

## What are $\varphi$ -features supposed to do, and where?

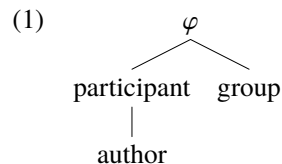
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### 1. Introduction

- This talk is about the following issues:
  - Is there such a thing as “the representation of  $\varphi$ -features,” which transcends the divisions between morphology, syntax, and semantics?
  - What is a theory of  $\varphi$ -features supposed to do, exactly?
    - generate paradigms?
    - generate typologies?
    - generate meanings?
    - account for syntactic generalizations?
- To preview, I will be arguing that:
  - (i) There is no such thing as a single, cross-modularly stable representation of  $\varphi$ -features
  - (ii) Moreover, a cursory look at other empirical domains reveals that there is absolutely no reason to expect such a thing to exist
  - (iii) The representation of  $\varphi$ -features in **syntax** is supposed to account for syntactic generalizations; accordingly:
    - in **syntax**: *singular*  $\equiv$  the absence of NUMBER
    - in **syntax**: *3rd person*  $\equiv$  the absence of PERSON(i.e., the representation of NUMBER and PERSON in syntax is privative)



- Another way to think about this:
  - Harley & Ritter (2002), despite being a **morphological** investigation, revealed (roughly) the right structure of  $\varphi$ -features for **syntax**
    - though perhaps not for morphology, in the end
  - This makes sense because morphology is *interpretive*: it can only start from the endpoints that syntax furnishes—but it doesn’t have to stop there
- ⇒ So if you do an investigation of morphological categories over a great many languages:
  - there will be more patterns than what syntax, strictly speaking, allows for
  - but absent concerted external pressure in a particular direction, the strongly recurrent patterns will be the syntactic ones

### 2. Modularity’s footprint: the intrinsic non-systematicity of interface mappings

- The only way to make any inroads into syntax is by adopting (2) as a(n initial) methodological heuristic:
  - (2) INTERFACE TRANSPARENCY  
The mapping across different modules is transparent & reliable
    - otherwise, the whole linguistics endeavor doesn’t get off the ground.
- As a grammatical principle, however, (2) is self-evidently false —
  - if it were true, there would be no need for linguists;
  - you could just read everything you needed to know about grammar off of phonetics and language use:
- (3) phonetics ~ phonology ~ morph. ~ syntax ~ semantics ~ language use
- In spite of this, and due to various trends that I will not go into here:
  - the status of (2) has in practice been elevated from **methodological heuristic** to **invariant grammatical principle**
    - to the detriment, I would argue, of anyone doing work on one of the modules that does not lie at the very edge of (3);
    - in particular, to the detriment of most current work in syntax and semantics

- ⇒ I'd like to therefore begin with a collection of examples demonstrating the ubiquity of non-transparent cross-modular mappings
- this should help remind us why we need to restore INTERFACE TRANSPARENCY to its proper place (*viz.* a methodological heuristic);
  - but it's also necessary for calibrating our expectations of what a theory of  $\varphi$ -features should look like in the first place

So let's get started. . .

(4) MORPHOLOGY		SYNTAX		SEMANTICS
host of inflectional morphology	⇔	verb	⇔	open-class predicate of events

- counterexemplified by:
    - light-verb constructions
      - where the open-class predicate of events is a N(P), or a P(P), or . . .
    - complex tense constructions
      - where auxiliary verbs (which are not open-class predicates of events) are the bearers of inflectional morphology
    - infinitives
      - at least those that lack agreement
    - tense/aspect inflection on nominals
      - see Nordlinger & Sadler (2004), *a.o.*
  - the point here is not (merely) that the specific mappings in (4) are rampantly counterexemplified
    - rather, the point is:
      - there is no fully consistent semantic correlate of verbhood
      - there is no fully consistent morphological correlate of verbhood
- ⇒ in other words: *these mappings are intrinsically non-systematic*



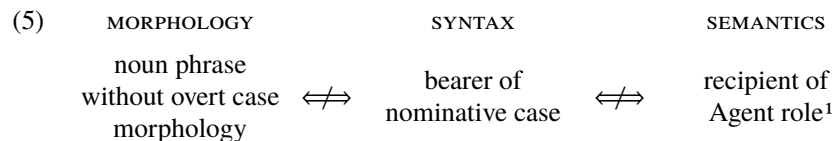
A methodological interlude:

- There might be a temptation here to say something like this:
 

“Look, of course our current theories of morphology-syntax-semantics are not yet *perfect*. But it is ‘cheap’ criticism to conclude on the basis of this that interface mappings are non-systematic by their very nature.”
- To this I would say:

Yes, but it is also ‘cheap’ to take what amounts to a heap of promissory notes and treat it as though it were already a successful hypothesis. That could be done for literally any hypothesis, and is therefore vacuous.

