
           my-MSG brother.M there also lived-**PL**
           My brother and his family also lived there. (Talitsk dialect of Russian, Bogdanov 1968 via Corbett 2006:155)

No overt features of the subject lead us to expect plural marking on the predicate here but it can be argued that plural marking reflects an honorific feature in (4a) and a null associative morpheme (cf. Daniel and Moravcsik 2005) in (4b), though see Neeleman 2008.

2.4.   Prior approaches

To the best of my knowledge three attempts have been made to formally account for mixed agreement:
- φ-heads (Sauerland 2004)
- The distributed gender hypothesis (Steriopolo and Wiltschko 2008)
- LF feature fission (Neeleman 2008)

3.   φ-HEADS AS THE LOCUS OF SEMANTIC INTERPRETABILITY

Sauerland 2004: φ-features are interpretable only in one position: on φ (functional projection topping the extended NP). Everywhere else they appear as a result of syntactic agreement:

(5)   φP
         _____|_____
     φ [3PL]   DP
                  _____|_____
                 D   NP
                the   *books*[PL]

Interpreted features in φ receive a purely presuppositional interpretation (cf. Cooper 1979 on pronouns, Heim and Kratzer 1998):

(6)   a.   ⟦SG⟧(x) is only defined, if x is an atom.
           ⟦SG⟧(x) = x, where defined.

      b.   ⟦1⟧(x) is only defined, if the speaker is a part of x.
           ⟦1⟧(x) = x, where defined.

      c.   ⟦F⟧(x) is only defined, if all atomic parts of x are female.
           ⟦F⟧(x) = x, where defined.

The semantics of φ-features makes it imperative that φ be inserted as a sister to the DP

3.1.   How the system works

Sauerland's claim: his approach allows him to handle a variety of phenomena:
- Split agreement of *committee*-nouns in British English (Sauerland and Elbourne 2002)
- Singular agreement with quantifiers
- Politeness forms: the use of 3SG or 2PL for polite second person
- English singular *they*
- Plural pronouns in the Russian comitative construction (Vassilieva and Larson 2001)

All instances of φ-features not in φP result from syntactic agreement:

(7)
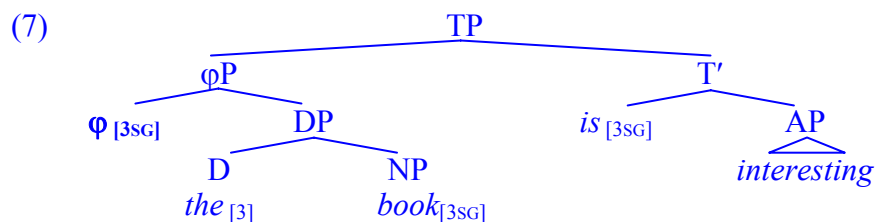
Elsewhere features can be either inherent and then uninterpretable (e.g., gender on nouns) or inserted wherever required by the morphosyntax of a particular language (e.g., gender on adjectives) and also uninterpretable.

Features on φ should match φ-features elsewhere.

Sauerland is mostly concerned with the semantics of φ-features. However, his work addresses some of the issues relevant here.

Russian hybrid nouns of the *doctor*-type (cf. (3)) are handled via iteration of φPs:

(8)
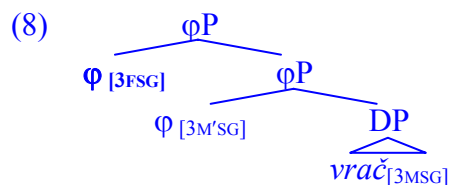
The feature [M′] in the lower instance of φ is not interpreted and only serves to license *vrač* 'doctor', which is listed in the lexicon with an uninterpretable feature [M].

Agreement with coordinate NPs:

(9)
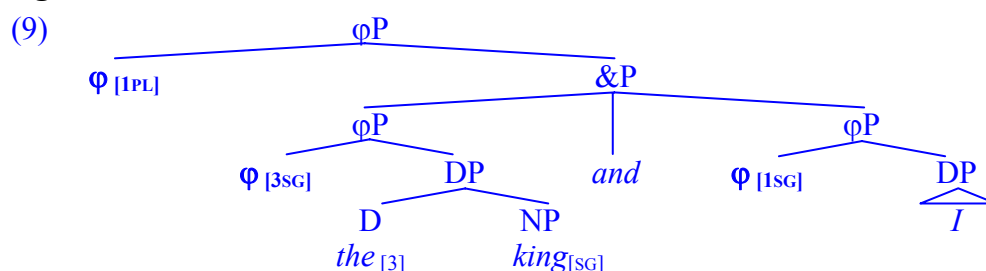
NB: There is no claim made as to how the features of the higher φ are semantically obtained from the features of the coordinated φPs, but it is not really relevant here.

3.2. Predictions

Predicate agreement will always be with the semantic gender (the sex of the referent) because of the Minimal Link Condition (Chomsky 1995), which Sauerland uses to (partially) account for the Agreement Hierarchy (Corbett 1983, 1991, 2006):

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(10) Minimal Link Condition

> Agreement is always with the closest phrase that has a feature of the right category.

