Beyond interface conditions

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1. Introduction

Chomsky (1964):

(1) OBSERVATIONAL ADEQUACY
generate all and only the acceptable strings, with all and only the interpretations that are in fact available for each string

(2) DESCRIPTIVE ADEQUACY
capture generalizations about the data, thus (hopefully) describing the internal mental state of the adult speaker

(3) EXPLANATORY ADEQUACY
explain how a child can come to have that mental state

. . . . . .

(4) DESIGN ADEQUACY (see Chomsky 1995, *et seq.*)
derive the properties of syntax from requirements imposed by the (semantic and morphophonological) interfaces

Criterion (4) can actually be understood at two different levels of granularity:

(5) a. *GRAMMAR*-LEVEL DESIGN ADEQUACY
the general properties of the syntactic computation are a response to demands of the semantic and morphophonological interfaces

b. *DERIVATION*-LEVEL DESIGN ADEQUACY
the steps that occur during any single (well-formed) derivation occur only to satisfy interface conditions imposed on the resulting structure

- Criterion (5b) is not merely a theory evaluation metric, or a methodological heuristic;
  - it is a substantive hypothesis about how derivations do (and don't) proceed; specifically, (5b) entails (6):

(6) basic syntactic operations (e.g. *Agree*, *Merge*) are neither 'obligatory' nor 'optional' in any meaningful sense

  - operations are deployed freely, constrained only by the need for the final, end-of-derivation structure to be admissible at the interface(s)

Today's agenda:

I. Show that, as a substantive hypothesis about natural language, **(5b) is false**; by which I mean:
  - (5b) stands in demonstrable conflict with observational and descriptive adequacy (1–2)

II. Suggest an alternative, and provide some additional evidence for it.

NOTE: This is not a "derivationalism vs. representationalism" issue —
- Any derivational mechanism can be restated representationally
  - at worst, one can encode the entire derivational history into the representation
- ↠ Viewed from this perspective, the point of today's talk is this:

  There are empirical domains where the output filters necessary for observational adequacy look nothing like what the semantic or morphophonological interfaces are supposed to care about.

Why you should care:

- Every time you hear the words 'uninterpretable feature', you are hearing someone implicitly subscribe to (5b)/(6)
- In fact, the entire minimalist feature calculus is built, in some sense, on Chomsky's (2000:121ff.) conjecture that φ-feature agreement obeys (5b)
  - other empirical domains were then modeled by analogy to (this conjectured behavior of) φ-agreement
    - e.g. negative concord; sequence-of-tense; the relation between a bound pronoun and its antecedent; *etc.*[1]

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*Kaqchikel data not otherwise attributed come from my meetings with Ana López de Mateo, a speaker from Patzún, who deserves my deepest gratitude for sharing data and judgments from her native language with me. Similar patterns have been noted in the literature concerning this and other Kichean languages (Aissen 2011, Davies & Sam-Colop 1990, Dayley 1978, 1985, Mondloch 1981, Norman & Campbell 1978, Pye 1989, Smith-Stark 1978, Stiebels 2006, a.o.). Unless otherwise stated, everything presented here holds equally of Kaqchikel, K'ichee' and Tz'utujil.

Thanks to Karlos Arregi, Rajesh Bhatt, Jessica Coon, Stephanie Harves, Sabine Iatridou, Andrew Nevins, David Pesetsky, Maria Polinsky, Milan Rezac, and Norvin Richards, for comments, discussions, and suggestions. I am deeply indebted to Lauren Eby Clemens, who brought the existence of these patterns to my attention, and to Robert Henderson, who has been a great help on all things Kichean. All errors are my own.