- ⇒ If this is truly where we're putting the adequacy threshold, then surely the INTRINSIC NON-SYSTEMATICITY hypothesis stands on ground that is at least as solid as the INTERFACE-TRANSPARENCY hypothesis.
- well, more solid, actually —
    - since the INTRINSIC NON-SYSTEMATICITY hypothesis is fully compatible with there being regimented subsets of the mappings to the interface(s) that are systematic
      - be it by sheer accident, or for learning-related reasons
    - cf. English past-tense morphology: *ring–rung, swing–swung, fling–flung, . . .* (but, crucially, *bring–\*brung*)
      - a pocket of regularity does not a systematic mapping make
    - and recall the lessons of modern morphology: there is no deep ontological asymmetry between PF and LF —
      - a ‘morpheme’ is just a piece of morphophonology that gets inserted in a particular syntactic context
      - a ‘meaning’ is just a piece of semantics that gets inserted in a particular syntactic context
  - ⇒ there's no reason to expect semantic interpretation to be any different (in terms of its “systematicity”) from English past-tense morphology.
- Finally, let me stress that none of this bears on the status of INTERFACE TRANSPARENCY as a **methodological heuristic** —
- as far as I can tell, it remains indispensable in this respect.

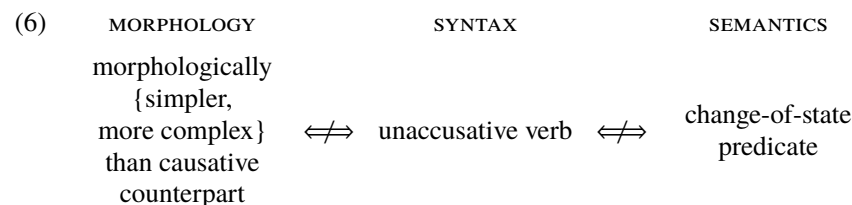


- counterexemplified by:
    - passive
      - which has nominative non-Agents
    - ECM
      - which has non-nominative Agents
    - quirky-case languages
      - which have both nominative non-Agents and non-nominative Agents (even outside of passive/ECM)
    - marked-nominative languages
      - e.g. Oromo
  - again the point here is not (merely) that the specific mappings in (5) are rampantly counterexemplified
    - rather, the point is:
      - there is no fully consistent semantic correlate of nominative case
      - there is no fully consistent morphological correlate of nominative case
- ⇒ in other words: *these mappings are intrinsically non-systematic*

- A note on subjecthood:
  - we could have replaced “recipient of Agent role” in (5) with “subject of predication”

<sup>1</sup>It is likely that there *is* a syntactic correlate of Agenthood, of course (e.g. base-generation in [Spec,vP]). But tellingly: the latter, syntactic property has no consistent morphological correlate—not even in ergative languages (see Baker & Bobaljik 2017 for a recent review).

- the latter is used (to my amazement) in many semantic accounts, as though it lent itself to a semantic definition
  - which, of course, it does not;
  - this has been known at least since Zaenen et al. 1985 and Sigurðsson 1989
- but regardless: much like Agenthood, subjecthood is double-dissociable from nominative case
  - cf. non-nominative ECM subjects, and nominative objects in quirky-subjects clauses



- counterexemplified by:
    - stative psych-verbs
      - which in many languages are nevertheless (two-place) unaccusatives
    - unaccusatives that are morphologically derived from causatives; causatives that are morphologically derived from unaccusatives
      - even coexisting in one and the same language (e.g. Hebrew)
  - again the point here is not (merely) that the specific mappings in (6) are rampantly counterexemplified
    - rather, the point is:
      - there is no fully consistent semantic correlate of unaccusativity
      - there is no fully consistent morphological correlate of unaccusativity
- ⇒ in other words: *these mappings are intrinsically non-systematic*

(7)	MORPHOLOGY		SYNTAX		SEMANTICS
	lack of special object-marking	$\Leftrightarrow$	verb-phrase-internal DP	$\Leftrightarrow$	non-specificity

(This one is extra fun, since the claim that (7) does work has a name, and a history. It's called . . . *The Mapping Hypothesis!* See Diesing 1992, Heim 1982, *a.o.*)

- counterexemplified by:
  - the behavior of those verb-phrase-internal DPs that are not candidates for movement in the first place
    - e.g. due to Holmberg's Generalization, or any other language-specific condition on movement
    - these DPs can get specific readings freely without vacating the verb phrase
      - see Vikner (1997), Preminger (2014), *a.o.*
  - difference in presence of special object-marking between two conjuncts of a single coordinated DP
    - see Kalin & Weisser (2018)

➤ again the point here is not (merely) that the specific mappings in (7) are rampantly counterexemplified

- rather, the point is:
  - there is no fully consistent semantic correlate of being verb-phrase-internal
  - there is no fully consistent morphological correlate of being verb-phrase-internal

⇒ in other words: *these mappings are intrinsically non-systematic*



- I could go on;
- But I hope the point is clear:
  - the mapping between morphology, syntax, and semantics is certainly not *random* —
    - (the system in its entirety has to be learnable, after all)

— but the claim that it is a *transparent* mapping is self-evidently false

- and amounts to elevating what is merely a methodological heuristic to the status of invariant grammatical principle
- this would be like looking at Newtonian physics and saying, “Oh, I guess the world really *is* a frictionless vacuum!”

### 3. Interim summary

(or: “I’m going to investigate the morphology, syntax, and semantics of *<empirical domain X>*; what should I expect?”)

