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AGREE, the Agreement Hierarchy and late adjunction

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- Certain elements in some (but not all) languages are allowed to vary between controlling morphologically based agreement and semantically based agreement.

Morphological vs Semantic agreement

Morphologically based agreement = agreement that tracks the morphological shape of the controller.

Semantically based agreement = agreement that tracks the semantic interpretation of the controller.

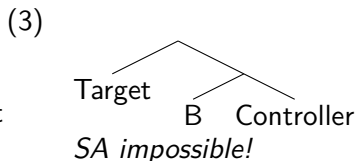
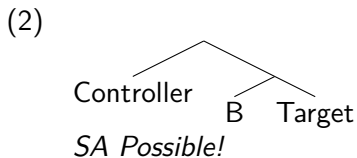
- Usually these line up, but we can notice mismatches between morphology and semantics.
 - (1) The committee **is/are** making the decision now.

Agreement Mismatches

- Mismatches in agreement implies that features are themselves internally complex, and split between a morphological half, and a semantic half (Wechsler & Zlatić, 2003; Smith, 2015).
- It is usually the case that the values for the morphology and semantics line up, but certain nouns have a mismatch between the two.
- Agreement with the morphological half of a feature appears to be the general case, but certain nouns in certain languages allow the semantic half to be targeted by agreement.
- Terminology: iF = the *semantic* value of a feature, uF = the *morphological* value of a feature.

Semantic Agreement

- Semantic Agreement (SA) is shown in Smith (2015) to operate under different structural conditions than regular agreement.
- SA is possible only when the controller of agreement c-commands the target of agreement at LF (i.e. a Reverse Agree configuration, see Wurmbrand, 2011; Zeijlstra, 2012 for Reverse Agree.).



Upwards only

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- (4) a. There **is** a committee meeting in there.
b. *There **are** a committee meeting in there.
- (5) a. A northern team **is** likely to be in the final.
 $\exists \gg \text{likely} / \text{likely} \gg \exists$
- b. A northern team **are** likely to be in the final.
 $\exists \gg \text{likely} / \text{*likely} \gg \exists$

Semantic Agreement

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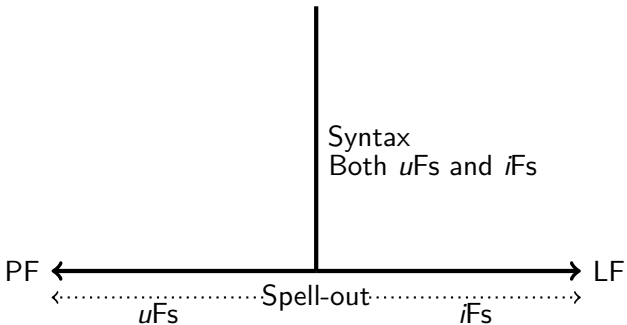
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- There is thus a representational aspect to SA.
- We can understand this there are two positions of agreement: syntax and post-syntax (PF).
- Agreement in the syntax looks only upwards.
- Agreement in the post-syntax looks both upwards and downwards.
- *i*Fs are only in the syntax, not PF, so agreement targeting them can only look upwards.

The position of features in grammar

(6)



The Agreement Hierarchy

- (Corbett, 1979, *et seq.*) gives the Agreement Hierarchy.
- This is a corpus level generalization that describes how likely elements in a language are to show semantic or morphological agreement.

(7) attributive - predicate - rel. pronoun - pers. pronoun
←-- morphological agr semantic agr --→

- Elements to the right are more likely to show semantic agreement.
- Elements to the left are more likely to show morphological agreement.

The Agreement Hierarchy

- The Agreement Hierarchy is also implicational regarding what elements show what type of agreement.

(8)

A	P	RP	PP	
Blue	Blue	Blue	Blue	✓
White	Blue	Blue	Blue	
White	White	Blue	Blue	✗
Blue	White	White	White	
Blue	Blue	Blue	White	

(9)

A	P	RP	PP	
Red	Red	Red	Red	✓
Red	Red	Red	White	
White	White	White	White	✗
Red	White	White	White	
Red	Red	White	Red	

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3/4 Agreement Patterns

- With so-called 'hybrid' controllers, when there are two targets of agreement, we expect 4 configurations.

(10)

Target 1	Target 2	Result
<i>uF</i>	<i>uF</i>	Matching morphological agreement
<i>iF</i>	<i>iF</i>	Matching semantic agreement
<i>uF</i>	<i>iF</i>	Morphological – semantic mismatch
<i>iF</i>	<i>uF</i>	Semantic – morphological mismatch

- In many cases, however we see that only 3 out of the possible 4 patterns are found.