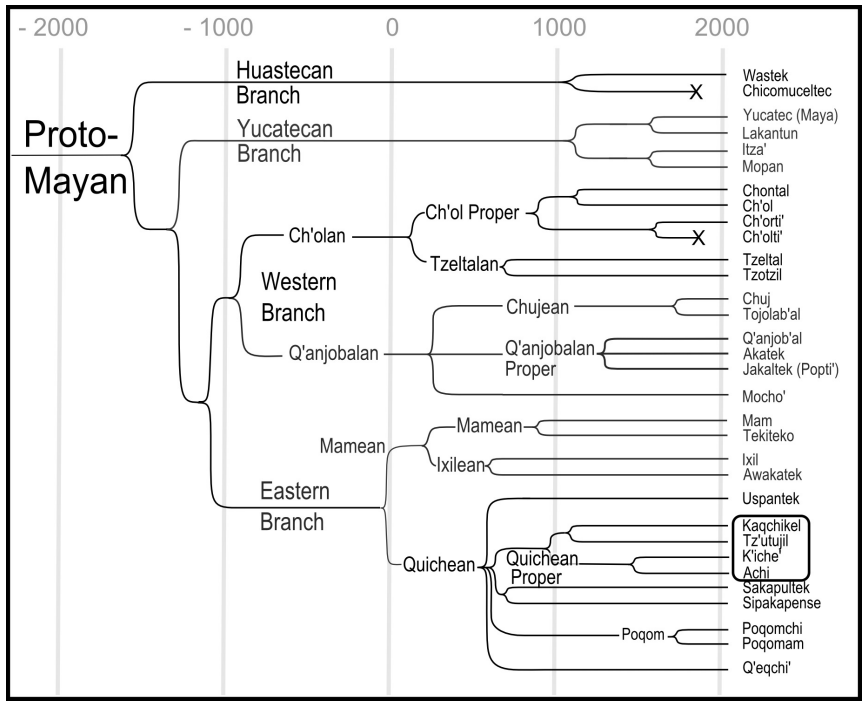
[1] See, for example: Kratzer 2009, Reuland 2011, Rooryck & Vanden Wyngaerd 2011, Zeijlstra 2004, 2008.

- ↦ As we will see, this conjecture regarding φ-agreement is simply incorrect
  - suggesting that the question of how features interact in syntax is ripe for a thorough rethinking

Outline for the remainder of the talk:

§2 – A quick intro to Kichean & to the *Agent-Focus* (AF) construction
§3 – The facts regarding agreement in Kichean AF
§4 – A working *probe-goal* analysis of these facts
§5 – Why these facts require going beyond 'interface conditions'
§6 – Proposal: the obligatory operation FIND(f)
§7 – Beyond agreement: obligatory operations in other domains
§8 – Conclusion

2. Kichean & the Agent-Focus construction



(source: <http://en.wikipedia.org/wiki/Mayan_languages>; accessed Dec 2010)

2.1. Some basics of Kichean

- Kichean ('Quichean'): a branch of the Mayan language family
  - narrowly defined, includes: Kaqchikel, K'ichee', Tz'utujil, and Achi' (all spoken in Guatemala)
  - approx. 2.8 million speakers in total
- Some general properties of Kichean, shared with the rest of Mayan:
  - head marking (lacks overt case morphology on nominals)
  - ergative-absolutive alignment in the agreement system

(7) a. ri achin x-∅-uk'lun (Kaqchikel)[2]
the man COM-**3sg.ABS**-arrive
'The man arrived.'

b. rat x-**at**-uk'lun
you(sg.) COM-**2sg.ABS**-arrive
'You(sg.) arrived.'

(8) a. rat x-∅-**aw**-ax-aj ri achin
you(sg.) COM-**3sg.ABS**-**2sg.ERG**-hear-ACT the man
'You(sg.) heard the man.'

b. ri achin x-**a**-**r**-ax-aj rat
the man COM-**2sg.ABS**-**3sg.ERG**-hear-ACT you(sg.)
'The man heard you(sg.).'

The 3sg.ABS marker ***a-*** in (8b) is a phonologically-predictable allomorph of ***at-*** in (7b).