- There is, to be sure, an overarching tendency towards correspondence among different grammatical 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 *<empirical domain X>* will lend itself to interface transparency
  - i.e., combinatorial cross-modular correspondence
- In fact it would be quite unexpected
  - based on our experience with other empirical domains
- ⇒ **This means that it would be very surprising if there was a single, consistent representation for  $\varphi$ -features across different modules**
  - since this kind of thing is basically unheard of in other domains.
- We shouldn’t close the door on that *possibility*, of course —
  - it would be a cool and interesting discovery if we found a single representation of  $\varphi$ -features that worked across different modules
    - though, again, this would be quite unusual, given the behavior of other empirical domains

- But hoping for something doesn't constitute an argument, and so, for now:
  - **the behavior of  $\varphi$ -features in one module is not (direct) evidence for their representation in another**
- ⇒ Consequently: the only direct evidence for the representation of  $\varphi$ -features in syntax is syntactic evidence.

#### 4. Syntactic evidence, part 1: $\varphi$ -neutralization

- In the past, when I've wanted to argue that the representation of  $\varphi$ -features in syntax is privative —
    - I've done so based on the typology of *omnivorous agreement* effects (cf. Nevins 2011)
  - I'll still be presenting the argument from *omnivorous agreement* (§5);
  - And I will also show that there is no counterargument from the *Person Case Constraint* (contra Nevins 2007; §6);
  - But I've come to the conclusion that there's a much more basic, more direct argument in favor of the same conclusion, hidden in plain sight.
  - To facilitate discussion of this argument, let us define the following utility terms:
- (8) **NONTRIVIAL  $\varphi$ -AGREEMENT**  
A functional head  $\alpha$  and a nominal  $\beta$  are in a nontrivial  $\varphi$ -agreement relation if  $\alpha$  comes in at least two distinguishable forms,  $\alpha^x$  and  $\alpha^y$ , and the choice among the two is governed by the  $\varphi$ -features on  $\beta$ .
- (9)  **$\varphi$ -NEUTRALIZATION**  
Let  $C$  be a construction involving nontrivial  $\varphi$ -agreement between a functional head  $\alpha$  and a nominal  $\beta$ .  
A modification to  $C$  neutralizes this agreement relation if in the modified construction,  $C'$ , the form of  $\alpha$  is invariant regardless of the  $\varphi$ -features of  $\beta$  or of any other nominal in the utterance.
- familiar cases of  $\varphi$ -neutralization include:
    - dative intervention (a.k.a. “defective” intervention)
    - locality failures (e.g. at phase boundaries)

- **The argument:**
  - in all cases of  $\varphi$ -neutralization that I am aware of, the fixed, invariant form of  $\alpha$  will be either:
    - the same form that would otherwise correspond to a **3rd person singular (3sg)** instance of  $\beta$ ; or
    - a sui generis form, not associated with any combination of PERSON and NUMBER (cf. cases of ***wh*-agreement** and **anti-agreement**)
  - it is never the form that would have arisen with a non-3sg  $\beta$  in the original  $C$ 
    - e.g. **2sg**, or **3pl**, or **2pl**, etc.

- An example: LDA in “substandard” Basque (Etxepare 2006)

(10) **BASELINE: LDA SUCCESSFUL**

[ Miren-entzat [harri horiek]<sub>(ABS)</sub> altxa-tze-n ] probatu dituzte  
Miren-BEN stone(s) those<sub>pl</sub> lift-NMZ-LOC attempted AUX:3pl.ABS  
‘They have attempted to lift those stones for Miren.’  
(subject is *pro*<3pl.ERG>)

(11)  **$\varphi$ -NEUTRALIZATION: LDA DISRUPTED → 3SG**

[ [Lankide-e-i]<sub>DAT</sub> [liburu horiek]<sub>(ABS)</sub> irakur-tze-n ] probatu  
colleague(s)-ART<sub>pl</sub>-DAT book(s) those<sub>pl</sub> read-NMZ-LOC attempted  
*dute*/\**dituzte*  
AUX:3sg.ABS/\*3pl.ABS  
‘They have attempted to read those books to the colleagues.’  
(subject is *pro*<3pl.ERG>)

[Basque; Preminger 2009:640–641]

(12) **UNATTESTED:  $\varphi$ -NEUTRALIZATION TO, E.G., 2SG**

\* [ [Lankide-e-i]<sub>DAT</sub> [liburu horiek]<sub>(ABS)</sub> irakur-tze-n ] probatu  
colleague(s)-ART<sub>pl</sub>-DAT book(s) those<sub>pl</sub> read-NMZ-LOC attempted  
*haute*  
AUX:2sg.ABS  
‘They have attempted to read those books to the colleagues.’  
(subject is *pro*<3pl.ERG>)

- In other words, the claim is:  
There is generally no such thing as  $\varphi$ -neutralization to **2sg**; or **3pl**; or **2pl**; etc.

⇒ why would that be?

• here are two logical options:

- (i)  $\varphi$ -features are privative; contravening valuation results in unvaluedness, and **3sg** is unvaluedness
- (ii)  $\varphi$ -features are not privative; something else, e.g. an extrinsic markedness hierarchy, directs the outcome of  $\varphi$ -neutralization towards **3sg**

• obviously, (i) is preferable to (ii) even on simplicity grounds alone;

➤ but it doesn't stop there:

- recall that  $\varphi$ -neutralization doesn't have to end up in **3sg**; there are also sui generis results of neutralization (e.g. **wh-agreement**, **anti-agreement**)
- clearly, then, if we were to adopt (ii): whatever extrinsic force (e.g. markedness hierarchy) favored **3sg** would have to be a *defeasible* one

⇒ why do we never see  $\varphi$ -neutralization to **2sg**, **3pl**, **2pl**, etc., then?