Thus Sauerland's proposal cannot account for syntactic agreement in the predicate position.

Like with the distributed gender hypothesis, semantic and/or mixed agreement inside the NP is not predicted:

(11) Naša   zubnoj   vrač – umnica.   Russian
       our-FSG tooth-ADJ-MSG doctor.M clever.person
       Our dentist is very clever.

Semantic features are introduced only at the φP-level, elsewhere valued features are assumed to be non-contradictory

4. DISTRIBUTED GENDER HYPOTHESIS

Steriopolo and Wiltschko 2008: gender is distributed inside the NP:

(12)
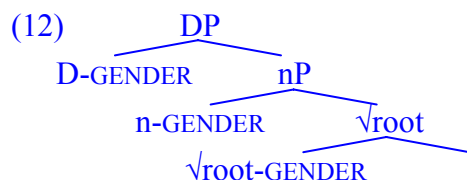
Agreement can be determined by any of the following types of gender:
- **√root-GENDER**: the semantic gender as determined by the semantics of the noun itself (e.g., *mother* or *cow*)
- **n-GENDER**: grammatical gender assigned arbitrarily (generally, to inanimates, but also to some animates)
- **D-GENDER**: semantic gender corresponding to the sex of the referent of the DP; the semantics of the noun itself is compatible with either (the so-called *common gender* nouns)

NB: Grammatical gender is assigned to n^0 because nominalizing suffixes usually have a gender specification.

Ora Matushansky
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6

More than one gender can be present, but the topmost always wins.

No constraints on possible combinations of gender features are made explicit; the semantics of gender features is not spelled out.
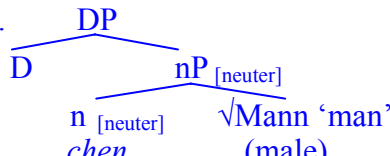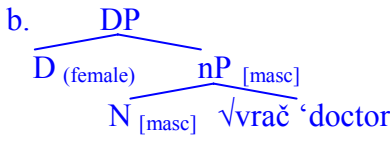
4.1. How the system works

Strictly semantic gender systems (Tamil, Dizi, Halkomelem) result from only √**root gender** being projected. This is also the gender of sex-differentiable humans (or animates) in mixed gender systems. Common nouns (e.g., *orphan* in Russian) have no √root gender.

Grammatical gender results from the introduction of the n-node.
NB: It is self-evident that the gender of a given simplex (without an overt n) noun is not arbitrary within a given language (e.g. *house* is masculine in Russian, but neuter in Dutch). Therefore, some information about gender must be encoded on the root.

Finally, some nouns denoting animate/human beings are unspecified for gender and can have referents of either sex (e.g., *sibling*, *spouse*). When the referent of the DP is known (i.e., **D-gender** is projected) they can trigger non-default agreement.

When more than one gender is projected, the higher one wins.

(13) a. DP
          D   nP [neuter]
              n [neuter]   √Mann 'man'
              chen   (male)

b. DP
          D (female)   nP [masc]
                   N [masc]   √vrač 'doctor'

Hybrid nouns agree either grammatically or semantically ⇒ overriding is not obligatory?

4.2. Issues

It would seem that the presence of discourse gender does not depend on whether the referent can be established, but rather on the particular √root-n combination. A DP denoting a female but with a non-hybrid noun as a head cannot agree as a feminine noun does:

(14) a.   Naš(a) vrač   prišla   vovremja.
           our-M/F doctor came-F on.time
           Our doctor arrived on time.

      b.   [pointing at a woman]
           Etot/*èta čelovek   nam   očen' pomog(*la).
           this-M/F human.M us-DAT very   helped-M/F
           This person has helped us a lot.

Steriopolo and Wiltschko 2008: Non-hybrid nouns do not project the D-gender. However, it is then unclear how D-gender is linked to the sex of the referent.

Semantic agreement need not occur on the level of the DP, as attributive adjectives may agree semantically as well:
NB: Moreover, arguably the predicate NP in (15a) does not refer and therefore has no discourse referent.

(15) a.   Ivanova – **xorošaja** vrač.   Russian
           Ivanova   good-FSG doctor.M
           Ivanova is a good doctor.

      b.   **Lučšaja** vrač   goroda   ežednevno zaxodit k   nemu.
           best-FSG doctor.M city-GEN daily   visits towards him
           The best doctor of the city visits him daily.

Attributive adjectives are projected below D:

(16)

```
            DP
      ┌──────┴──────┐
   D [M]           nP
            ┌───────┴───────┐
         AP[Ugender]        nP
                      ┌──────┴──────┐
                   n [fem]        √root
                             zanatlij- 'artisan'
```

Supposing that they uniformly show agreement with D doesn't help, as within the same DP determiners may exceptionally show semantic gender agreement, while attributive adjectives agree formally:

NB: Rothstein 1980: adjective agreement depends on its semantic category, some observations by Nikunlassi 2000, Alya Asarina and David Pesetsky, p.c., lead in the same direction

(17) a.   ove   privatne   zanatlije   Serbo-Croat (Corbett 2006:234)
           this-FPL   private-FPL   artisan.F-PL
           these private artisans

      b. % ovi   privatne   zanatlije
           this-MPL   private-FPL   artisan.F-PL
           these private artisans

      c. * ove   privatni   zanatlije
           this-FPL   private-MPL   artisan.F-PL

In other words, AP agreement can be determined by either n-gender (up) or D-gender (down), and from the overt gender on the determiner it can be inferred that D-gender is projected even in the former case (n-gender is, obviously, always there).