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- (11)
- The government **has** offered **itself** up for criticism (with this policy).
 - The government **have** offered **themselves** up for criticism.
 - The government **has** offered [?]**themselves** for criticism.
 - *The government **have** offered **itself** up for criticism.

Russian (Corbett, 1983)

- *Vrač* has grammatical masculine gender.

- (12) a. **Novyj** *vrač* **skazal**.
new.MASC doctor said.MASC
'The new doctor said.'
- b. **Novaja** *vrač* **skazala**.
new.FEM doctor said.FEM
'The new doctor said.'
- c. **Novyj** *vrač* **skazala**.
new.MASC doctor said.FEM
'The new doctor said.'
- d. * **Novaja** *vrač* **skazal**.
new.FEM doctor said.MASC
'The new doctor said.'

Hebrew (Landau, to appear)

- *be'alim* is morphologically plural, but can refer to singulars.

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

Hebrew (Landau, to appear)

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

Mismatches and the Agreement Hierarchy

- What is striking about these cases is that they are what one would predict if the Agreement Hierarchy controlled mismatches.

(15) attributive – predicate – personal pronoun
←-- morphological semantic --→

	Attributive	Predicate	Pronoun	
Russian	Red	Blue	White	Grammatical
Hebrew	Red	Blue	White	
BrE	White	Red	Blue	
Russian	Blue	Red	White	Ungrammatical
Hebrew	Blue	Red	White	
BrE	White	Blue	Red	

Mismatches and the Agreement Hierarchy

- The Agreement Hierarchy is stated over a corpus level.
- To see it apparently at work at a sentential level is surprising.
- We can say that it is a (rather clucky) sentential level constraint:

3/4 Implicational Rule

When a controller controls agreement on two targets, the value assigned to the two targets can mismatch only if among the targets, the target which is to the right on the agreement hierarchy agrees with the iF of the controller and the target to the left on the hierarchy targets the uF value.

Mismatches without the Agreement Hierarchy

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- Such a rule, aside from being relatively un insightful offers no explanation as to what would happen if the two targets come from the same spot on the hierarchy.
- Such mismatches do exist, and again we find 3/4 patterns instead of 4/4 or 2/4.

Hebrew (Landau, to appear)

- (16) a. ? ha-be'alim **ha-pratij-im** **ha-axaron** šel ha-tmuna
the-owner the-private-PL the-last.SG of the-painting
haya ha-psixo'analitika'i Jacques Lacan
was.3SG 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
the-owner the-private.SG the-last-PL of the-painting
haya/ hayu ha-psixo'analitika'i Jacques Lacan.
was.3.SG/ was.PL the-psychoanalyst Jacques Lacan
INTENDED: 'The last private owner of the painting was
the psychoanalyst Jacques Lacan.'

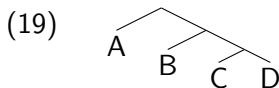
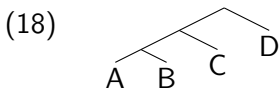
Chichewa (Corbett, 1991)

- *Ngwazi* is class 9, but can show class 1 agreement (default animate class).

- (17) a. ngwazi **y-athu** **y-oyamba**
hero 9-our 9-first
'Our first hero.'
- b. ngwazi **w-athu** **w-oyamba**
hero 1-our 1-first
'Our first hero.'
- c. ngwazi **y-athu** **w-oyamba**
hero 9-our 1-first
'Our first hero.'
- d. *ngwazi **w-athu** **y-oyamba**
hero 1-our 9-first
INTENDED: 'Our first hero.'

Hebrew versus Chichewa

- The DP-internal word order of Hebrew and Chichewa is different.
- Hebrew left to right order represents low to high structure (Sichel, 2002).
- Chichewa left to right order represents high to low structure (Carstens, 1991, 1993).



- This means that in the case of mismatches, the *higher* modifier in Hebrew shows semantic agreement, but the *lower* modifier in Chichewa shows semantic agreement.

Hebrew and Chichewa

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- These two patterns from Hebrew and Chichewa are not readily amenable to Agreement Hierarchy.
- Thus, they seem to show something deeper at play than a sentential level AH constraint.

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- Elements to the right on the AH restrict elements on the left.
- If the righter element shows semantic agreement, then either semantic or morphological agreement is possible to lefter elements. BUT.
- If the righter element shows morphological agreement, then only morphological agreement is possible for lefter elements.

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Towards an explanation: Schema

- We can capture the British English 3/4 pattern in the following schema.