➤ the alternative, privativity-based story is very simple:

- failure of valuation means **no  $\varphi$ -features**
  - which, given a privative representation of  $\varphi$ -features, means **3sg** (see §1)
- a syntactic derivation can result in other features (e.g. [**+wh**]) occurring on the relevant functional head;
- but if nominals are the only source of  $\varphi$ -features, and  $\varphi$ -features are privative, then there is no way to get **2sg**, **3pl**, **2pl**, etc. *as the result of  $\varphi$ -neutralization*.

NB: If you're still clinging to the hope that a markedness-based solution will work here, there are actually further reasons why it won't; see §7.3.

## 5. Syntactic evidence, part 2: omnivorous agreement

• A baseline (non- $\varphi$ -related):

- [**wh**] is a feature of certain phrases and (possibly) of certain complementizers
- in some lgs., phrases bearing this feature have a characteristic form<sup>2</sup>

- CLAIM: there are no syntactic operations that apply exclusively to non-wh-phrases

(for arguments against some putative counterexamples to this claim, e.g. in Basque, see Richards 2010)

- Now, the most straightforward way to capture this (which is also suggested by the morphology, in those lgs. where it's systematic) —

- [**wh**] is a privative feature; and
- syntax (or, at least, the **featural search criteria** employed by syntactic probes) cannot make reference to the *absence* of a feature

- Put another way: there is no such thing as “[**-wh**]” —

(nor, therefore, is there such a thing as “[**+wh**]”)

— only [**wh**], vs. the absence thereof.

• Now, if you buy this logic (and it seems fairly benign from my vantage point) —

- then the same argument can be made for the privativity of PERSON and NUMBER (in syntax)

(13) **omnivorous agreement**:

an agreement pattern where an agreement marker  $\alpha_f$  occurs whenever the feature  $f$  is found on the subject or on the object (or both)

[Nevins 2011]

<sup>2</sup>Though interestingly, not in the language that gave *wh*-phrases their name! (Cf. [hu:] vs. [wAt].)

- CLAIM: There is omnivorous agreement for **pl** and for **1st/2nd person**; but not for **sg** or for **3rd person**.<sup>3</sup>

o some representative examples:

(14) 3PL “WINS” OVER 3SG

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

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

(15) 2(/1) “WINS” OVER 3

a. ja rat x-at/\*e-ax-an rje'  
FOC you(sg.) COM-2sg/\*3pl.ABS-hear-AF them  
'It was you(sg.) who heard them.'

b. ja rje' x-at/\*e-ax-an rat  
FOC them COM-2sg/\*3pl.ABS-hear-AF you(sg.)  
'It was them who heard you(sg.).'

➤ To the extent that the argument against “[−wh]” was sound —

- o the typology of omnivorous agreement constitutes an argument against “[−participant]” (or “[+3rd]”);
- o and against “[−group]” (or “[+singular]”).

<sup>3</sup>I am aware of exactly one counterexample to this generalization, from Menominee (Trommer 2008, in particular pp. 226–231; thanks to Daniel Harbour for bringing this to my attention). The options raised by the Menominee data are: (i) jettison the generalization; or (ii) assume that the relevant Menominee morphemes are actually portmanteau morphemes (subject agreement + object agreement), and syncretism in the agreement paradigm gives the illusion of omnivorous agreement for 3rd person. The unlikelihood of syncretism accidentally yielding this pattern might explain why Menominee stands as such an exception, lending circumstantial support to (ii). (See also Harbour 2016:7–38 on the hazards of jumping to premature conclusions from idiosyncratic syncretisms).

## 6. A putative counterargument that fails: the *Person Case Constraint*

- Nevins (2007): **3rd person** is not defined by the absence of a feature (in particular, it does not amount to the absence of [participant])

EVIDENCE:

- Spanish spurious *se*
  - o we can safely disregard this one; it is clearly a morphological operation (given that even Nevins himself makes recourse to *precedence* in his definition; p. 275)

➤ AND RECALL:

the claim that the morphological behavior of  $\varphi$ -features provides direct evidence for their syntactic representation is specious (§3)

- The typology of Person Case Constraint (PCC) effects<sup>4</sup>
  - o the PCC is a restriction on possible internal-argument combinations (e.g. in ditransitives)
  - o it comes in several varieties
  - o here are four of them (adapted from Nevins 2007):

(16)	“weak”			“strong”			“me-first”			“ultra”		
	IO	DO		IO	DO		IO	DO		IO	DO	
✓	1	3		✓	1	3	✓	1	3	✓	1	3
✓	1	2		*	1	2	✓	1	2	✓	1	2
✓	2	1		*	2	1	*	2	1	*	2	1
✓	2	3		✓	2	3	✓	2	3	✓	2	3
*	3	1		*	3	1	*	3	1	*	3	1
*	3	2		*	3	2	✓	3	2	*	3	2
✓	3	3		✓	3	3	✓	3	3	✓	3	3

<sup>4</sup>It has been claimed that the PCC is actually a *morphological* phenomenon (Bonet 1991, following, in a sense, Perlmutter 1968, 1971), or a *syntax-semantics interface* phenomenon (Pancheva & Zubizarreta 2018). If either of these claims were correct, then there could not, by definition, be an argument from the PCC to the representation of  $\varphi$ -features in syntax proper (§3). But as argued by Albizu (1997) and Rezac (2008), the PCC cannot be anything but a narrow-syntactic phenomenon (see also Preminger 2019a,b). Therefore, the discussion in this section remains relevant.