5.   LF FEATURE FISSION

Neeleman 2008 based on Brody 1997: feature values are assigned to nodes independently and then mutually identified according to the following principles:

(18) a.   **Radical Interpretability** (Brody 1997):
           Each feature must receive a semantic interpretation in some syntactic location.

      b.   **Elsewhere Condition** (applied to agreement)
           If φ1 and φ2 can both be licensed in V and φ1 is more highly specified than φ2, then φ1 blocks φ2.

In other words, non-inherent feature specification can override inherent feature specification if the former feature bundle is less highly specified than the latter.

Inari Sami expresses dual in the verb, but not in non-pronominal subjects (Corbett 2006:146, similar facts can be found in Jingulu (Pensalfini 2003:173-174, Neeleman 2008)):

(19) a.   Alma-h   kuáláást-ava onne.   Inari Sami; Corbett 2006:146
           man-PL.NOM   fish-3DU   today
           The two men are fishing today.

      b.   Alma-h   kuáláást-eh   onne.
           man-PL.NOM   fish-3PL   today
           The men are fishing today.

LF-fission: under certain language-specific conditions the φ-features of the verb may fission off the verb and be interpreted on the subject.

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8

The same phenomenon can arise with person, where 3rd person is viewed as simple absence of person features (Benveniste 1966):

(20) a. ¡ Qué desgraciad-as somos las mujer-es!   Spanish; Corbett 2006:132
how unfortunate-F.PL be.1PL DEF.F.PL women.F-PL
How unfortunate we women are!

b. Nadie lo vimos.   Spanish; Moravcsik 1978:351
no.one 3MSG.ACC saw-1PL
None of us saw him.

c. Deca-ta otid-oxme v gradina-ta.   Bulgarian; Corbett 2006:172
children-DEF go-AOR-1PL to garden-DEF
We children go to the garden.

Neeleman 2008 also treats similar cases from Tamil and Yawuru, collective NP agreement in British English (Sauerland and Elbourne 2002), as well as the Talitsk Russian examples (4b), along the same lines.

The major problem with Neeleman's approach is the same as before: it only deals with mixed agreement between the subject and the predicate (more specifically, the VP), not taking into consideration NP-internal mixed agreement.

NB: Neeleman makes this a principled feature of his account but it need not be so; this problem is easy to fix

In addition, Neeleman makes crucial use of the subset relation to deal with mixed agreement; however, **mixed agreement in gender crucially need not involve subset relations**.

NB: Although in Russian [feminine] is grammatically marked with respect to [masculine], this is not the case in French, as shown by the existence of feminine nouns with potentially male referents (e.g., *sentinelle* 'sentinel', *victime* 'victim')

6. WHAT IS SYNTACTIC AGREEMENT?

Minimalist agreement: a head possessing uninterpretable φ-features probes its sister and its φ-features acquire values of the nearest (fully specified) target:

(21)   TP   (VP simiplied)

T[0]   VP
[uGender]   affix hopping
    DP   V′
book.F V[0]   DP
interested-F   *us*

Obviously, this approach cannot work *as is*:

(22) a. Je trouve ce livre intéressant.   French
I find this-M book.M interesting-M
I find this book interesting.

b. Je trouve cette nouvelle intéressante.
I find this-F novella.F interesting-F
I find this novella interesting.

The target of agreement is obviously higher than the probe; given that some adjectives can be shown to be unergative, the problem is not likely to be reasoned away.

DP-internal agreement (concord) is another thorny issue, for the same reasons.

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9

Hence approaches based on feature-unification or sharing (Gazdar et al. 1985, Shieber 1986, Pollard and Sag 1994, Pesetsky and Torrego 2007, etc.) have been proposed:

(23) Russian:

a. *korova* $\begin{bmatrix} \text{PERSON: 3} \\ \text{NUMBER: SG} \\ \text{GENDER: F} \\ \text{CASE: NOM} \end{bmatrix}$ *myčala* $\begin{bmatrix} \text{SUBJ} \begin{bmatrix} \text{NUMBER: SG} \\ \textbf{GENDER: F} \\ \text{CASE: NOM} \end{bmatrix} \\ \textbf{TENSE: PAST} \end{bmatrix}$ 'a cow mooed'

b. *korova* $\begin{bmatrix} \text{PERSON: 3} \\ \text{NUMBER: SG} \\ \text{GENDER: F} \\ \text{CASE: NOM} \end{bmatrix}$ *myčit* $\begin{bmatrix} \text{SUBJ} \begin{bmatrix} \text{NUMBER: SG} \\ \textbf{PERSON: 3} \\ \text{CASE: NOM} \end{bmatrix} \\ \textbf{TENSE: PRES} \end{bmatrix}$ 'a cow is mooing'

c. *korova $\begin{bmatrix} \textbf{PERSON: 3} \\ \text{NUMBER: SG} \\ \text{GENDER: F} \\ \text{CASE: NOM} \end{bmatrix}$ *myču* $\begin{bmatrix} \text{SUBJ} \begin{bmatrix} \text{NUMBER: SG} \\ \textbf{PERSON: 1} \\ \text{CASE: NOM} \end{bmatrix} \\ \text{TENSE: PRES} \end{bmatrix}$

When feature values for the subject and the predicate are compatible, unification is possible.