- (20)
- a. The order of agreements is: anaphor \prec verb, where \prec implies precedence
 - b. If agreement targets both *i*Fs and *u*Fs on a controller, the *i*F must be agreed with first.

- This is very abstractly the approach offered in Smith (2013).
- But, the (finer points of the) approach offered there does not generalize to Russian or Hebrew.

Towards an explanation: Schema

- Again, looking somewhat abstractly, we can derive all patterns of the hierarchy if we add in adjectives.

- (21)
- a. The order of agreements is: anaphor \prec verb \prec adjective, where \prec implies precedence
 - b. If agreement targets both *i*Fs and *u*Fs on a controller, the *i*F must be agreed with first.

- These assumptions put together allow agreement to switch between semantic and morphological agreement, in such a way that rightward elements on the hierarchy will show semantic agreement.

Why anaphor \prec verb \prec adjective?

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- The trick to all this is to make the ordering of agreement fall out from more general properties, rather than simply encode it as grammatical knowledge.

Anaphor < verb

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- I propose here that the reason why anaphors apparently restrict verbal agreement is because they merge into the structure before verbs.
- Anaphors are canonically objects, and will merge within the VP.
- The agreement features on the verb only merge in T.
- If `AGREE` happens at the first derivational step that target and controller are in the structure, then we can understand why anaphors precede verbs.

Modeling AGREE

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- Following Benmamoun et al. (2009); Arregi & Nevins (2012); Bhatt & Walkow (2013); Marušič et al. (2015), I propose that AGREE is split into two steps.

AGREE

Agreement between a controller and target proceeds in two steps:

- AGREE-LINK: a target has unvalued ϕ -features that triggers AGREE with controller. The result is a link between controller and target.
- AGREE-COPY: the values of the ϕ -features of controller are copied onto target linked to it by AGREE-LINK.
 - if AGREE-COPY happens at transfer, this requires that controller c-command the target.

Further Assumptions

- AGREE-LINK happens at the first possible derivational step.
- In order for semantic agreement to be possible, *i*Fs on a target must be *active* for agreement.
- If an *i*F is active, it cannot be ignored for agreement.
- *i*Fs can be optionally deactivated through AGREE-LINK.
- They must enter the derivation as active (i.e. they cannot be activated).
- A mismatch between targets occurs when the controller enters the derivation with an active *i*F, which gets deactivated through AGREE-LINK with the first target, crucially before the second target undergoes AGREE.

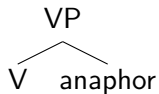
Deriving British English

- (22) a. The government is stabbing each other in the back.
b. *The government are stabbing itself in the back.

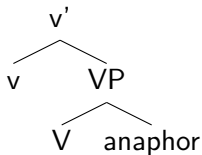
- Since anaphors are in the structure with the controller at a derivational point before T is, then agreement can shift from *iF* on anaphors to *uF* on verbs.
- With the *iF* active, AGREE-LINK links the anaphor to the *iF* on the CNP.
- If the *iF* is deactivated, then the verb will have to show agreement with the *uF*.

British English: Derivation

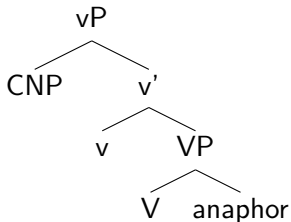
(23) *Firstly, the anaphor merges with V:*



(24) *Merge of v*

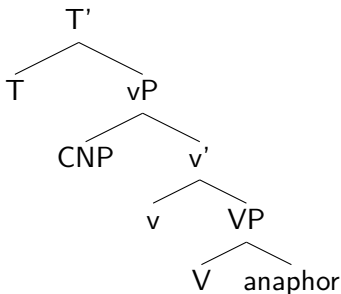


(25) *Merge of CNP subject into Spec,vP.*



British English: Derivation

(26) *T merges into the structure*



- The crucial point of the derivation is (25), where the anaphor and CNP undergo AGREE-LINK.
- This deactivates the *iF* before T undergoes AGREE-LINK.

Russian and Hebrew

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- The same logic will capture the same facts from Russian and Hebrew.
- Though the question arises why (attributive) adjectives should merge into the structure after verbs.
- We can explain it if adjuncts obligatorily undergo late adjunction into the structure (Stepanov, 2001).
- Since T is not an adjunct, and attributive adjectives are, then verbal agreement will precede adjectival agreement.
- Thus, we can see a shift from semantic verbal agreement to morphological adjectival agreement, but not vice versa.