- Kichean does not allow the formation of A-bar dependencies that target the transitive subject
  - an instance of so-called 'syntactic ergativity' (Manning 1996)
  - see Coon et al. 2014, Polinsky 2011, Weisser et al. 2012, for possible accounts of this restriction
- For the purposes of this talk, let us treat this restriction as a given —
  - and turn to what is perhaps the most common means employed in Kichean to circumvent it

[2] Abbreviations: ABS = absolutive; ACT = active voice; AF = Agent-Focus; AP = antipassive; AUG = augment; CL = clitic; CLF = classifier; COM = completive aspect; CONJ = conjoint; DISJ = disjoint; ERG = ergative; GEN = genitive; INC = incompletive aspect; NMZ = nominalization; OBL = oblique; PERF = perfect; pl/PL = plural; POSS = possessive; PREP = preposition; PRES = present; PRFV = perfective; PRT = participle; RN = relational noun; SC = small-clause; sg/SG = singular.

2.2. The Agent-Focus construction in Kichean

- Agent-Focus (AF): characterized by a dedicated suffix on the verb stem

(9) a. ja ri tz'i' x-∅-etzel-an ri sian *Kaqchikel AF*
FOC the dog COM-3sg.ABS-hate-AF the cat
'It was the dog that hated the cat.'

b. ja ri xoq x-∅-tz'et-ö ri achin
FOC the woman COM-3sg.ABS-see-AF the man
'It was the woman who saw the man.'

NB: While clefts are used in this and other English translations of AF, we will see that AF is decidedly **monoclausal**.

- Aissen (2011), Craig (1979) and Smith-Stark (1978): AF is *not* an antipassive
  - antipassives affect how the notional Theme is realized —
    - **(i)** it can be *demoted* (i.e., realized as an oblique/adjunct, or omitted altogether)**; or**
    - **(ii)** it can be incorporated (see, e.g., Aissen 2011, Mondloch 1981)
  - an example of (i) is given in (10) (cf. the English conative):

(10) atet x-**at**-ch'ey-o [**w**-xiin]$_{OBL}$ (Tz'utujil)
you(sg.) COM-**2SG.ABS**-hit-AP **1sg**.GEN-of
'It was you(sg.) who hit me' [*Dayley 1978:38*]

↦ None of these are true in the AF construction, which involves two non-oblique, full-fledged DP arguments
  - note the determiners in (9a–b), above

3. Agreement in Kichean AF

THE SECTION AT A GLANCE:

- the AF verb contains only one agreement marker
  - this single marker may reflect features of the subject or of the object, depending on the circumstances (§3.1)
- the choice of agreement marker for a given subject/object combination has been argued to follow a *salience hierarchy/scale* (see, e.g., Stiebels 2006)
  - ↦ but this characterization proves inadequate, failing to capture significant generalizations about the data (§3.2)

3.1. The facts

(11) a. ja rat x-**at/***∅-ax-an ri achin
FOC you(sg.) COM-**2sg/*3sg.ABS**-hear-AF the man
'It was you(sg.) that heard the man.'

b. ja ri achin x-**at/***∅-ax-an rat
FOC the man COM-**2sg/*3sg.ABS**-hear-AF you(sg.)
'It was the man that heard you(sg.).'

- HYPOTHESIS 1:
  - The verb in the AF construction has separate morphemes for subject- and object-agreement, just like a regular transitive
    - the marker for the *3sg* argument just happens to be null

↦ The problem:
  - In (11b), where the subject is *3sg* and the object is *2sg*, we would expect the agreement morphemes to be *a(w)-* + *r(u)/u-*
    - cf. (12) (a regular transitive), repeated from earlier:

(12) ri achin x-**a**-**r**-ax-aj rat *(regular transitive)*
the man COM-**2sg.ABS**-**3sg.ERG**-hear-ACT you(sg.)
'The man heard you(sg.).' *[=(8b)]*

- HYPOTHESIS 2:
  - The verb in AF has separate subject- and object-agreement markers, but for some reason, both are taken from the ABS series of markers

↦ The problem:

  - We can choose a combination of subject & object that would yield—even on this hypothesis—two non-null agreement markers:

(13) rat x-**e**'-aw-ax-aj rje' *(regular transitive)*
you(sg.) COM-**3pl.ABS**-2sg.ERG-hear-ACT them
'You(sg.) heard them.'