**a summary of Nevins' (2007) account:**

- (i)  $\varphi$ -features are binary (i.e., [+*f*] and [−*f*] are both extant and non-vacuous)<sup>5</sup>
  - (ii) the search for features by probes comes in three varieties:<sup>6</sup>
    - any values of [*f*] (i.e., [+*f*] or [−*f*])
    - marked values of [*f*] (i.e., [+*f*] but not [−*f*])
    - contrastive values of [*f*] (i.e., [+*f*] or [−*f*] but only in contexts where both are attested)
      - e.g. [−author] is attested in the environment of [−participant]; but since [+author] is not, [±author] is not contrastive in the environment of [−participant]
  - (iii) probe-goal relations operate in a *Multiple Agree* fashion, and are subject to two additional conditions:
- (17) Contiguous Agree (CA):  
For a relativization *R* of a feature *f* on a Probe *P*, and  $x \in \text{Domain}(R(f))$ ,  
 $\neg \exists y$ , such that  $y > x$  and  $P > y$  and  $y \notin \text{Domain}(R(f))$   
 $\approx$  “There can be no interveners between *P* and *x* that are not in the domain of relativization that includes *x*.”

- (18) Matched Values (MV):  
For a relativization *R* of a feature *f*,  
 $\exists \alpha, \alpha \in \{+, -\} \rightarrow \forall x, x \in \text{Domain}(R(f)). \text{val}(x, f) = \alpha$   
 $\approx$  “All elements within the domain of relativization must contain the same value for the feature *f* being agreed with.”

**other things that Nevins' (2007) account requires but he doesn't tell us about explicitly:**

- (iv) the featural search criterion for a given probe can be anything of the form . . .

(19) {any | marked | contrastive} (*f*)

. . . or conjunction of any two such criteria (for different *f*'s)

(required for Nevins' 2007:299 account of the *Ultrastrong* PCC)

- (v) regardless of the above, all the probes in question have to have an independent search criterion that forces them to target only nominals (otherwise: verbal projections that could have derivationally acquired a value of, e.g., [−participant] would “count” as 3rd person targets, and muck up the system)

- While I sometimes hear this account described as “deriving the typology of PCC effects” —
  - the system in (i)–(v) derives more PCC varieties than are actually attested
    - e.g. setting (iv) to contrastive(participant) yields a PCC variety that is unattested<sup>7</sup>
      - where the licit combinations are 2>1, 3>1, and 3>3
      - with 1>2, 1>3, 2>3, and, 3>2 ruled out

➤ To be clear, the alternative, privacy-based account of the PCC that I will present shortly will also overgenerate —

- I just wanted to make clear that this does not distinguish it from Nevins' (2007) account



<sup>5</sup>An exception is [addressee], which Nevins (2007) treats as privative; but the latter is only relevant for languages with clusivity, and I abstract away from it here.

<sup>6</sup>This proposal builds on Calabrese's (1995, 2005) work in phonology, and adapts it to morphosyntax.

<sup>7</sup>Nevins (2007) refers to this as “me-Last,” but that is somewhat misleading in that it is not a linear inversion of the “me-First” variant. (That would be a variety that ruled in everything but 1>2 and 1>3.)



Here, then, is an alternative that does not involve recourse to binary  $\varphi$ -features in the syntax. **Assumptions:**

- (i) *Multiple Agree* is possible; it is fallible (in the sense of Preminger 2014); and it requires *featural downward monotonicity* (FDM)
  - i.e., the  $n^{\text{th}}$  target of *Multiple Agree* cannot carry a feature sought by the probe that the  $1^{\text{st}} \dots (n-1)^{\text{th}}$  targets did not also bear
- (ii) there is a *Person Licensing Condition* (PLC: Béjar & Rezac 2003; see also Preminger 2019b), and it is parametrizable:
  - it has two settings:  
licensing-by-agreement for [participant], or only for [author]

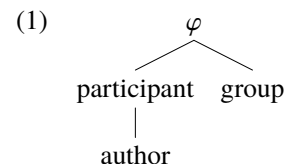
NB: I'm assuming here the version where only *those arguments that could in principle be agreed with* that are subject to the PLC (see Preminger 2019b:7ff. for details)
- (iii) datives can be, on a language-specific basis, enclosed in functional structure that is formally **3sg** (i.e., carries REFERRING EXPRESSION but lacks [participant], [group], etc.; cf. Harley & Ritter 2002)

That's it...

