

The Semantics of Phi

Phi-Features on Bound Pronouns

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1 More on Gender Features

- Review of yesterday:

- (1) a. $\llbracket \text{he}_i \rrbracket^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is animate in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$
- b. $\llbracket \text{she}_i \rrbracket^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is animate and female in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$
- c. $\llbracket \text{it}_i \rrbracket^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is inanimate in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$

- (2) *Maximize Presupposition* (informal)

Suppose declarative sentences ϕ and ψ are 'alternatives' to each other. If ϕ and ψ 'mean the same thing' except that ψ has more presuppositions, and if both $\llbracket \phi \rrbracket^{s,g}$ and $\llbracket \psi \rrbracket^{s,g}$ are defined, then ϕ is infelicitous with respect to s and g .

- Due to Maximize Presupposition, 'he' can only be used when 'she' cannot be used.

- (3) SITUATION: There are both male and female students.
- a. Every student⁸ likes his₈ mother.
- b. #Every student⁴ likes her₄ mother.

1.1 Singular 'They'

- In many dialects of English, 'they' can be used with singular referents:

- (4) SITUATION: There are male and female students.
- a. %Every student⁵ likes **his**₅ mother.
- b. #Every student⁵ likes **her**₅ mother.
- c. Every student⁵ likes **their**₅ mother.

- It's not always licensed:

- (5) a. #Every boy⁵ likes **their**₅ mother.
b. #Every girl⁵ likes **their**₅ mother.

- Singular 'they' can also be found when the gender of the referent is not known.

- (6) I'm reviewing an anonymous abstract. I don't know who wrote it, but **they** must be a famous linguist.

- We can understand the restrictions as follows: singular 'they' can be used, when the versions of the sentence with 'she' or 'he' (or 'it') are infelicitous. This can be explained as an anti-presupposition.

- For these dialects, [masculine] is interpreted.
- We also need to talk about number features. Let's naively assume that [singular] requires that the referent is just one individual (we'll talk about number features in more detail on Day 4).

$$(7) \quad \begin{array}{l} \text{a. } \llbracket \mathbf{he}_i \rrbracket^{s,g} \left\{ \begin{array}{l} = g(i) \quad \text{if } g(i) \text{ is one individual and male in } s \\ \text{is undefined} \quad \text{otherwise} \end{array} \right. \\ \text{b. } \llbracket \mathbf{she}_i \rrbracket^{s,g} \left\{ \begin{array}{l} = g(i) \quad \text{if } g(i) \text{ is one individual and female in } s \\ \text{is undefined} \quad \text{otherwise} \end{array} \right. \end{array}$$

- We assume that 'they' has no presuppositions.

$$(8) \quad \llbracket \mathbf{they}_i \rrbracket^{s,g} = g(i)$$

- Due to Maximize Presupposition, 'they' can only be used when 'he' or 'she' cannot be used.

- Bound use:

- (9) SITUATION: There are male and female students.
- #Every student⁷ likes **his**₇ mother.
 - #Every student⁷ likes **her**₇ mother.
 - Every student⁷ likes **their**₇ mother.

- (10)
 - #Every boy⁷ likes **their**₇ mother.
 - Every boy⁷ likes **his**₇ mother.

- (11)
 - #Every girl⁷ likes **their**₇ mother.
 - Every girl⁷ likes **her**₇ mother.

The same for number:

- (12)
 - #[One or two boys]¹⁰ like **his**₁₀ mother.
 - [One or two boys]¹⁰ like **their**₁₀ mother.

- Referential use: When the gender is not known:

- (13)
 - #I don't know who wrote the abstract, but **he** must be a famous linguist.
 - #I don't know who wrote the abstract, but **they** must be a famous linguist.
 - I don't know who wrote the abstract, but **they** must be a famous linguist.

Of course, when the referent is more than one individual, you have to use 'they':

- (14) I have two sisters.
- They** are married.
 - #**She** is married.
 - #**He** is married.

'They' can also be used when the number of the referent is unknown.

- (15) Apparently Mary got one or two papers published last year, but
- #I haven't read **it**.
 - I haven't read **them**.

- 'He or she' has a similar distribution as singular *they*, except for number. We can give a similar analysis:

$$(16) \quad \llbracket [\text{he or she}]_i \rrbracket^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is animate in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$$

(Further question: How should we analyze the meaning of 'or'?)

1.2 Grammatical Gender

- How does grammatical gender fit in the picture?

(17) *French*

Pierre a une chaise Louis XV. **Elle** est belle.

Pierre has a.FEM chair Louis XV. she.FEM is beautiful.FEM

'Pierre has a Louis the 15th chair. It is beautiful.'

(adapted from Wechsler & Zlatić 2003:198)

Obviously, we don't want to say that the referent of 'elle' here (a chair) is female.

- French has two genders, [feminine] and [masculine]. The masculine pronoun 'il' would be infelicitous in the same context.

(18) *French*

Pierre a une chaise Louis XV. **Il** est beau.

Pierre has a.FEM chair Louis XV. he.MASC is beautiful.MASC

- In some languages you can find a context where both grammatical and natural gender make sense.

(19) a. The ship lurched, and then **it** righted **itself**.

b. The ship lurched, and then **she** righted **herself**.