Russian: Derivation

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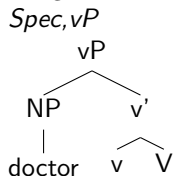
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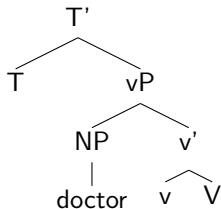
(27) *Merge of v with V*



(28) *Merge of $vrač$ into $Spec, vP$*



(29) *Merge of T*



Russian: Derivation

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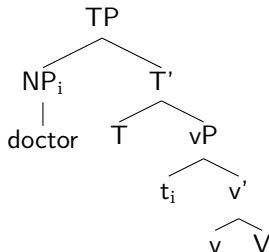
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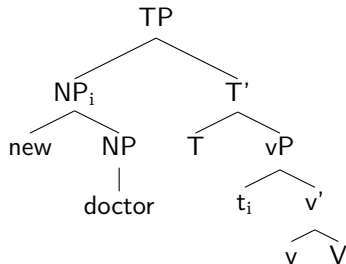
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(30) *Remerge of vrač into Spec,TP*

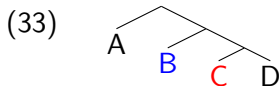
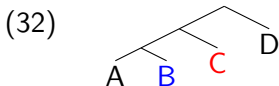


(31) *Late merger of adjunct*



Multiple Attributives

- The above explanation can be extended to understand why there are constraints among multiple attributive elements.
- In case of mismatch, the element showing SA should merge before the element showing MA.
- However, recall the point of difference between Hebrew and Chichewa: in Hebrew the higher element showed SA, and in Chichewa the lower element showed SA.



Multiple Attributives: Analysis

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- Adjuncts always undergo countercyclic (late) adjunction. There thus seems no reason for them to merge in a ‘cyclic’ countercyclic manner.
 - Let’s suppose that there is variation across languages on this point.
 - Specifically, I propose the following point of variation.
- (34) In case of adjunction, adjoin to the {highest/lowest} segment of the adjunction site.

(35) In case of adjunction, adjoin to the {highest/lowest} segment of the adjunction site.

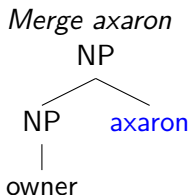
- This means that structurally higher adjectives will have merged into the derivation before structurally lower ones.
- The addition of new adjectives targets a position below existing adjectives.

Hebrew: Merge adjectives at lowest segment

(36)

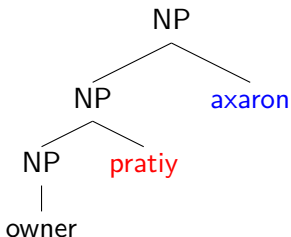


(37)



(38)

Merge pratiy

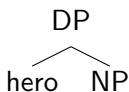


(39) In case of adjunction, adjoin to the {highest/~~lowest~~} segment of the adjunction site.

- This means that structurally higher adjuncts will have merged into the derivation after structurally lower ones.
- The addition of new adjectives targets a position above existing adjectives.

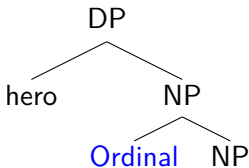
Chichewa: Merge adjectives at the highest segment

(40)



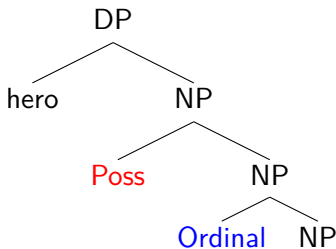
(41)

Merge ordinal



(42)

Merge poss



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- This talk has offered an analysis of apparent sentence-internal Agreement Hierarchy effects.
- The 3/4 patterns summarised are derived through considerations of timing of agreement and merge.
- In terms of merge: anaphor \prec verb \prec adjective.

Conclusions

- Non-Agreement Hierarchy 3/4 patterns can be captured by assuming a parametric difference between languages in terms of adjunction.

(43) In case of adjunction, adjoin to the {highest/lowest} segment of the adjunction site.

- Setting the parameter to HIGHEST results in lower adjuncts showing semantic agreement in case of mismatches.
- Setting the parameter to LOWEST results in higher adjuncts showing semantic agreement in case of mismatches.

Conclusions

- By splitting *AGREE* into multiple operations of *AGREE-LINK* and *AGREE-COPY*, we can understand why *SA* shows both representational and derivational characteristics.
- It is derivational in the sense that *AGREE-LINK* happens throughout the derivation.
- However, *AGREE-COPY* is representational, in that it seems to happen only once during the syntactic derivation, at the point of transfer (hence why *SA* is possible in a Reverse Agree configuration).

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References III

AGREE, the
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