Conceptual problem: these approaches do not reflect the basic **asymmetry in agreement** – φ-features are inherent only to some nodes (NPs).

Implementational problem: mixed agreement is predicted to be impossible:

(2) Sa   Majesté   est   inquiet/inquiète.   French
     3FSG-POSS majesty.F   is   worried-M/F
     His Majesty is worried.

The predicate need not show agreement with the formal features of the subject.

7.   PROPOSAL

Unification pushed to its logical limit: φ-features are interpretable **in all positions** though not necessarily at the LF-interface (combination of Sauerland's proposal with various unification formalisms):

(24) a.   ⟦FEMALE⟧ = λf . λx : x is female . f (x)
      b.   ⟦MALE⟧ = λf . λx : x is male . f (x)
      c.   ⟦1⟧ = λf . λx : x contains the speaker . f (x)
      etc.

In other words, φ-features are identity functions that are undefined if the external argument of the one-place predicate they apply to does not satisfy the relevant semantic condition. Unlike in Sauerland's proposal, here semantic features are **identity functions on predicates**.

Presupposition: overt articles and demonstrative have no existential import, which is due to a choice function introduced higher (cf. Winter 2001, 2005)

In addition we have the following cross-linguistically valid implicature:

(25) a.   ⟦FEMALE⟧ ⟹ [F]
      b.   ⟦MALE⟧ ⟹ [M]

In other words, semantic features override inherent grammatical features (cf. Corbett 1979 et seq.), which have no semantic content (but see section 9).

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10

NB: Obviously, as noted above, semantic features are not restricted to the sex of the referent, but are determined by the genders of a given language. Number presumably functions in the same way.

Grammatical φ-features can be inherent ([iF], i.e., gender features on nouns, number features on number affixes) or not ([uF], i.e., person features on verbs):

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(26) Agreement algorithm

    a.   If X bears the semantic feature [G] yielding the inherent feature [iF$_1$] and Y bears the inherent feature [iF$_2$], the mother of X bears [G][iF$_1$] (= semantic specification can override inherent grammatical features)

    b.   If X bears the feature [uF] and Y bears the feature [iF], then the mother of X and Y bears the feature [iF]

    c.   If X bears the feature [F] (inherent or not) and Y bears the feature [G] (inherent or not), X and Y can be merged if the values of [F] and [G] are not contradictory

    d.   A node interpreted as a proposition may not bear non-inherent features.

   e.   If a node is interpreted as a proposition, its inherent features are reset to zero after verification.

The latter two points have to do with the fact that when an *e* argument slot is saturated, the φ-features of this argument do not percolate any further. It is simplified in that it presupposes that all predicates are one-place.

NB: This predicts no Long-Distance Agreement of the type exemplified in Bhatt 2005, where a verb agrees with a constituent inside the verb's clausal complement (in Hindi-Urdu, the verb *want* shows ergative agreement with the object of the embedded verb). However, as Bhatt notes, the infinitival verb agrees with its object iff there is also long-distance agreement, which suggests that the agreement is not with the object but with the entire clausal complement.
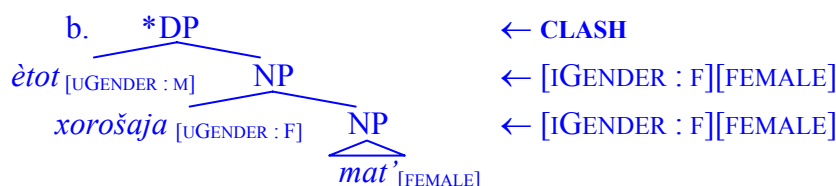
7.1. Simple cases

(a) inanimate noun bearing a grammatical gender:

(27) a.   *ètot   xorošaja kniga
           this-M good-F   book.F
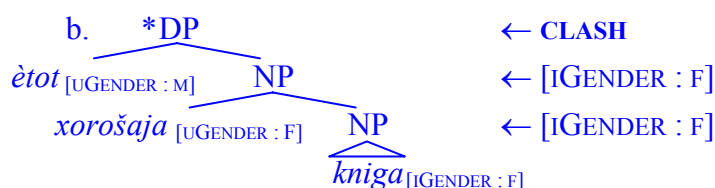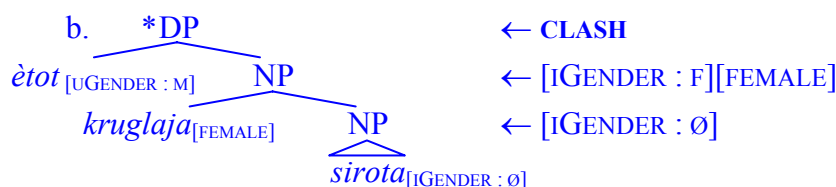

(b) animate noun denoting a sexed individual

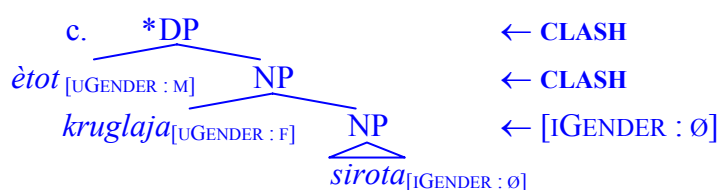(28) a.   *ètot   xorošaja mat'
           this-M good-F   mother.F

The combination of a subject with a predicate obviously works in the same way.