(adapted from Wechsler & Zlatić 2003:6)

Again, for (19b), we don't want to say that the ship is female.

Another example from Serbian/Croatian:

(20) *Serbian/Croatian*

Ovo malo devojče je ušlo.

this.NEU.SG little.NEU.SG girl.NEU.SG AUX.3SG entered.NEU.SG

a. **Ono** je htelo da telefonira.

it.NEU.SG AUX.SG wanted.NEU.SG that telephone.3SG

b. **Ona** je htela da telefonira.

she.FEM.SG AUX.SG wanted.FEM.SG taht telephone.3SG

'This little girl came in. She wanted to use the telephone.'

(Wechsler & Zlatić 2003:13)

- Grammatical gender matters for bound pronouns too.

(21) *German*

Jedes Kind³ definierte **seine**₃ Ziele.

every.NEU child defined its.NEU goals

'Every child defined his or her goals.'

(Angelika Kratzer, p.c.)

- (22) *Greek*
- a. Kathe koritsi² diakosmise to dhomatio **tis**₂.
 every girl.NEU decorated the room her.FEM
 'Every girl decorated her room.'
- b. Kathe koritsi² diakosmise to dhomatio **tu**₂.
 every girl.NEU decorated the room it.NEU
 'Every girl decorated her room.' (adapted from Spathas 2010:222)

- Let's pursue a semantic account of grammatical gender (cf. Dowty & Jacobson 1989). Our hypothesis is that grammatical gender features are also presupposition triggers, but their presuppositions refer to a contextually salient NP.

(23) $[[\text{elle}_i]]^{s,g}$

$$\left\{ \begin{array}{l} = g(i) \quad \text{if } g(i) \text{ is female or,} \\ \quad \quad \quad \text{there is a salient NP headed by a feminine noun} \\ \quad \quad \quad \text{such that } [[\text{NP}]]^{s,g}(g(i)) = 1 \\ \text{is undefined} \quad \text{otherwise} \end{array} \right.$$

- When the referent is female animate, you can use 'elle' no matter what.
- In the case of 'grammatical gender', we need a salient feminine noun. In the above example, 'chaise' is a salient noun with [feminine] that is true of the referent.
- (We take for granted that nouns (can) have gender features; We'll return to this on the final day)
- We need to say the NP must be salient: two nouns with the same meaning but with different genders.
 - A good case: Dutch has two nouns for 'bicycle': *fiets* (masculine), *rijwiel* (neuter).

(24) *Dutch*

De fiets staat in de tuin. **Hij** is kapot. Jan zet het
 the bicycle.MASC stands in the garden. It.MASC is defective. Jan puts the
 rijwiel op z'n kop, voorzichtig, want **het** heeft handremmen.
 bicycle.NEU on its head, carefully, because it.NEU has brakes.
 'The bicycle (masculine) is standing in the garden. It (masculine) is defective. Jan
 puts the bicycle (neuter) upside down, carefully, because it (neuter) has brakes.
 (Dowty & Jacobson 1989:99 attributed to Landmann 1986)

- A bad case: German has two nouns for 'car', *Auto* (neuter) and *Wagen* (masculine).

(25) *German*

a. #Ich kaufte ein neues Auto. **Er** war teuer.
 I bought a.NEU new.NEU car.NEU. It.MASC was expensive.
 'I bought a new car(neuter). It (masculine) was expensive.'

b. (pointing to a car)
 #**Es** war teuer, aber **er** fährt schnell.
 'It (neuter) was expensive, but it (masculine) runs fast.'
 (Dowty & Jacobson 1989:99)

- A minor variant of this analysis is that the natural gender also refers to an NP.

$$(26) \quad \llbracket \text{she}_i \rrbracket^{s,g} \left\{ \begin{array}{l} = g(i) \quad \text{if } \llbracket \text{female} \rrbracket^{s,g}(g(i)) = 1 \text{ or,} \\ \quad \quad \quad \text{there is a salient NP headed by a feminine noun} \\ \quad \quad \quad \text{such that } \llbracket \text{NP} \rrbracket^{s,g}(g(i)) = 1 \\ \text{is undefined} \quad \text{otherwise} \end{array} \right.$$

According to this view, all gender features are *meta-linguistic* in the sense that they refer to linguistic expressions. And ‘natural gender’ is special because the ‘gender’ nouns (‘female’, ‘male’ and ‘neuter’) are always salient.

- In English, there is generally a choice for animals:

- (27) a. That dog is so ferocious, **it** even tried to bite **itself**.
 b. That dog is so ferocious, **he** even tried to bite **himself**.

(Pollard & Sag 1994:73)

– Analysis: The class of English neuter nouns includes animal denoting nouns like ‘dog’, so (27a) is licensed, along with (27b).

– Similar analysis for feminine nouns will account for (28).

- (28) a. John bought a boat. He named **her** ‘Elizabeth’.
 b. At one time, according to Sir George H. Darwin, the Moon was very close to the Earth. Then the tides gradually pushed **her** far away: the tides that the Moon **herself** causes in the Earth’s waters, where the Earth slowly loses energy.
 (‘The Distance of the Moon’ by Italo Calvino)

– (So English noun classes are determined on semantic grounds with no morphological clues.)

