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Assessing the morphosemantic program for φ -features: the prospects for a cross-modularly stable representation



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Outline of the talk

- Background
 - Modularity within the grammar: some preliminaries
 - Non-isomorphic mappings are the norm
- The case against isomorphic mapping for φ -features
 - a diagnostic for feature inertness in syntax
 - irreconcilable cross-modular mismatches in inertness
- Is this all just about “markedness”?
Is there a Calabresean/Nevinsian alternative to all this?
(No.)
- Discussion

Background

Modularity within the grammar: some preliminaries

- We can distinguish different notions of ‘modul(ar(ity))’ that are deployed – and sometimes run together – in discussions of the *morphology* \Leftrightarrow *syntax* \Leftrightarrow *semantics* landscape
 - representational differentiation (e.g. Jackendoff 1997)
 - division into modules based on the different informational primitives each module traffics in
 - information encapsulation (e.g. Fodor 1983)
 - division into modules based on limitations on the flow of information
 - computational differentiation (e.g. Chomsky 1995 (?))
 - division into modules based on different nature of computations that each module carries out

- It's important to note, though, that these are not mutually-exclusive notions;
 - they might not even be mutually *distinguishable* in all cases.
- E.g.: suppose we find that PF and LF “can’t do c-command”
 - this could be because PF and LF have representations over which c-command is not (directly) statable
 - say, prosodic representations and predicate-logical ones, respectively
 - or it could be that PF and LF had the representational means to do c-command in principle —
 - but the finer syntactic structure required to perform this computation was encapsulated away from them
 - say, it was “flattened away” during phasal spellout
 - or it could mean that testing for c-command, *qua* computational process, was simply not the kind of computation PF and LF perform

Non-isomorphic mappings are the norm

- Some (representative?) examples:
 1. *open-class predicate of events* \Leftrightarrow
verb \Leftrightarrow
host of inflectional morphology
 - counter-exemplified by:
 - light-verb constructions (where the open-class predicate is, e.g., a noun)
 - complex tense constructions (w/auxiliary verbs)
 - infinitives
 - etc. etc.

2. *recipient of Agent theta-role* ⇔
bearer of nominative case ⇔
noun phrase without marked case morphology

- counter-exemplified by:
 - passive
 - ECM
 - quirky-case languages (e.g. Icelandic)
 - marked-nominative languages (e.g. Oromo)

2b. *subject of predication* ⇔

bearer of nominative case ⇔

noun phrase without marked case morphology

- counter-exemplified by:
 - ECM
 - quirky-case languages (e.g. Icelandic)
 - marked-nominative languages (e.g. Oromo)
 - HIGH-ABS ergative languages (e.g. Georgian, K'ichean)

3. *change-of-state predicate* ⇔

unaccusative verb ⇔

morphologically {simpler / more complex} than causative counterpart

- counter-exemplified by:
 - stative unaccusatives (e.g. Reinhart 2000)
 - unaccusatives that are morphologically derived from causatives and vice versa, in one and the same language (e.g. Hebrew)

- This is not surprising:
 - it is, in fact, a central part of why we think morphology, syntax, and semantics are distinct modules in the first place
- There is, to be sure, an overarching tendency towards correspondence among the different modules
 - so, for example:
 - open-class predicates of events are *often* verbs
 - verbs are *often* bearers of inflectional morphology
 - and so forth
 - this is what one would expect of a system that has to, at the end of the day, be *learnable*
- But there is no grounds for an expectation that some empirical domain X will lend itself to (combinatorial) cross-modular correspondence
 - in fact it would be quite unexpected

- Think of it this way:
 - if the mappings *phonetics* \Leftrightarrow *phonology* \Leftrightarrow *morphology* \Leftrightarrow *syntax* \Leftrightarrow *semantics* \Leftrightarrow *pragmatics* were all isomorphic —
 - there wouldn't be much for linguists to do
 - you could just read everything you need off of **sound** and **usage**
- That we have stuff to do is a testament to the non-systematicity of the mappings in question.