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11

(c) animate noun unmarked for gender (the so-called *common gender* nouns):

(29) a. *ètot kruglaja sirota
   this-M total-F orphan

b. *DP   ← **CLASH**
ètot$_{[\text{UGENDER : M}]}$ NP   ← [IGENDER : F][FEMALE]
  kruglaja$_{[\text{FEMALE}]}$ NP ← [IGENDER : Ø]
      sirota$_{[\text{IGENDER : Ø}]}$

Non-inherent gender cannot override lack of gender specification:

c. *DP   ← **CLASH**
ètot$_{[\text{UGENDER : M}]}$ NP   ← **CLASH**
  kruglaja$_{[\text{UGENDER : F}]}$ NP ← [IGENDER : Ø]
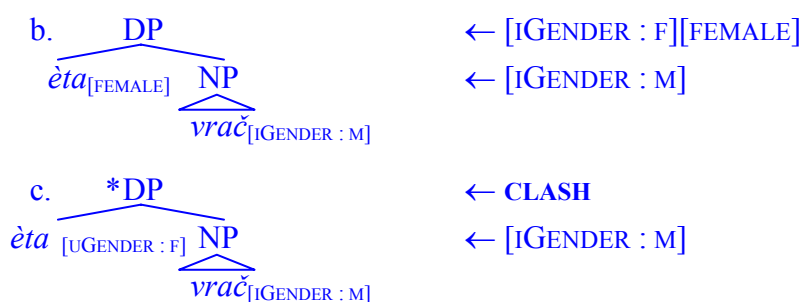   *sirota*$_{[\text{IGENDER : Ø}]}$

The unvalued inherent gender feature gets set by the valued semantic feature. The semantic feature cannot override a non-inherent feature, hence the clash.

7.2. More complex cases: DP-internal agreement of hybrid nouns

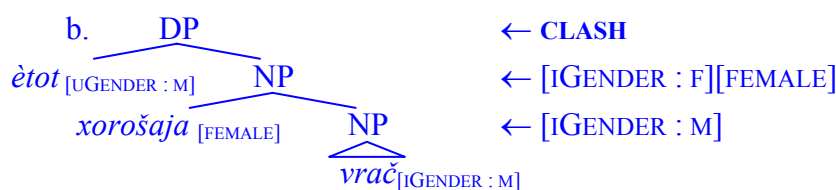As discussed above, [+ human] nouns not specified for sex may show mixed agreement.

(30) a. èta vrač
   this-F doctor.M
   this (female) doctor

The semantic feature [FEMALE] appears on the demonstrative, overriding the inherent feature of the NP and yielding feminine agreement. A semantic feature is required to resolve gender clash:
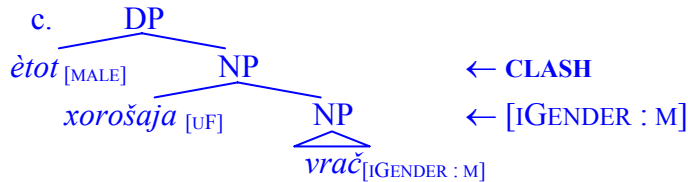
b. DP   ← [IGENDER : F][FEMALE]
èta$_{[\text{FEMALE}]}$ NP ← [IGENDER : M]
   vrač$_{[\text{IGENDER : M}]}$

c. *DP   ← **CLASH**
èta$_{[\text{UGENDER : F}]}$ NP ← [IGENDER : M]
   vrač$_{[\text{IGENDER : M}]}$

Return to syntactic agreement is impossible, yielding Corbett's Agreement Hierarchy:

(31) a. *ètot rajonnaja vrač
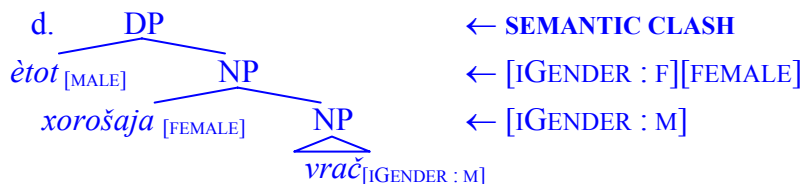   this-M district-F doctor.M

b. DP   ← **CLASH**
ètot$_{[\text{UGENDER : M}]}$ NP   ← [IGENDER : F][FEMALE]
  xorošaja$_{[\text{FEMALE}]}$ NP ← [IGENDER : M]
      vrač$_{[\text{IGENDER : M}]}$