- Our presuppositional analysis accounts for cases without explicitly mentioned nouns (cf. surface anaphora):

(29) *French*

CONTEXT: At an open-air swimming pool in southwest France. A customer, on entering the reception area, to myself, who was just leaving:

Elle est froide?
 she.FEM.SG is cold.FEM

‘Is it (i.e. water) cold?’ (Cornish 1999:131 cited in Wechsler & Zlatić 2003:202)

(30) *Serbian/Croatian*

CONTEXT: Speaker comes home to find her bookcase mysteriously empty.

- a. Gde su (one) nestale?
 Where did (they.FEM.PL) disappear.FEM.PL
 ‘Where did they (i.e. the books) go?’ (*kfjiga* ‘book (feminine)’)

 b. #Gde su (oni) nestali?
 Where did (they.MASC.PL) disappear.MASC.PL

(Wechsler & Zlatić 2003:202f)

These cases are problematic for our account given the fact that presuppositions can sometimes be used in an informative way.

(31) SITUATION: A sees an old friend with an infant in her arms.

A: Is this your baby?

B: Yes. **Her** name is Sarah.

(32) A: Why is John chewing on his pen?

B: He recently **stopped smoking**.

(33) Sorry, I'll be late today. **Both** of my daughters are sick.

This is called **presupposition accommodation** (see Beaver & Zeevat 2007 for an overview).

What's going on with the above cases can be analyzed as presupposition accommodation of the existence of a salient noun phrase with an appropriate gender.

2 Are Person Features Presupposition Triggers Too?

- How do we account for person features? As we have been doing, we only consider singular pronouns for the moment.
- It's obvious that 'me' refers to whoever is speaking, and 'you' (singular) refers to whoever is being spoken to in the given situation. To simplify, let's assume that there is only one speaker and only one hearer in a given situation.
- One way to model the meanings of 1st and 2nd person pronouns is:

(34) *Analysis 1: Indexical Semantics*

a. $[[\mathbf{me}]]^{s,g} = \text{the speaker in } s$

b. $[[\mathbf{you}]]^{s,g} = \text{the hearer in } s$

- Notice that according to this analysis, 1st and 2nd person pronouns do not have indices, unlike third person pronouns. Also, it has no presuppositions.
- Something like this has been proposed by Kaplan (1977), Anand (2006), Kratzer (2009), etc.
- Alternatively, we can make the semantics of 1st and 2nd person pronouns look more like the semantics of 3rd person pronouns.

(35) *Analysis 2: Presuppositional Semantics*

a. $[[\mathbf{me}_i]]^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is the speaker in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$

b. $[[\mathbf{you}_i]]^{s,g} \begin{cases} = g(i) & \text{if } g(i) \text{ is the hearer in } s \\ \text{is undefined} & \text{otherwise} \end{cases}$

Something like this has been put forward by Schlenker (1999, 2003), Heim (2008b), etc.

- At first sight, Analysis 2 looks better because of the uniformity.
 - All pronouns have indices.
 - All features are presupposition triggers.
- But there is one puzzling set of data involving bound pronouns.

- Recall that the gender presupposition universally projects through quantifiers like *every student*.

(36) Every student⁷ brought lunch with **her**₇.

This presupposes that every student is female.

- Given this, the infelicity of (37) is not so surprising.

(37) #/*Every student⁷ brought lunch with **me**₇.

If the presuppositional semantics is correct, (37) should presuppose that every student is the speaker, which cannot be true (if there is more than one student).

- With a different quantifier, e.g. *only one student*, we get a weaker inference.

(38) Only one student⁷ (namely Mary) brought lunch with **her**₇.

This sentence does not presuppose that every student is female. Rather, it seems that it only presupposes that there's at least one female student.

We won't give an analysis of why the presupposition is weaker with *only one student*, but crucially, the presupposition is existential.

- Given this and the presuppositional semantics, (39) should make sense, but it seems to lack the intended reading.

(39) (*)Only one student⁷ (namely me) brought lunch with **me**₇.

If the presuppositional semantics is correct, this sentence should only presuppose that at least one of the students is the speaker, which should make sense.

- Could this be due to some pragmatic restrictions against using a quantifier to mean the speaker? Maybe not:

(40) Only one student⁷ (namely me) brought lunch with **him/them**₇.

- Notice that according to the indexical semantics, (39) should lack a bound reading. Because 1st and 2nd person pronouns do not have indices, they simply cannot be bound! They are more like proper names.
- However, there are cases where 1st and 2nd person pronouns function as bound pronouns.

(41) Only I⁸ brought lunch with **me**₈.

- I brought lunch with me.
- John didn't bring lunch with him.
- Mary didn't bring lunch with her.
- etc.

(42) Only you⁸ brought lunch with **you**₈.

- You brought lunch with me.
- John didn't bring lunch with him.
- Mary didn't bring lunch with her.
- etc.

- **Generalization:** The person features of the binder and bindee must match.
 - 'Only one student' is a 3rd person expression, so it cannot bind 1st or 2nd person pronouns.
 - But this does not follow from the presuppositional semantics alone!

3 Binder-Bindee Agreement

- Bound pronouns often 'agree' with their binders in all phi-features, not just person features.