Interim summary

- Non-isomorphic cross-modular mappings are the norm
- ⇒ Therefore, isomorphic mapping in some domain X (e.g. φ -features) is something that needs to be argued for
- Or, if you prefer the conclusion in a more conservative form:
 - isomorphic mappings might be preferable on simplicity & learnability grounds;
 - but given the robust attestation of non-isomorphic mappings —
 - the question of whether domain X involves isomorphic cross-modular mappings is an empirical one;
 - not one to be adjudicated on *a priori* grounds.

- If this all seems fairly anodyne to you, I'm glad;
- But consider:
 - arguments from the behavior of φ -features in one grammatical module are routinely used to adjudicate their behavior in another module
 - to take but one of many examples:
Nevins 2007 uses facts from the *morphological realization* of 3rd person to argue that 3rd person is (directly) representable in the *syntax*
- this line of reasoning is only as sound as the isomorphic-mappings hypothesis.

Accessibility vs. inertness:
a diagnostic for feature
structure **in syntax**

The diagnostic: gaps in selective targeting

- To begin, I'd like to introduce the diagnostic I'll be using
 - by demonstrating its workings on what is (hopefully) a rather uncontroversial empirical domain
- Consider *wh*-phrases and *wh*-movement:
 - [*wh*] is a feature of certain phrases and (possibly) of certain complementizers
 - in some languages, phrases bearing this feature have a characteristic form
 - though English is probably not such a language (cf. [*hu:*] vs. [*wʌt*])

- Now, it's fairly easy to convince oneself that whatever featural representation *wh*-phrases bear (say, [+*wh*]) —
 - the complementary featural representation (say, [−*wh*]) is **syntactically inert**
 - i.e., there are no syntactic operations that apply exclusively to non-*wh* phrases

!! This is not (directly) about “binary features” vs. “privative features” or “feature geometries”

- we could model this by saying that “[*wh*] is privative”;
- or by saying “no operation can target [−*wh*] only, to the exclusion of [+*wh*]”
 - due to, e.g., some extrinsic markedness hierarchy
- Either way, though, the conclusion is the same: the featural representation borne exclusively by non-*wh* phrases is **syntactically inert**.

- Note also that, with respect to our larger concerns —
 - this is an instance where (at least) syntax and morphology seem to be harmonious with one another:
 - there are languages where all *wh*-phrases bear some characteristic morphology;
 - but even in those languages, non-*wh* phrases do not bear their own characteristic morphology.
 - i.e., in the domain of *wh*, the following appears to hold:
syntactically inert \Leftrightarrow **morphologically inert.**

Applying the diagnostic to φ -features

- Let us now ask:
 - *which φ -feature configurations are accessible, and which are inert, **in syntax***
- We will investigate this question just as we investigated the corresponding question for [*wh*]

PERSON

CLAIM:

- There are **syntactic** φ -featural relations that target exclusively 1st/2nd person pronouns
 - i.e., bearers of [participant]
- But there are no **syntactic** φ -featural relations that target only lexical noun phrases and 3rd person pronouns, to the exclusion of 1st/2nd person ones

- Here is a case of a probe that seeks exclusively 1st/2nd person targets — a.k.a., *omnivorous agreement* for [participant]
 - from Kaqchikel, a Mayan language of the K'ichean branch

- (1) a. ja rat x-**at**/* ϕ -ax-an rja'
 FOC you(sg.) COM-**2sg**/***3sg**.ABS-hear-AF him
 'It was you(sg.) who heard him.'
- b. ja rja' x-**at**/* ϕ -ax-an rat
 FOC him COM-**2sg**/***3sg**.ABS-hear-AF you(sg.)
 'It was him who heard you(sg.).'