Two contradictory grammatical features cannot be combined:

c.
```
        DP
   è_tot_[MALE]  NP                    ← CLASH
      xorošaja_[UF]   NP               ← [IGENDER : M]
                  vrač_[IGENDER : M]
```

Only a non-inherent gender feature can appear on a non-noun (and it's still in contradiction):

d.
```
        DP
   è_tot_[UGENDER : M]  NP             ← CLASH
      *xorošaja_[IF]   NP              ← [IGENDER : M]
                  vrač_[IGENDER : M]
```
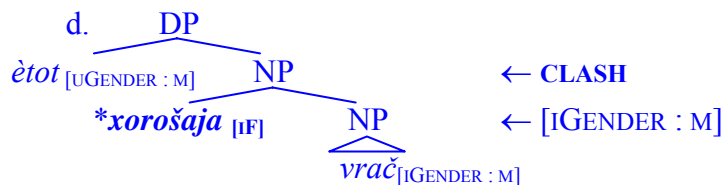
Two semantic gender features cannot be combined:

d.
```
        DP                            ← SEMANTIC CLASH
   è_tot_[MALE]  NP                   ← [IGENDER : F][FEMALE]
      xorošaja_[FEMALE]  NP           ← [IGENDER : M]
                  vrač_[IGENDER : M]
```
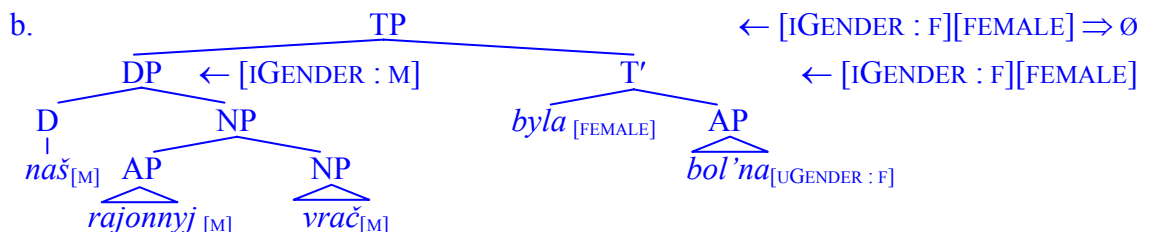
No derivation of the ungrammatical (31a) is possible.

7.3. Even more complex a case: predicate agreement of hybrid nouns

A hybrid noun is inherently specified for gender, but not for the sex of the referent:

(32) a.   Naš   rajonnyj   vrač   byla   bol'na.
          our-M district-M doctor.M was-F sick-F
          Our district doctor was sick.

The feature [FEMALE] is introduced where gender switch occurs:

b.
```
                        TP                    ← [IGENDER : F][FEMALE] ⇒ ∅
        DP ← [IGENDER : M]         T'         ← [IGENDER : F][FEMALE]
      D      NP          byla_[FEMALE]   AP
      |                              bol'na_[UGENDER : F]
   naš_[M]  AP      NP
         rajonnyj_[M]  vrač_[M]
```

No gender switch within the predicate is possible, because:
- if two non-inherent features ([uF]) are merged, they must have the same value
- a semantic feature cannot override a non-inherent feature

Corbett's Agreement Hierarchy is fully predicted.

8.   THE *N OF AN N* CONSTRUCTION

The construction in (33), known as *N of an N* or as *binominal NP* (Milner 1978, Ruwet 1982, Abney 1987, Napoli 1989, Aarts 1994, 1998, Bennis, Corver and den Dikken 1998, etc.):

(33) a.   this idiot of a doctor
b.   a beauty of a car

NB: I will mostly disregard here the fact that this string has been claimed (Napoli 1989, Doetjes and Rooryck 2003, den Dikken 2006 and earlier work) to correspond to two different structures with different interpretations: comparative and attributive.

8.1.   Mixed agreement with the *N of an N* construction

Milner 1978, Ruwet 1982, Español-Echevarría 1997, 1998, García and Méndez 1998, 2000, Hulk and Tellier 1999, 2000, Casillas Martínez 2003, Doetjes and Rooryck 2003, den Dikken 2006, etc.: when N_1 and N_2 belong to different genders, gender mismatches frequently occur:

(34) a.   ton   phénomène   de fille   French
your-M phenomenon.M of daughter.F
your phenomenal daughter

b.   ton   vache de mari
your-M   cow.F of   husband.M
your bastard of a husband

With an animate N_2, the determiner may show syntactic or semantic agreement. When N_2 is inanimate, determiner agreement is strictly semantic.

It is claimed that the predicate must agree with N_2, irrespective of which noun the determiner agrees with (Milner 1978:193):

(35) Mon/ma vache de frère   s'   est   arrangé(*e)   pour être   pris(*e).
my-M/F   cow   of brother REFL-be-PRES-3SG arranged-M/*F for   be-INF taken-M/*F
My bastard of a brother arranged it for himself to be busy.