(43) **Every girl**⁷ thinks $\left\{ \begin{array}{l} \mathbf{she}_7 \text{ is smart} \\ *he_7 \text{ is smart} \\ *I_7 \text{ am smart} \\ *they_7 \text{ are smart} \end{array} \right.$ [3rd, singular, feminine]

(44) Only **Kevin**³ thinks $\left\{ \begin{array}{l} *she_3 \text{ is smart} \\ \mathbf{he}_3 \text{ is smart} \\ *I_3 \text{ am smart} \\ *they_3 \text{ are smart} \end{array} \right.$ [3rd, singular, masculine]

(45) Only **I**⁵ think $\left\{ \begin{array}{l} *she_5 \text{ is smart} \\ *he_5 \text{ is smart} \\ \mathbf{I}_5 \text{ am smart} \\ *they_5 \text{ are smart} \end{array} \right.$ [1st, singular]

- Also for grammatical gender:

(46) *German*

Jedes Kind³ definierte **seine**₃ Ziele.
 every.NEU child defined its.NEU goals

'Every child defined his or her goals.'

(Angelika Kratzer, p.c.)

- Should we think of the agreement between bound pronouns and their antecedents as motivated by semantic considerations, or an instance of syntactic agreement?

- Yesterday, we developed a semantic account of (43).
- Can we account for (44) and (43) in a similar way? Some say no.

- Let us consider (47).

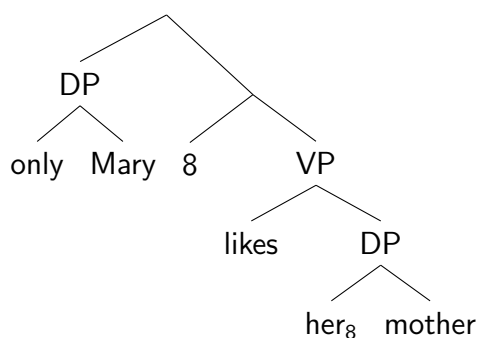
(47) Of John, Bill and Mary, only Mary⁸ likes **her**₈ mother.

This sentence is true just in case, all of the following are true:

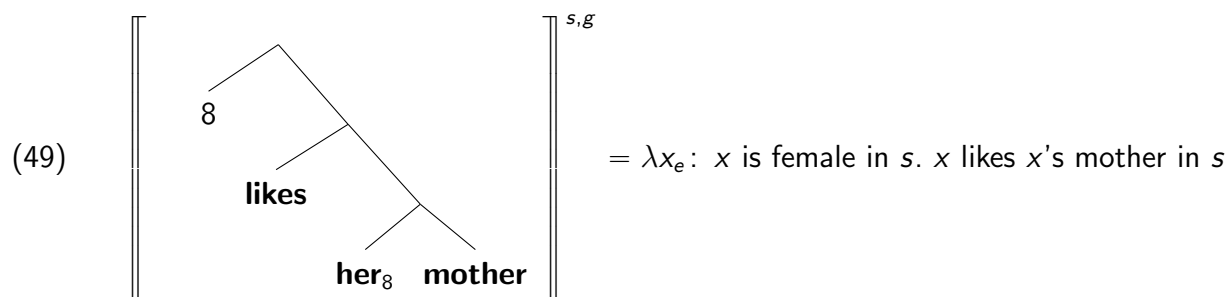
- Mary likes **her** mother.
- John doesn't like **his** mother.
- Bill doesn't like **his** mother.

We want to derive this meaning in a compositional way. Let's assume that the LF structure of (47) to be the following (we'll forget about the *of*-phrase for the sake of simplicity).

(48)



Recall from Day 2:



We assume the meaning of 'only Mary' to be the following.¹

(50) $\llbracket \text{only Mary} \rrbracket^{s,g} = \lambda P_{\langle e,t \rangle}. P(\text{Mary}) = 1 \text{ and for all } x \text{ distinct from Mary, } P(x) = 0.$

Then, the sentence should be true (with respect to s and g) iff all of the following are true:

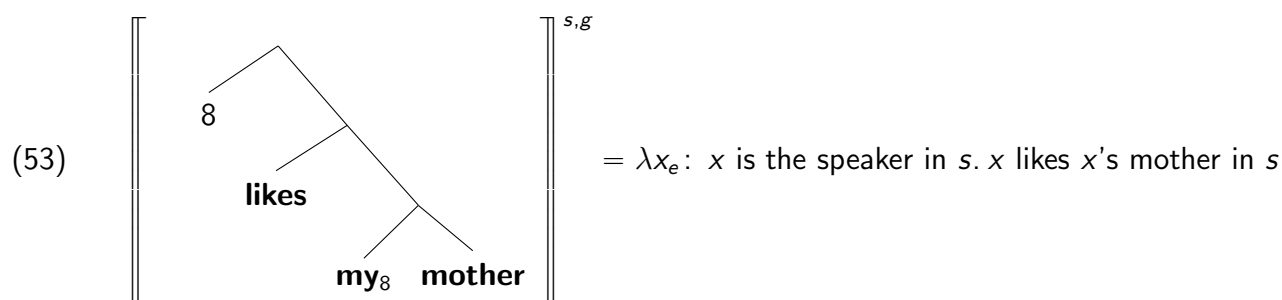
- (51) a. $\llbracket \delta \text{ likes her}_\delta \text{ mother} \rrbracket^{s,g}(\text{Mary}) = 1$
 b. $\llbracket \delta \text{ likes her}_\delta \text{ mother} \rrbracket^{s,g}(\text{John}) = 0$
 c. $\llbracket \delta \text{ likes her}_\delta \text{ mother} \rrbracket^{s,g}(\text{Bill}) = 0$

But for (51b) and (51c) to be the case, John and Bill need to be female!! If they are male, (51b) and (51c) are undefined. So we wrongly predict the sentence to be infelicitous.