- This is of course just one example of a probe targeting 1st/2nd person targets to the exclusion of all others;
 - It certainly doesn't prove the relevant universal negative;
 - But to the best of my knowledge, that negative holds:
 - no language has analogous effects involving a probe that omnivorously seeks 3rd person targets (lexical noun phrases *and* 3rd person pronouns)
 - to the exclusion of 1st/2nd person pronouns
- ... *what about Nevins 2007?*

- As mentioned earlier, the force of Nevins' (2007) argument that 3rd person is (directly) representable is actually confined to morphological representations only
- see omer.lingsite.org/ACTL-Nevins2007.pdf for how to recoup Nevins' full set of result with no direct reference to 3rd person *in the syntax*

NUMBER

- An analogous case can be made about number
 - concentrating here on the opposition between *singular* and *plural*

CLAIM:

- There are **syntactic** φ -featural relations that target exclusively plural DPs

- Kaqchikel again:

- (4) a. ja rje' x-e/* ϕ -tz'et-ö rja'
 FOC them COM-3pl/*3sg.ABS-see-AF him
 'It was them who saw him.'
- b. ja rja' x-e/* ϕ -tz'et-ö rje'
 FOC him COM-3pl/*3sg.ABS-see-AF them
 'It was him who saw them.'

- But there are no **syntactic** ϕ -featural relations that target only singular DPs
 - though the same caveats about proving a negative universal obviously apply

Interim conclusion

- To the extent that there is indeed no convincing case of *omnivorous 3rd person* or of *omnivorous singular* —
 - and to the extent that we find this diagnostic sound (cf. the [wh] case discussed earlier) —

➤ We can conclude:

The featural representations of *3rd person* and of *singular* are syntactically inert.

Cross-modular mismatches

Syntax-morphology mismatches

- We've established that "3rd person" and "singular" — *whatever their particular featural representations are* — are representationally inert in the syntax
- ⇒ To the extent that we can find cases where "3rd person" and "singular" are categorically not inert in the morphology:
 - we have conclusive evidence a cross-modular mismatch
- Going back to the different notions of modularity discussed at the outset, we might ask:
 - what kind of mismatch are we talking about?

- There is clearly no issue of information encapsulation here
 - syntax determines what features will go where; morphology doesn't (generally) "sprout" new features;
 - whatever features it gets, it gets from the syntax.
- ⇒ So, suppose we find that, in the morphology, "3rd person" and/or "singular" are decidedly **not** inert —
- is it an issue of representational differences between syntax and morphology?
 - or of computational differences between the two?

- I'll return to this when we discuss the prospects for a Calabresean/Nevinsian approach to these issues
 - the short version: representational and computational alternatives can be traded off with each other fairly easily
- For now, our results will simply be phrased relative to $\langle \text{REPR}, \text{COMP} \rangle$ — the joint representational and computational properties of φ -features (in a given module).

English /-z/

- The well known case of φ -feature agreement on English main verbs in the so-called “present simple”
 - /-z/ in 3sg; \emptyset elsewhere
- The single overt cell in the paradigm is arguably the intersection of **multiple** syntactically inert categories
 - < *3rd person, singular, nonpast, ...* >
- Now, given that there is a rule of exponence / vocabulary-insertion rule / ... that makes reference to this cell —
 - categories like *3rd person* and *singular*, which are inert in the syntax, cannot be inert in the morphology
 - it follows that:
 - < **REPR, COMP** >_{syntax}(φ) \neq < **REPR, COMP** >_{morphology}(φ)

Number-driven stem suppletion in Hiaki (Harley 2014a,b)

- Harley (2014a,b):
certain verbs in Hiaki (Uto–Aztecan) supplete based on the
number features of their internal argument

- (5) a. Aapo/Vempo uka koowi-ta mea-k
3sg/3pl the.SG pig-ACC.SG kill.SG-PRF
'He/They killed the pig.'
- b. Aapo/Vempo ume kowi-m sua-k
3sg/3pl the.PL pig-PL kill.PL-PRF
'He/They killed the pigs.'