However, Hulk and Tellier 1999 provide examples, where this is not the case (see also (37b)) and Doetjes and Rooryck 2003 claim that the contrast is due to the comparative vs. attributive ('pure degree') interpretation of the construction:

(36) a.   Ce   bijou   d'   église   romane   a   été   reconstruit(*e).   comparative
this-M jewel.M of church.F Roman-F has been rebuilt-M/*F
This jewel of a Roman church was rebuilt.

b.   Ce   bijou   de Marie   est absolument exquis*(e).   'pure degree'
this-M jewel.M of Marie.F is   absolutely   marvelous-F/*M
This amazing Marie is absolutely marvelous.

With an inanimate N_2 syntactic agreement on the predicate appears to be strongly preferred, although semantic agreement (according to Milner 1978:193 citing Grevisse) is also possible (no exx. found):
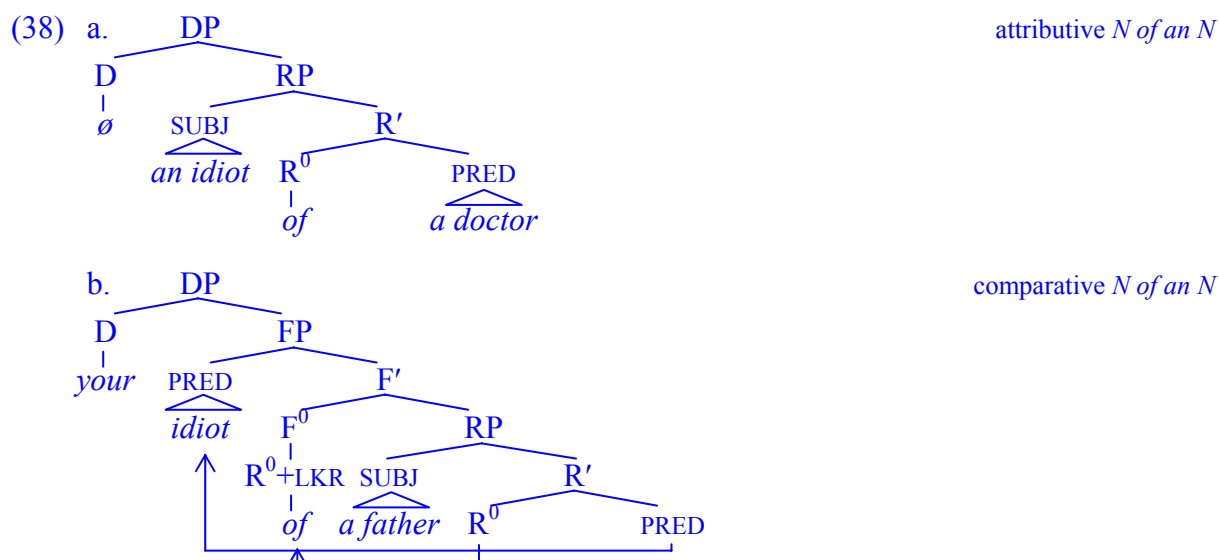
(37) a.   **Cet**   amour   de voiture   sera   présenté   au   salon d'   hiver.
this-M love.M of car.F   be-FUT-3SG presented-M at+DEF salon of   winter
This adorable car will be presented at the winter exhibition.

b.   **Cette** saloperie de chauffe-bain   est dangéreux.
this-F muck.F   of   water-heater.M is   dangerous-M
This bloody water-heater is dangerous.

NB: N_1 can be modified by a very restricted list of adjectives, all of which are affective (*affreux, satané, sacré, foutu, fichu, beau, franc, abominable, sale*, etc.). It would be interesting to see which genders they can appear in (though I suspect that agreement will be strictly syntactic here).
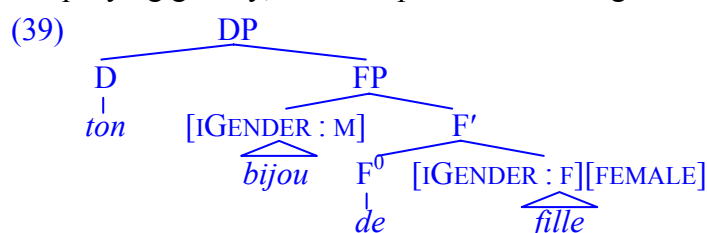
Only my analysis can deal begin to with the *N of an N* construction.

8.2. My analysis

It is generally assumed that the *N of an N* construction involves syntactic complementation in some form or another (Doetjes and Rooryck 2003, den Dikken 2006:198):

(38) a.
attributive *N of an N*

DP
├── D: ø
└── RP
    ├── SUBJ: *an idiot*
    └── R′
        ├── R^0: *of*
        └── PRED: *a doctor*

b.
comparative *N of an N*

DP
├── D: *your*
└── FP
    ├── PRED: *idiot*
    └── F′
        ├── F^0: R^0+LKR *of*
        └── RP
            ├── SUBJ: *a father*
            └── R′
                ├── R^0
                └── PRED

Simplifying grossly, from the point of view of gender agreement, the structures look like this:

(39)

DP
├── D: *ton*
└── FP
    ├── [IGENDER : M]: *bijou*
    └── F′
        ├── F^0: *de*
        └── [IGENDER : F][FEMALE]: *fille*

Our resolution rules predict that FP should inherit the feature complex [IGENDER : F][FEMALE] and the determiner must show feminine agreement. This is not always correct.