- Here again is the typology of PCC effects that Nevins (2007) addresses:

(16)	“weak”		“strong”		“me-first”		“ultra”	
	IO	DO	IO	DO	IO	DO	IO	DO
✓	1	3	✓	1	3	✓	1	3
✓	1	2	*	1	2	✓	1	2
✓	2	1	*	2	1	*	2	1
✓	2	3	✓	2	3	✓	2	3
*	3	1	*	3	1	*	3	1
*	3	2	*	3	2	✓	3	2
✓	3	3	✓	3	3	✓	3	3

- Here again is the representation of  $\varphi$ -features in syntax:



- And here are the parametric settings that derive each:
  - “weak”:
    - PLC: [participant]
    - datives: transparent
    - probe: seeks [participant]
  - how it works:
    - the IO is probed; if it does not carry [participant]:
      - the DO cannot be probed unless it also does not carry [participant] (by FDM)
      - ⇒ [participant]-bearing DOs in this scenario will not have been agreed with, triggering a PLC violation
    - if the IO carries [participant]:
      - the DO can then be probed regardless of its featural contents
      - ⇒ any and all [participant]-bearers in this scenario will have been targeted by the probe
  - “strong”:
    - PLC: [participant]
    - datives: opaque
    - probe: seeks RE<sup>8</sup>

<sup>8</sup>REFERRING EXPRESSION – the root of the  $\varphi$ -geometry.

- how it works:
  - the IO is probed; since datives are opaque, it always behaves as a non-[participant]-bearer
  - ⇒ the DO cannot be probed unless it also does not carry [participant] (by FDM)
  - ⇒ [participant]-bearing DOs will not have been agreed with—triggering a PLC violation
- “me-first”:
  - PLC: [author]
  - datives: opaque
  - probe: seeks RE
- how it works:
  - the IO is probed; since datives are opaque, it always behaves as a non-[author]-bearer
  - ⇒ the DO cannot be probed unless it also does not carry [author] (by FDM)
  - ⇒ [author]-bearing DOs will not have been agreed with—triggering a PLC violation
- “ultrastrong”:
  - PLC: [participant]
  - datives: transparent
  - probe: seeks [author]
- how it works:
  - the IO is probed; if it does not carry [author]:
    - the DO cannot be probed unless it also does not carry [author] (by FDM)
  - ⇒ [author]-bearing DOs in this scenario will not have been agreed with, triggering a PLC violation (2>1 and 3>1)
  - since [author] implies [participant] (Harley & Ritter 2002), [participant] is also part of what is sought by the probe
  - ⇒ and is therefore also subject to FDM

- therefore, if the IO does not bear [participant], the DO cannot be probed unless it also does not bear [participant]
- ⇒ ruling out 3>2
- all other combinations result in genuine *Multiple Agree* with both arguments, satisfying the PLC a fortiori

#### Recap:

- |                              |                         |
|------------------------------|-------------------------|
| ○ “weak”:                    | ○ “me-first”:           |
| – PLC: [participant]         | – PLC: [author]         |
| – datives: transparent       | – datives: opaque       |
| – probe: seeks [participant] | – probe: seeks RE       |
| ○ “strong”:                  | ○ “ultrastrong”:        |
| – PLC: [participant]         | – PLC: [participant]    |
| – datives: opaque            | – datives: transparent  |
| – probe: seeks RE            | – probe: seeks [author] |

#### • Overall take-home message for this section:

- there is no Nevins-2007-style argument from the PCC *against* privative  $\varphi$ -feature representations (in syntax)
- ⇒ we can attend to the arguments in §4–§5 in *favor* of privative  $\varphi$ -feature representations (in syntax)

### 7. $\varphi$ -mismatches across modules: the state of play

- We have now seen that  $\varphi$ -features in syntax are represented privatively
  - in syntax: *singular*  $\equiv$  the absence of NUMBER  
(more precisely: absence of [group])
  - in syntax: *3rd person*  $\equiv$  the absence of PERSON  
(more precisely: absence of [participant])
- There are, on the other hand, plenty of arguments for a different representation of  $\varphi$ -features in other modules

## 7.1. Mismatches between syntax and semantics

### 7.1.1. Number

- Sauerland (2003), *a.m.o.*, argues that so-called ‘plural’ is semantically vacuous —
- (20)  $\llbracket \text{pl.} \rrbracket = \lambda x. x$ 
  - whereas so-called ‘singular’ is the semantically-potent member of the opposition, meaning something like:
- (21)  $\llbracket \text{sg.} \rrbracket = \lambda x : x \text{ is atomic} . x$ 
  - (see Bale et al. 2011, Martí 2017, to appear, *a.o.*, for opposing views)
- It’s worth noting that (20–21) is still a privative (semantic) representation
  - ⇒ so insofar as one insists that  $\varphi$ -features in syntax are bivalent, one is still in the same boat as me
    - (that being the “different modules have different  $\varphi$ -featural representations” boat)
- But in any event, I think the arguments in §4–§5 stand, as does the dismissal in §6 of the putative PCC counterargument
  - ⇒ thus, on this semantic theory, there is certainly a mismatch between the representation of  $\varphi$ -features in syntax and their representation in semantics
    - in particular, semantics must be able to interpret the absence of a syntactic feature
      - in this case, [group]
    - this is not some notational problem brought about by the choice to work with privative  $\varphi$ -features in syntax;
    - this is a genuine mismatch: the member of the opposition that is inert in syntax (singular) is not inert in the semantics
      - and vice versa
    - more on this (interpreting the absence of a feature) shortly
- Note also: once we adopt a semantics of the kind shown in (20–21) —
  - it is guaranteed that there will be a mismatch somewhere between semantics and morpho-phonology