  - But observe the AF counterpart of (13):

(14) ja rat x-**at**-ax-an rje'
FOC you(sg.) COM-**2sg.ABS**-hear-AF them
'It was you(sg.) who heard them.'

    – if HYPOTHESIS 2 were correct, we would expect **x-**e**'-**at**-ax-an* or **x-**at**-**e**'-ax-an*

↦ **CONCLUSION:**

  - The AF verb has only one agreement slot, and it is occupied by a marker taken from the absolutive agreement paradigm
    – regardless of whether it is the subject or the object whose φ-features are reflected by this marker

. . . . . .

⇒ Given two non-oblique core arguments, but only one agreement slot:
How does Kichean choose which argument controls agreement in AF?

As we've seen, the answer is not as simple as "the subject" or "the object"…

- (11a–b), above: *2sg* ≫ *3sg*
(where '≫' means 'takes precedence over', or 'preempts')
- (15a–b): *1sg* ≫ *3sg*, as well

(15) a. ja yïn x-**in/***∅-ax-an ri achin
FOC me COM-**1sg/*3sg.ABS**-hear-AF the man
'It was me that heard the man.'

b. ja ri achin x-**in/***∅-ax-an yïn
FOC the man COM-**1sg/*3sg.ABS**-hear-AF me
'It was the man that heard me.'

- (16a–b): *3pl* ≫ *3sg*[3]

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

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

- "Person rules all": *1st/2nd person* ≫ *3rd person* regardless of number
  - i.e., *1st/2nd person* args control agr. in both PERSON and NUMBER

(17) a. ja yïn x-**i/*oj**-tz'et-ö rje'
FOC me COM-**1sg/*1pl.ABS**-see-AF them
'It was me who saw them.'

b. ja rje' x-**i/*oj**-tz'et-ö yïn
FOC them COM-**1sg/*1pl.ABS**-see-AF me
'It was them who saw me.'

(18) a. ja röj x-**oj/*i**-tz'et-ö rja'
FOC us COM-**1pl/*1sg.ABS**-see-AF him
'It was us who saw him.'

b. ja rja' x-**oj/*i**-tz'et-ö röj
FOC him COM-**1pl/*1sg.ABS**-see-AF us
'It was him who saw us.'

  - (17–18) demonstrate *1st* + *3rd*; but the same is true of *2nd* + *3rd*

- Finally, *1st person* + *2nd person* → simply impossible in AF

(19) a. * ja rat x-**in/at/**∅-ax-an yïn
FOC you(sg.) COM-**1sg/2sg/3sg.ABS**-hear-AF me
Intended: 'It was you(sg.) that heard me.'

b. * ja yïn x-**in/at/**∅-ax-an rat
FOC me COM-**1sg/2sg/3sg.ABS**-hear-AF you(sg.)
Intended: 'It was me that heard you(sg.).'

[To get the target meanings in (19a–b), speakers resort to other constructions, e.g. true antipassives.]

[3]The behavior of plural agreement with inanimates in Kaqchikel follows a more complicated pattern, and appears at least in some cases to be optional. I therefore keep to animate arguments, here. Thanks to Robert Henderson and Daeyoung Sohn for their help with these data.

⇒ The resulting generalization:

(20) THE AF PERSON RESTRICTION
In the Kichean AF construction, at most one of the two core arguments can be 1st/2nd person.

NB: This generalization holds even for combinations of, e.g., *2sg+2sg* (with contrastive focus to circumvent the potential binding violation).