- The same argument can be made with person features.

- (52) Of John, Mary and me, only I⁸ like **my**₈ mother.
- I like my mother.
 - John doesn't like his mother.
 - Mary doesn't like her mother.

Assuming the presuppositional semantics for 1st person pronouns:



So we predict that (52) presupposes that John, Mary and the speaker are the speaker.

4 Minimal Pronouns and Feature Transmission

4.1 Minimal Pronouns

- Data like above led some authors to propose that the phi-features you see on these bound pronouns are not semantically interpreted, but only morphologically there (Kratzer 1998, 2009, Heim 2008a,b, von Stechow 2002 among others).

¹This is a simplified meaning of 'only'. See Rooth (1992) for a more sophisticated analysis of 'only'. The precise analysis of 'only' does not matter much for our purposes.

- Let us look at the formulation due to Kratzer and Heim.²
- First we postulate a pronoun with no phi-features, called a **minimal pronoun**.

(54) *Minimal Pronoun*
 $[[\emptyset_i]]^{s,g} = g(i)$ (for any $i \in \mathbb{N}$)

This is a pronoun with no phi-features, so no presuppositions.

- But we don't see minimal pronouns as they are, at least in English. Rather, pronouns in English always have phi-features (except for PRO, for which we presumably need a separate story).

(55) *Morphological condition (English):*
 Pronouns must have a morphologically admissible set of phi-features at PF.

Maybe in other languages like Chinese and Japanese, \emptyset can surface as *pro* (a null pronoun).

- There is a way for the minimal pronoun to acquire phi-features before getting spelled-out.³

(56) *Feature Transmission at PF under Semantic Binding*
 Bound pronouns must inherit phi-features from their semantic binders at PF.

- Example:

– Syntax builds (57):

(57) Only I⁸ think that \emptyset_8 am smart.

– Semantics can interpret (57) without a problem. In particular, we don't have any person presuppositions. The resulting truth-conditions are (assuming that the relevant people are, the speaker, John and Bill):

(58) (57) is true iff all of the following are true
 a. I think that I am smart.
 b. John doesn't think that John is smart.
 c. Bill doesn't think that Bill is smart.

– At PF, Feature Transmission takes place, whereby the minimal pronoun acquires [1st, sg] from its binder. So what gets pronounced is (59).

(59) Only I⁸ think that I₈ am smart.

– Crucially, [1st,sg] on the bound pronoun is not present at LF, but only at PF.

- Feature Transmission is a morphological rule that is sensitive to the semantic binding relation. Kratzer and Heim hint at the possibility that it might be grammar's way of signaling the semantic binding relation.
- It is sometimes argued that something like Feature Transmission is necessary for grammatical gender agreement.

²In von Stechow's (2002) version, the phi-features on pronouns are present at the beginning of the derivation and get deleted at LF, rather than being transmitted/copied at PF. No empirical arguments have been raised in favor of either approach over the other.

³Kratzer (2009) states this rule in terms of feature-sharing, but mainly for conceptual reasons. Either version will be fine for our purposes.

(60) *German*

Jedes Kind⁶ definierte seine_e Ziele.
every.NEU child defined its.NEU goals

'Every child defined his or her goals.'

(Angelika Kratzer, p.c.)

But given our discussion on grammatical gender from yesterday, (60) can be explained in a semantic way (cf. Dowty & Jacobson 1989).

4.2 When Does Feature Transmission Apply?

- Feature Transmission must be obligatory and total, to prevent examples like the following.

(61) *Only I⁸ like her₈ mother.

- If Feature Transmission is optional, (61) can be derived by using 'her' from the beginning, instead of \emptyset .
- Semantically, there is nothing wrong with (61). It should be felicitous if all the relevant people, including the speaker, are female.

(62) a. $\llbracket 8 \text{ like her}_8 \text{ mother} \rrbracket^{s,g}(\text{the speaker of } s) = 1$, and
b. for everybody x distinct from the speaker of s , $\llbracket 8 \text{ like her}_8 \text{ mother} \rrbracket^{s,g}(x) = 0$.

- If Feature Transmission is obligatory, [1st, sg] of the binder must be copied onto the bound pronoun *she*. There are several ways to think about this situation:
 1. *she* has [3rd, feminine, sg]. After Feature Transmission, it will have [1st, 3rd, feminine, sg]. This feature set is illegitimate, and the derivation crashes.
 2. [1st, 3rd, feminine, sg] gets pronounced as *I*.
 3. [3rd] is not a real feature, so the resulting phi-feature set is [1st, feminine, sg], and the pronoun gets pronounced as *I*.

Either way, we never derive the surface form in (61).

- If we assume 1. we can explain why a third person quantifier cannot bind first or second person pronouns. Recall from Section 1:

(63) a. #Only one of the students¹ (namely me) brought lunch with me₁.
b. #Only one of the students¹ (namely you) brought lunch with you₁.