[Harley 2014a:256]

- Harley (2014b:456ff.; see also 2014a:244n26) argues that the “plural form” in a suppletive pair is the default
 - based on the behavior of suppletive verbs in the absence of any number-specified argument

(6) Aman *yahi-wa* / **yevih-wa*
 there *arrive.PL-PASV* / **arrive.SG-PASV*
 ‘Arriving is happening over there.’
 or ‘Someone/people/they is/are arriving over there.’

- If this is correct, then the rule triggering the singular form of a suppletive Hiaki verb needs to make reference to singular:

√ARRIVE → *yevih* / [DP_{sg} ____]
 → *yahi* / elsewhere

- The conclusion is the same —
 - *singular*, a syntactically inert category, cannot be morphologically inert
 - thus, once again:
 $\langle \text{REPR, COMP} \rangle_{\text{syntax}}(\varphi) \neq \langle \text{REPR, COMP} \rangle_{\text{morphology}}(\varphi)$

Syntax-semantics mismatches

- It is often assumed that semantically, *plural* is the inert member of the *singular–plural* opposition
 - whereas *singular* means something like $\lambda x. Atomic(x)$
 - Sauerland 2003, *i.m.a.*
(though see Bale, Gagnon & Khanjian 2011; Martí 2017)
- If this is so, it instantly furnishes another cross-modular mismatch in inertness
 - given that *singular* is the one that is syntactically inert
 - in other words:
< REPR, COMP >_{syntax}(NUM) ≠ < REPR, COMP >_{semantics}(NUM)

Is this just about “markedness”?
(*or: Is there a Calabresean/Nevinsian alternative?*)

Markedness to the rescue?

- Can the idea that, e.g.,
 $\langle \text{REPR, COMP} \rangle_{\text{syntax}}(\varphi) = \langle \text{REPR, COMP} \rangle_{\text{morphology}}(\varphi)$
be rescued by an appeal to *markedness*?
- Suppose, for example, that NUMBER in a two-number system (*singular vs. plural*) was truly bivalent:
 - plural: [+pl]
 - singular: [-pl]
- Prima facie, there is now a feature (namely [-pl]) which we could then use to construct the (unattested) *omnivorous singular* pattern
- But...

- Suppose we now add a MARKEDNESS HIERARCHY:
 [+pl] » [-pl]
- And we prohibit rules from making exclusive reference to the unmarked member in the hierarchy (in this case, [-pl])
 - cf. Calabrese 1995, 2005 on phonology;
 and Nevins' (2007) adaptation thereof to morphosyntax
 - whereby rules can refer to: (i) all values;
 (ii) only contrastive values, or (iii) only marked values
- Would this solve our problem?
 - i.e., would it facilitate a model where
 < REPR, COMP >_{syntax}(φ) = < REPR, COMP >_{morphology}(φ)?

- It seems to me that the answer is no:
 - we saw that, in the morphology, rules of exponence / vocabulary-insertion rules / ... need to make exclusive reference to [-pl]
 - we saw that, in the semantics, rules of interpretation (might) need to make exclusive reference to [-pl]
- ⇒ For this markedness-based approach to work, we'd have to say that:
- rules of exponence / vocabulary-insertion rules / ..., and, potentially, rules of interpretation, are not “rules”
 - but syntactic agreement is a “rule”

- For all I know, this might even be true!
 - what it's not is a solution to the problem identified in this talk;
 - rather, it's a restatement of the basic claim
 - that, e.g., in the domain of syntax vs. morphology:

$$\langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{syntax}}(\varphi) \neq \langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{morphology}}(\varphi)$$
- One possible response is:
 - look for reasons why rules of exponence / vocabulary-insertion rules / ... are not “rules” but syntactic agreement is a “rule”
- But I have to say that the prospects here strike me as quite bleak, at the moment
 - for example: there is evidence that in both domains, the relevant “rules” are information-altering *rewrite*-type rules
 - syntax: Preminger 2014, *i.a.*
 - morphology: see Bobaljik 2000, Bonet & Harbour (2012), *i.a.*