A NOTE ABOUT THE DATA YOU HAVE JUST SEEN

To the extent that there is a division between 'core' data and 'peripheral' data, these fall decidedly under the 'core' rubric.

- The judgments in question are very robust, having been replicated across different speakers of different Kichean languages (K'ichee', Kaqchikel, Tz'utujil) by different linguists (in different decades)
- There are no minimally different counterparts of these data points which are also acceptable; this is the only way to say these AF sentences
  - i.e., nothing along the lines of "sentence *X* is also okay if we substitute morpheme β for morpheme α"

3.2. On 'salience' hierarchies and scales

The facts in §3.1 have led some scholars to claim:

"Agreement in the Kichean AF construction obeys a 'salience' hierarchy or scale." ⇒ taking (21) to be a theoretical primitive:

(21) 1st/2nd person ≫ 3rd person plural ≫ 3rd person singular
[*Dayley 1978, Mondloch 1981, Norman & Campbell 1978, Smith-Stark 1978*]

- Some go even further, taking (21) to reflect 'cognitive salience'
  - e.g. Stiebels (2006)

. . . . . .

➻ While (21) is a perfectly useful shorthand to describe the facts in (14–18) —

- **there are at least four reasons to doubt it as an <u>account</u>:**

(i) Why would these effects surface nowhere else in the language?

(ii) The formal addressee pronoun in K'ichee' (a relative of Kaqchikel; exhibits the same behavior under AF)

> "[K'ichee'] has developed a 2nd person formal pronoun *['la'; O.P.]*, which does not behave as a 2nd person with respect to the salience hierarchy, i.e. it does not outrank 3rd person."
>
> [*Stiebels 2006:526, fn. 13*]

. . . . . .

At this juncture, one could offer the following retort —

The scale in (21) has been grammaticalized; so while it may have its origins in 'cognitive salience', it is not a realtime representation thereof.

➻ While (i)–(ii) are perhaps susceptible to such a retort, (iii)–(iv) are not:

. . . . . .

(iii) Nothing about a hierarchy like (21) predicts that two arguments with high 'salience' would not be able to co-occur

➻ we will see, in §4, an account that derives the AF person restriction while also accounting for the very effects that this 'salience' hierarchy was created to capture, in the first place

(iv) A device like (21) obscures an emergent generalization involving the morphophonological form of the markers themselves:

- by definition, (21) factors out the choice of agreement target from agreement itself
- it is an algorithm that —
  - *takes as its* INPUT: inventory of arguments in a given clause
  - *returns as its* OUTPUT: which one will be targeted for agreement

⇒ all else being equal, this predicts:
agreement in Kichean AF should be a uniform process but for the choice of agreement target

↦ that is not the case:

(22)

	1sg	1pl	2sg	2pl	3sg	3pl
strong pronoun	*yïn*	*röj*	*rat*	*rïx*	*rja'*	*rje'*
agreement marker	*i(n)-*	*oj-*	*a(t)-*	*ix-*	*∅-*	*e-*

(Kaqchikel)

NOTE: the segment [j] is a voiceless fricative, not a glide

- ***1st/2nd person* agreement markers (both *sg.* and *pl.*)**
  - truncated versions of strong pronouns:

(23) agreement marker = strong pronoun − initial approximant

- **this correspondence fails for *3sg/3pl* markers**
  - which by this logic should be: **ja'-* and **je'-* (rather than ∅ and *e-*, respectively)

Overall:

- A 'salience' hierarchy/scale is unexplanatory;
- Furthermore, it is descriptively inadequate.