The only way to generate the bound reading is to use a minimal pronoun. So we never derive these sentences.

- What about (64)?

(64) Every student² likes her₂ mother.

Several possibilities:

1. 'Student' doesn't have a gender feature. Consequently, a minimal pronoun cannot be used.
2. 'Student' can have a gender feature and the minimal pronoun acquires [3rd, feminine, sg]. When 'student' has a gender feature, (64) requires that every student be female.

- A puzzle from Spanish:

(65) *Spanish*

- Sólo yo⁵ tenía una pregunta que *pro*₅ entendía.
only I got a question that *pro* understood.
'Only I got a question that I understood.'
- *Sólo yo⁵ tenía una pregunta que **yo**₅ entendía.
only I got a question that I understood.

(adapted from Kratzer 1998)

- Kratzer (1998) suggests that \emptyset must surface as the 'weakest' pronoun permissible in the given context. In the case of (65), it is *pro*, so it has to surface as *pro*. But she does not really explain why.
- One way to reconcile this with the obligatory application of Feature Transmission is by assuming that [1st,sg] has two possible realizations: *pro* and *yo*.
- We know that Feature Transmission only targets phi-features. It doesn't transmit Case features, for example. Maybe whatever decides between *pro* and *yo* doesn't get transmitted onto \emptyset .
- But it's still not clear why (65b) does not have the relevant reading (it is grammatical under the 'strict' reading). Maybe overt pronouns in Spanish are all 'strong' pronouns, and strong pronouns cannot be bound or at least are very hard to bind (in this configuration).

4.3 Locality Conditions?

- Kratzer (1998) argues that Feature Transmission shows locality conditions.

(66) Only I¹ got a question that I₁ thought I₁ could answer.

- I got a question that I thought I could answer.
- John didn't get a question that John thought John could answer.
etc.

(67) *Only I¹ got a question that you thought I₁ could answer.

- I got a question that you thought I could answer.
- John didn't get a question that you thought John could answer.
etc.

- Kratzer suggests the following locality constraint: no clause can intervene between the antecedent and \emptyset (cf. the locality constraint on control).

- More examples from Kratzer (1998):

(68) a. Only I¹ considered the question whether I₁ should leave before I₁ got bored.

- They only asked ME¹ whether I₁ could answer the question.
- Only I¹ think that Mary will invite me₁.

(69) a. *Only I¹ think that Mary won't come if I₁ invite her.

- *They only asked ME₁ whether you thought I₁ could answer the question.
- *Only I¹ think that Mary won't come if you invite me₁.

- But there are counter-examples to Kratzer's locality constraints. Here are some data due to Cable (2005):

- (70) a. Only I got an e-mail you thought I would like. (Every else got bad news.)
 b. Only I think it'll fall if I let go. (After all, I have the firmest grip on it.)
 c. Only I asked if you said I was lazy. (No one else heard anything about your insults.)

In light of these data, Cable concludes that the relevant constraints are not structural, and remarks:

The comparable difficulty of assigning bound readings to [Kratzer's examples] is possibly due to such poorly understood factors as presence of the overt complementizer, topicality of the subordinate subject, or simply the ability to imagine a context of use.

- Kratzer (1998) herself observes that (71a) allows a sloppy reading more easily than (71b).

- (71) a. Only I answered a question that you didn't think I could answer.
 b. Only I answered a question that you didn't think I would ever be able to answer.

She suggests that de-accenting, etc. might have syntactic correlates including movements (overt or covert), and they might explain the contrast. But her account is very sketchy.

- These restrictions, if real, are not well understood.

5 Potential Challenges for Minimal Pronouns

5.1 Feature Mismatch 1: Grammatical vs. Natural Gender

- In some contexts the phi-features of the binder and those of the bindee can disagree. In all of such mismatch cases, the phi-features on the bindee make semantic sense.
- Spathas (2010) discusses cases where the binder has a grammatical gender feature that is distinct from the natural gender.

- (72) *Greek*
- a. Kathe pedhi diakosmise to dhomatio **tu**.
 every child.NEU decorated the room its.NEU
 'Every child decorated his or her room.'
- b. Kathe pedhi diakosmise to dhomatio **tis**.
 every child.NEU decorated the room her.FEM
 'Every child decorated her room.' (adopted from Spathas 2010:223)

- (73) *Greek*
- a. Mono to koritsi mas dhiakosmise to dhomatio **tu**.
 only the.NEU girl.NEU our decorated the room its.NEU
 'Only our girl decorated her room.'
- b. Mono to koritsi mas dhiakosmise to dhomatio **tis**.
 only the.NEU girl.NEU our decorated the room her.FEM
 'Only our girl decorated her room.' (adopted from Spathas 2010:225)

- Interestingly, verbal agreement always obeys the grammatical gender

- (74) *Greek*

- a. To koritsi ine **omorfo**.
 the.NEU girl.NEU is pretty.NEU
 'The girl is pretty.'
- b. *To koritsi ine **omorfi**.
 the.NEU girl.NEU is pretty.FEM

This suggests the subject has [neuter] and probably doesn't have [feminine].

- Some complications: in German, the grammatical gender is the preferred option.

(75) *German*

- a. Jedes Kind³ definierte **seine**₃ Ziele.
 every.NEU child defined its.NEU goals
 'Every child defined his or her goals.'
- b. *Jedes Kind³ definierte **ihre**₃ Ziele.
 every.NEU child defined its.FEM goals

(Angelika Kratzer, p.c.)