- Finally, I'll note here that it is easy to shift the explanatory burden between REPR and COMP in **< REPR, COMP >**
 - e.g.: we *could* assume that syntax (like morphology & semantics) has both [+pl] and [-pl] in its REPRESENTATION
 - but the COMPUTATION in syntax differs from the other two in its inability to reference [-pl]
 - or: we *could* assume (as I have, in other work) that the COMPUTATION in syntax is subject to the same restrictions — e.g. no reference to the *absence* of a feature
 - but that the REPRESENTATION is different in syntax ([pl] vs. []) than it is in the other modules ([+pl] vs. [-pl], or possibly even [-sg] vs. [+sg])
- This sort of analytical leeway should be familiar to you from, e.g., debates on representationalism vs. derivationalism in syntax
 - and I think it's just as inconclusive here as it is there
 - hence the decision to talk about “**< REPR, COMP >**”

Discussion

- We have seen that the way φ -features are treated in syntax ($\langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{syntax}}(\varphi)$) is different from the way they are treated in other modules (e.g. $\langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{morphology}}(\varphi)$)
- This is not surprising!
 - REMEMBER: Despite what some would have you believe, it is par for the course for the semantics of X to be only a loose fit to the syntax of X , which is only a loose fit to the morphology of X , etc.
- My modest proposal:
 - **Stop treating φ -features as if they should somehow be exempt from this.**

- Concretely, this means:
 - use semantic evidence to adjudicate $\langle \text{REPR}, \text{COMP} \rangle_{\text{semantics}}(\varphi)$
 - use syntactic evidence to adjudicate $\langle \text{REPR}, \text{COMP} \rangle_{\text{syntax}}(\varphi)$
 - use morphological evidence to adjudicate $\langle \text{REPR}, \text{COMP} \rangle_{\text{morphology}}(\varphi)$

... which is what I have tried to do here.
- And when you see a proposal on “the morphosemantics of X” — check for invalid cross-modular inferences.

A note on language acquisition

- If the $\langle \mathbf{REPR}, \mathbf{COMP} \rangle$ of φ -features can indeed differ in this fashion, we must ask:
 - A. Is $\langle \mathbf{REPR}, \mathbf{COMP} \rangle_X(\varphi)$ cross-linguistically fixed for every module X of the grammar?
 - B. If the answer to (A) is “no”, how is the particular $\langle \mathbf{REPR}, \mathbf{COMP} \rangle_X(\varphi)$ acquired?
- I see no reason to answer “yes” to (A), especially in light of cases like the English main-verb /-z/
 - since that would involve a massive reduction-to-the-worst-case, where all of $\langle 3rd\ person, singular, nonpast, \dots \rangle$ would be active & accessible in every language

- Instead, I think it's reasonable to assume that at least in the morphology, there is a default **< REPR, COMP >_{morph}(φ)**
 - which the learner only departs from in the face of positive evidence
- It's not hard to imagine what such evidence would be, for a case like English /-z/:
 - a pressure to avoid accidental homophony would lead the learner to conclude that the null exponent must be the 'elsewhere' case
 - and thus, that the 3sg cell must be active/accessible and not inert
- To the extent that such direct evidence is harder to come by for the learner when it comes to syntax and semantics —
 - **< REPR, COMP >_{syntax}(φ)** and **< REPR, COMP >_{semantics}(φ)** will be cross-linguistically fixed

➤ BUT:

The demand that these fixed $\langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{syntax}}(\varphi)$ and $\langle \mathbf{REPR}, \mathbf{COMP} \rangle_{\text{semantics}}(\varphi)$ be identical to one another is an illegitimate demand

- given that we already know that such strict correspondence is not what we find on the syntax-morphology side.

Thank you!