On the other hand, if the determiner forms a constituent only with N_1 (Doetjes and Rooryck 2003), the opposite prediction is made:

(40)

CP
├── DP
│   ├── D: *ton*
│   └── [IGENDER : M]: *bijou*
└── C′
    ├── C^0: *de*
    └── [IGENDER : F][FEMALE]: *fille*
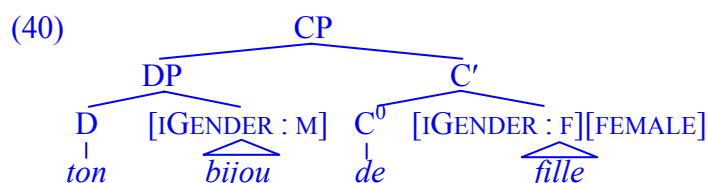
NB: The exact category of *de* and the relation between N_1 and N_2 (adjunction or not) is not relevant yet.

Determiner agreement is in the fact the reason why Doetjes and Rooryck 2003 propose that the determiner forms a constituent with N_1. There are, however, other reasons to do so.

Bos 2009: genitive superlatives behave as if the possessor is merged with the noun rather than above the superlative:

(41) my best book
     a.   =the best among my books
     b.   ≠the book that is the best and mine

However, an alternative analysis, based on Herdan and Sharvit 2005, is also possible:

(41) c. =mine among the best books defined by different comparison classes

Observation: in the *N of an N* construction, the superlative is indefinite, supporting the claim that this alternative strategy is used:

(42) a. my idiot of a/*the best friend
     b. my idiot of a/*the husband
     c. my idiot of a/*the younger brother

(42b) is fully compatible with the speaker having only one husband or younger brother ever, which suggests that the noun is not interpreted relationally here.

NB: Dutch behaves in the same way as English, so this is not another idiosyncrasy of English

9. CONCLUSION

Not all inherent features are semantic, nor are all semantic features inherent. Gender provides a very good diagnostic for differentiating those.

The probe-goal mechanism seems insufficient for dealing with such instances of agreement as DP-internal agreement (a.k.a. concord) and agreement between a subject and a non-verbal predicate, to say nothing about mixed agreement.

A unification formalism was proposed that accounts for both standard and mixed agreement.

Directions for future research:

- Determiner agreement in the *N of an N* construction and its interaction with its interpretation and syntactic structure (with animacy taken into consideration)

- Mixed agreement and gendered affixes

- As noted by David Pesetsky, p.c., the two Russian modifiers that show gender in the plural (*dva/dve* 'two' and *oba/obe* 'both) never agree in semantic gender (see Crocket 1976). One possible explanation is that they may not introduce semantic features. If real, this factor can account for some of the cross-linguistic variation in loci of semantic agreement

- Investigation into φ-feature covariance with pronouns (see also section 11), under ellipsis (sloppy identity) and with focus (*Only I really know my parents*)

- Conjunct agreement and non-canonical agreement targets

10. THE CHOICE OF A FORMALISM

The introduction of the semantic feature [FEMALE] can be done in a variety of ways:

(i) a syntactic head corresponding to the semantic feature [FEMALE] is merged in the relevant position

(ii) the semantic feature [FEMALE] can be introduced wherever feminine agreement is present (instead of the [UGENDER : F] feature) – the option chosen here

(iii) predicates may not be marked with the feature [FEMALE] (while DP-internal items may); instead, an additional projection (φP) is introduced over the DP in order to ensure semantic agreement of the predicate

Options (i) and (iii) violate the Inclusiveness Condition (Chomsky 1995:225) and, moreover, predict it to be possible to have the presupposition that the subject denotes a female referent while having masculine agreement throughout, which does not seem to be the case. Hence option (ii) was chosen.

Ora Matushansky
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16

Prediction: quantified NPs do not allow mixed agreement on the determiner (seems true)

11.   THE SEMANTIC SIDE OF AGREEMENT

Pronoun covariance appears to argue that gender and number features always have a semantic base:

(43)   Comment est   le   livre? – **Il**   est ennuyeux.   French
       how   is   the-M book.M 3MSG is   boring-M
       How is the book? – It is boring.

No real-world property corresponds to the [masculine] feature of the pronoun, and it cannot be uninterpretable because then our agreement rules fail.

Possible alternative solution: pronouns are determiners (Postal 1969) whose NPs are elided (Elbourne 2002). Note that NP-ellipsis can happen in absence of a linguistic antecedent:

(44)   a.   [examining a friend's new dress (neuter in Russian)]:
               Ja   včera   kupila   takoe   že.
               1SG-NOM yesterday   bought-FSG   such-NSG   PRT
               I bought the same one yesterday.

       b.   [standing on the quai of the Seine (feminine in Russian), pointing at the river]:
               Kakaja   ona   krasivaja!
               what-FSG 3FSG-NOM beautiful-FSG
               How beautiful it is!

The elided NP may be the salient noun describing the relevant referent (linguistic antecedents take preference) or the semantic gender feature (for animates only). The same solution should then apply to relative pronouns, which may also show syntactic or semantic agreement.

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Ora Matushansky
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18

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