In Serbian/Croatian, the natural gender is the preferred option.

(76) *Serbian/Croatian*

- a. (Svako) devojče misli da **je/*ga** Jovan voli.
 every.NOM.NEU.SG girl.NEU.SG thinks that her/it Johan likes.
 'Every/The girl thinks that John loves her.'
- b. Johan je rekao (svakom) devojčetu da **je/*ga** voli.
 John AUX told every girl.DAT.NEU.SG that her/it likes.
 'John told every/the girl that he loves her.' (Wechsler & Zlatić 2003:209)

5.2 Feature Mismatch 2: 'Each of Us', etc.

- Rullmann (2008) points out that first person plural pronouns can sometimes be bound by quantifiers like *each of us* (see Rullmann 2010 for Dutch data).

- (77) a. Each of us has a right to control **our** own body.
 b. But each of us, as an individual, faces **our** own edge.
 c. Each of us has experienced a strong sense of pride as an educator when a student says that we did an excellent job of teaching and motivating him or her to learn.
 d. Each of us has **our** own philosophy regarding how to help India.
 (Rullmann 2008)

- (78) a. Most of us as men are experts on women, until **we** marry one.
 b. Most of us have moments when we forget where **we** left the car keys or forget what **we** went to the grocery store for.
 c. Most of us can point to one individual who has changed **our** life.
 (Rullmann 2008)

- According to Rullmann's count, first person plural pronouns are more common as bound pronouns than third person pronouns when the binder is of the form *Q of us*.
- Notice that *each of us* agrees with the verb in [3rd, sg].
- Maybe *Q of us* has two sets of features???

- [3rd, sg], due to *each*.
- [1st, pl] due to *us*.

- Some examples not containing *of us*.

- (79) a. Most Muslims have no clue what **we**'re saying when **we**'re reciting the Koran in Arabic.
- b. Linguists have now hammered many generations of American students with **our** contrary opinions about normal people's linguistic beliefs, without notable success.
- c. Thanks to those who have already made **your** card.

(Rullmann 2008)

For these cases, it's less clear how the bindees get the relevant person features from their binders.

- Recall that we want to say that Feature Transmission is obligatory, due to data like (80).

- (80) a. *Only I⁶ think that **she**₆ is smart.
- b. *Only one student⁹ (namely me) thinks that I₉ am smart.

5.3 Number Features

- Rullmann (2003) and Rullmann (2004) raise arguments from number features.
- A single plural pronoun can be bound by two quantifiers at the same time.

(81) All of the students⁹ asked all of the professors³ if **they**_{9,3} could meet next week.

(82) For all students x and for all professors y , x asked if x and y could meet next week.

- A puzzle for minimal pronouns arises when the binders are singular.

(83) Each of the girls⁶ asked one of the ladies₅ if **they**_{6,5} could meet next week.

If the bound pronoun has to inherit the number features of its binder or binders, then the pronoun here should be singular.

What (83) suggests is that at least [plural] of *they* should originate from the pronoun itself.

We'll consider number features in more detail tomorrow.

6 A Semantic Account

- Some argue an analysis without minimal pronouns (Spathas 2010, Jacobson 2012, Maier 2009).
- The data involving *only* actually does not compellingly show that minimal pronouns are necessary.
- Review of the argument from *only*:

(84) Only Mary⁷ likes her₇ mother.

This sentence has a 'sloppy' reading:

- (85) a. Mary likes her mother.
- b. John doesn't like his mother.

c. I don't like my mother.

If the predicate has the presupposition triggered by [feminine] that the subject is female, (85b) and (85c) will be undefined. So the phi-features cannot be interpreted.

- Notice that this argument presupposes that the presupposition universally projects through 'only Mary'. That is, it is assumed that 'only Mary VP' presupposes that all the relevant individuals must satisfy the presupposition of the VP.
- This requirement seems to be a natural one given the partial function analysis of presupposition we have been assuming.

(86) $\llbracket [7 \text{ likes her}_7 \text{ mother}] \rrbracket^{s,g}$ is only defined for female individuals.

- But some presuppositions do not universally project through *only DP*:
 - E.g. singular definite descriptions 'the NP' presuppose that there is only one thing that make the NP true, e.g. 'The picture that I took' presupposes that there is only one picture I took.

(87) John liked the picture that I took.

- We say that singular definite descriptions have uniqueness presuppositions.
- The uniqueness presupposition of a singular definite description does not universally project through 'only DP' (Spathas 2010, Walker 2011).

(88) Only John⁷ liked the picture he₇ took.

This sentence presupposes that John took exactly one picture, but does not presuppose that everybody else took exactly one picture too. (88) could be true in the following scenario.

- (89)
- a. John took one picture, and liked it.
 - b. Mary took two pictures, but didn't like them.
 - c. Bill took three pictures, but didn't like them.

- Side note: Interestingly, not all presuppositions behave the same.

(90) Of the 10 people, only John stopped smoking.
↪ all the 10 people were smoking.

(91) Of the 10 people, only John remembered to call his mother.
↪ all the 10 people were supposed to call their mother.

These presuppositions seem to universally project through 'only DP'.