- since cross-linguistically, it is overwhelmingly ‘plural’ (the one that, by hypothesis, is semantically inert) that is morpho-phonologically marked member of the ‘singular’-‘plural’ opposition

- I’m just showing that the locus of this mismatch is between semantics and everything else
  - and not, e.g., between syntax and morphology or between morphology and phonology

### 7.1.2. $\varphi$ -features more generally

- The mismatch surveyed in §7.1.1 can be circumvented by adopting a different representation of NUMBER in semantics
  - cf. Bale et al. (2011), Martí (2017, to appear)
- ⇒ I therefore think it is worthwhile to (also) take a broader view of  $\varphi$ -features across the syntax-semantics interface
  - especially in light of the claims in §2, concerning the intrinsic non-systematicity of interface mappings
- In this light, I think it is telling that no class of  $\varphi$ -features (PERSON, NUMBER, GENDER/NOUN-CLASS) maps onto semantics in a completely reliable fashion
- That is, for each of these classes of features, one can easily find cases where they receive the “wrong” interpretation

(22)

	lg.	item	comments
<b>GENDER</b>	German	Mädchen ( <i>neut.</i> ) ‘girl’	
	Arabic	ħa:mil ( <i>masc.</i> ) ‘pregnant person’	
<b>NUMBER</b>	English	scissors ( <i>pl.</i> )	plurale tantum
	English	furniture ( <i>sg.</i> )	mass noun (. . . and a fully individuable one, at that!)
<b>PERSON</b>	Andean Spanish	ustedes ( <i>3pl</i> )	the only way to refer to a plurality of addressees

- Is this just “exception fetishism” / reduction to the worst case?
  - I really don’t think so;
    - It speaks directly to the question of whether the syn-sem mapping is more like, e.g., Heim & Kratzer (1998) make it out to be —
      - essentially, a homomorphism
    - or more like *ring–rung*, *swing–swung*, *fling–flung*, *bring–\*brung*
      - pockets of (probably acquisition-driven) systematicity, amid what is in principle an arbitrary mapping system
- You may be surprised to hear the mapping of  $\varphi$ -features to semantics described as “arbitrary” —
  - after all, it’s not like there are any languages where *1st person* means ADDRESSEE in the vast majority of cases
  - but that is perhaps just a fact about how we assign terminology
    - specifically, no descriptive grammarian would have assigned the label “1st person” to a category that means ADDRESSEE in the vast majority of cases.

## 7.2. Mismatches between syntax and morphology

### 7.2.1. English<sup>10</sup>

- Consider the well-trodden case of the English present-tense agreement morpheme /-z/
- /-z/ cannot be the *elsewhere* exponent without recourse to accidental homophony between two context-sensitive allomorphs of the same morpheme (or between a context-sensitive allomorph and a default one)
- E.g. *2sg* ( $\emptyset$ ) and *3pl* (also  $\emptyset$ )
- Which is quite plausibly something that is banned (Bobaljik 2012:35)
- ⇒ And if /-z/ is not the *elsewhere*:
  - then specifying its distribution requires direct reference to ‘3rd person’ and to ‘singular’

- There are a couple of ways to do this in practice:
    - (i) part of the mapping from syntax to morphology consists of filling in (some) ‘minus’ values where the corresponding privative syntactic feature is absent (cf. Archangeli 1988)
      - for example:
- $$(23) \left\langle \begin{array}{l} \neg\exists [\text{participant}], \\ \exists [\text{participant}] \end{array} \right\rangle_{\text{SYN}} \implies \left\langle \begin{array}{l} [-\text{participant}], \\ [+ \text{participant}] \end{array} \right\rangle_{\text{MORPH}} / \_ v^0$$
- (ii) add the  $P(x) = \neg\exists x$  predicate to the logical meta-language of structural descriptions for Vocabulary Insertion
    - allowing direct reference to the absence of a feature
- And there are reasons to prefer (i) over (ii):
    - adding the  $P(x) = \neg\exists x$  predicate looks like an all-or-nothing proposition
      - ⇒ in a language where at least one “markedness mismatch” like /-z/ exists, all other markedness effects should be nullified, too
      - e.g. (24a–b) should have equal probability in any language with at least one “markedness mismatch” elsewhere in the language
- $$(24) \text{ a. nominal morphology: } [\text{sg}]: \text{null}, [\text{pl}]: \text{overt}$$
- $$\text{ b. nominal morphology: } [\text{sg}]: \text{overt}, [\text{pl}]: \text{null} \quad (\text{“marked”})$$
- this seems intuitively wrong
  - in contrast, it is conceivable that ‘minus’-insertion rules like (23) are acquired on a case-by-case basis
    - from positive evidence only
    - as part of the acquisition of language-specific PF rules
  - ⇒ meaning that acquiring (23) would have no bearing on the overtness/nullness of [sg] and [pl] on nouns, for example
    - i.e., if the language happened to instantiate (24b), that would have to be acquired separately (again, from positive evidence)

<sup>10</sup>Thanks to Peter Svenonius for comments which helped weed out a rather embarrassing mistake in an earlier version of this subsection.