- If the presupposition of the predicate does not have to universally project through 'only DP', we don't need to say anything about (92).

(92) Only Mary likes her mother.

The relevant presupposition is just that the referent of 'Mary' is female, which is true.

- How exactly this is done of course needs to be worked out. Unfortunately it's too complicated to delve into here (see Spathas 2010, Jacobson 2012, Sudo 2012, 2013).
- An advantage of the semantic account is that it can account for Rullmann's data with some auxiliary assumptions about presupposition projection.

(93) Each of us has a right to control **our** own body.

- Assumption 1: The presupposition of *our* is collective in the sense that it does not apply to each member of a set/plurality, but to the set/plurality as a whole, namely it presupposes that the set/plurality contains the speaker.

$$(94) \quad \llbracket \mathbf{our}_8 \rrbracket^{s,g} \begin{cases} = g(8) & \text{if the speaker of } s \in g(8) \\ \text{is undefined} & \text{otherwise} \end{cases}$$

(More on plurality tomorrow)

- The predicate ‘has a right to control our own body’ with a bound pronoun *our* presupposes that the subject contains the speaker.

$$(95) \quad \llbracket \mathbf{8 \text{ has a right to control our}_8 \mathbf{ own body} \rrbracket^{s,g} \\ = \lambda X : \text{the speaker of } s \in X. 1 \text{ iff for each } x \in X, x \text{ has a right to control } x\text{'s body in } s$$

(Notice that the presupposition is collective but the truth-conditional meaning is distributive)

- Assumption 2: A universal presupposition is that the restrictor of the quantifier, i.e. the meaning of the NP argument, satisfies the presupposition (Sudo 2012, 2013). E.g. the presupposition of (95) is that the referent of ‘us’ contains the speaker.

- This account can generalize to cases like the following:

$$(96) \quad \underline{\text{Most Muslims}} \text{ have no clue what } \mathbf{we}'\text{re saying when } \mathbf{we}'\text{re reciting the Koran in Arabic.}$$

- The presupposition is that the set of Muslims contains the speaker.
- Yet, the restrictor is often times ‘of us’, which is presumably for pragmatic reasons. You prefer to use ‘us’ or something like ‘us Muslims’, if you will say *our* later on in the same sentence.

- But the semantic account needs to explain the person mismatch:

$$(97) \quad \begin{array}{l} \text{a. } * \text{Only } I^9 \text{ like her}_9 \text{ mother.} \\ \text{b. } * \text{Only one student}^4 \text{ likes my}_4 \text{ mother.} \end{array}$$

Let’s think about this a bit more.

- One more data to consider: Same meaning but different number:

$$(98) \quad \begin{array}{l} \text{a. More than one boy will call } \mathbf{his} \text{ mother.} \\ \text{b. Two or more boys will call } \mathbf{their} \text{ mother.} \end{array}$$

7 Person Features Are Not Presupposition Triggers After All?

- Unlike for gender features, there is actually no convincing evidence that person features are presupposition triggers. Maybe person features are special.

- Proposal: number features are features on indices:

- Indices are not just natural numbers, but come with a person feature.

$$(99) \quad \begin{array}{l} \text{a. First person indices: } 5[\textcircled{1}], 253[\textcircled{1}], \text{ etc.} \\ \text{b. Second person indices: } 6[\textcircled{2}], 1[\textcircled{2}], \text{ etc.} \\ \text{c. Third person indices: } 9[\textcircled{3}], 45[\textcircled{3}], \text{ etc.} \end{array}$$

- Assignment functions are functions from (99) to individuals.

$$(100) \quad g(5[\textcircled{3}]) = \text{John, etc.}$$

- Morphology dictates that only first person pronouns can bear first person indices, only second person pronouns can bear second person indices, only third person pronouns can bear third person indices.
- The semantics of person features are captured by the admissibility condition:

(101) *Admissibility Condition on Assignment Functions*

When ϕ is used in situation s , only assignment functions g that satisfy the following three conditions are admissible for interpreting ϕ . (for any $n \in \mathbb{N}$)

- $g(n[\textcircled{1}]) = \text{the speaker of } s$
- $g(n[\textcircled{2}]) = \text{the hearer of } s$
- $g(n[\textcircled{3}]) \neq \text{the speaker of } s \text{ and } g(n[\textcircled{3}]) \neq \text{the hearer of } s$

- Semantic binding is possible as long as the binder and bindee have the same index. Since having the same index entails having the same person features, we derive the generalization that the binder and the bindee must have the same person feature.

- (102) a. Only I^{9[①]} like my_{9[①]} mother.
 b. Only I^{9[①]} like her_{9[②]} mother.

The pronoun in (102b) will not be bound.

- But what about imposters?

(103) ??To keep **myself** from getting sunburned, Daddy will put on suntan lotion.

- What about 1pl and 2nd pronouns?

- Rullmann’s data suggests that they can be bound by third person quantifiers.
- In some languages, 1pl and 2pl pronouns are morphologically built from 1sg and 2sg pronouns.

- | | | | |
|-------|---------------------|-------|----------------|
| (104) | <i>Japanese</i> | (105) | <i>Chinese</i> |
| a. | watashi (1sg) | a. | wǒ (1sg) |
| b. | watashi-tachi (1pl) | b. | wǒmen (1pl) |

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