### 7.2.2. Hiaki

- Harley (2014a,b): certain verbs in Hiaki (Uto-Aztecan) supplete based on the NUMBER features of their internal argument
- (25) a. *Aapo weye* (Hiaki)  
3sg walk.SG  
'He/she/it is walking.'
- b. *Vempo kaate*  
3pl walk.PL  
'They are walking.'
- (26) 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): 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
- (27) *Aman yahi-wa/\*yevih-wa*  
there arrive.PL-PASS/\*arrive.SG-PASS  
'Arriving is happening over there.'  
'Someone/people/they is/are arriving over there.' [Harley 2014b:456]
- if this is correct, then the rule triggering the singular form of a suppletive Hiaki verb needs to make reference to *singular* (i.e., [-group])
- (28)  $\sqrt{\text{ARRIVE}} \rightarrow \text{yevih} / [\text{DP}_{[-\text{group}]} \text{ \_\_\_}]$   
 $\rightarrow \text{yahi} / \text{elsewhere}$
- in conflict with a widespread cross-linguistic asymmetry *in the very same module*  
(the overwhelming unmarkedness of the singular)

### 7.3. Markedness one last time

- Recall Nevins' (2007) proposal, discussed in §6 (building on Calabrese 1995, 2005, in phonology)
- On that proposal, rules can refer to:
  - (i) any values of  $[f]$  (i.e.,  $[+f]$  or  $[-f]$ )
  - (ii) marked values of  $[f]$  (i.e.,  $[+f]$  but not  $[-f]$ )
  - (iii) contrastive values of  $[f]$  (i.e.,  $[+f]$  or  $[-f]$  but only in contexts where both are attested)

As we've seen:

- Vocabulary Insertion needs to make exclusive reference to [-group]
  - in the English present-tense (§7.2.1)
  - in Hiaki verb-suppletion (§7.2.2)
- semantics (might) need to make exclusive reference to [-group]
  - in the semantics of number (§7.1)
- but syntactic  $\varphi$ -agreement cannot make exclusive reference to [-group]
  - no  $\varphi$ -neutralization to 3pl (§4)
  - no "omnivorous singular" (§5)

⇒ For a Nevins (2007)-style account to capture these cross-modular mismatches, it would have to be the case that:

- Vocabulary Insertion rules (and possibly, rules of semantic interpretation) are not "rules";
  - but syntactic  $\varphi$ -agreement is a "rule."
- That would be a mere restatement of these cross-modular mismatches
- not an explanation of them
- *The bottom line, as before*: markedness won't save the idea of a singular, cross-modularly stable representation of  $\varphi$ -features.

## 8. Conclusions

- (i) The expectation that a given empirical domain lend itself to transparent and fully reliable mapping between morphology, syntax, and semantics (or any two of them) is unfounded (§2)
- it amounts to elevating a valid (indeed, indispensable) **methodological heuristic** —
    - “assume transparent mapping unless there is evidence to the contrary”
  - to the status of **invariant grammatical principle**
  - the evidence from domains *other* than  $\varphi$ -features suggests there isn’t much reason to expect such a principle to hold
- (ii) Consequently, evidence from morphological and/or semantic computations is not direct evidence about the representation of  $\varphi$ -features in syntax (§3)
- at best, it is circumstantial evidence —
    - valid only in the event that this happens to be one of those *pockets of regularity* where the mapping is locally transparent
- (iii) Syntactic evidence proper, on the other hand, supports the position that the representation of  $\varphi$ -features in syntax is privative (§4–§6)
- this is supported by:
    - $\varphi$ -*neutralization* (which results in **3sg** or something that is not a normal  $\varphi$ -form; never in **2sg**, **2pl**, **3pl**, etc.) (§4)
    - the typology of *omnivorous agreement* (and the overall absence of “omnivorous singular” and “omnivorous 3rd person”) (§5)
  - and, contra Nevins 2007, there is no argument against privative PERSON features from the typology of PCC effects (§6)
- (iv) Finally, there is fairly direct evidence for cross-modular mismatches in  $\varphi$ -feature-computations—much of it *independent* of the fact that  $\varphi$ -features in syntax are privative (§7)
- theories of semantic number that take ‘plural’ to be semantically inert and ‘singular’ to be semantically potent entail a mismatch somewhere between semantics and morphophonology (§7.1.1)
    - whether the mismatch is situated at the syntax-semantics interface (as I claim) or not

- more strikingly, there is actually no single class of  $\varphi$ -features (PERSON, NUMBER, OR GENDER) whose interpretation in the semantics is fully reliable (§7.1.2)
- furthermore, the interfaces (morphology, semantics) have to be able to ‘interpret’ the absence of a feature (§7.2)
  - English present-tense /-z/ being the dot-product of at least 5 categories that are unlikely to all be bivalent/polyvalent (§7.2.1)
  - Hiaki verbal suppletion suggests that the *plural* form of the verb is the underlying form (§7.2.2)
    - which, again, constitutes a mismatch with the cross-linguistic morphophonology of the sg-pl opposition



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