⇒ We are in need of an alternative explanation for the facts that (21) was intended to capture

4. A probe-goal account of agreement in Kichean AF

4.1. Ingredients

(all argued for independently of Kichean, and of Mayan more generally)

(i) probing for PERSON and NUMBER features occur in separate derivational steps

[*Anagnostopoulou 2003, Béjar 2003, Laka 1993, Shlonsky 1989, Sigurðsson 1996, Taraldsen 1995, a.o.*]

- and PERSON comes first

[*all of the above; but see Sigurðsson & Holmberg 2008 for a dissenting opinion*]

(ii) clitics are reduced pronouns

[*cf. Arregi & Nevins 2008, 2012, Preminger 2009 on Basque*]

(iii) clitic doubling is a parameterized property of particular probes

[*Béjar & Rezac 2003, Harizanov 2014, Kramer 2014, Preminger 2009, a.o.*]

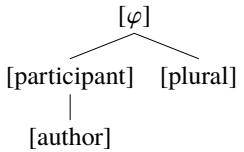
- depending on an EPP-like property of the probe

(iv) the space of φ-features is composed of privative features, e.g. [participant], [plural]

[*Béjar & Rezac 2009, Harley & Ritter 2002, McGinnis 2005; on number in particular, see, e.g., Kimball & Aissen 1971, Phillips et al. 2011*]

(24) A SIMPLIFIED φ-FEATURE GEOMETRY

[*adapted from Harley & Ritter 2002, McGinnis 2005*]



4.2. What's good for [*wh*] is good for [plural]/[participant], too

As it stands, agreement in Kichean AF may seem quite unusual —

- exhibiting what Nevins (2011) has termed 'omnivorous agreement'

But there is a perspective that makes these facts seem far less exceptional:

- RELATIVIZED PROBING:
  A probe H^0 seeking a feature [*f*] will skip XPs that do not bear [*f*].

(25) a. $[C^0$ [John] gave [what]$_{<+wh>}$ to [Bob]$]$

⟶ $[\mathbf{C^0}$ [John] gave **[what]**$_{<+wh>}$ to [Bob]$]$

⟶ What did John give to Bob?

b. $[C^0$ [John] gave [this dish] to [who]$_{<+wh>}]$

⟶ $[\mathbf{C^0}$ [John] gave [this dish] to **[who]**$_{<+wh>}]$

⟶ Who did John give this dish to?

↦ This is nothing more than Rizzi's (1990) *Relativized Minimality*

(also: Abels 2012, Boeckx & Jeong 2004, Frampton 1991, Rizzi 2001, Starke 2001)

⇒ A pair like (16a–b), repeated here, can thus be analyzed in the same way

(26) a. $[\#^0$ [them]$_{<+pl.>}$ V^0 [him]$]$

⟶ $[\mathbf{\#^0}$ **[them]**$_{<+pl.>}$ V^0 [him]$]$

⟶ ja **rje'** x-**e**-tz'et-ö rja'
FOC **them** COM-**3pl.ABS**-see-AF him
'It was them who saw him.' *[=(16a)]*

b. $[\#^0$ [him] V^0 [them]$_{<+pl.>}]$

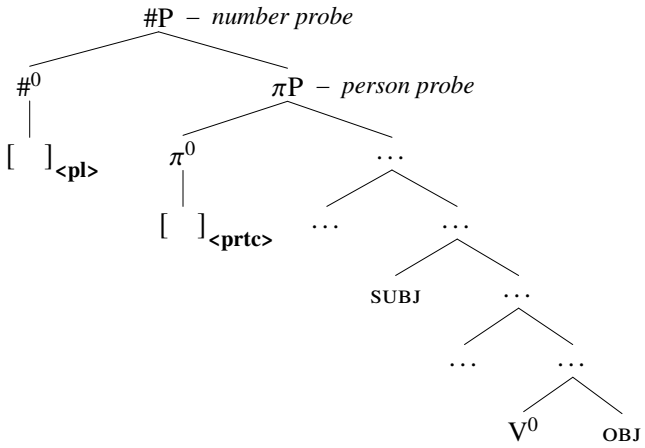
⟶ $[\mathbf{\#^0}$ [him] V^0 **[them]**$_{<+pl.>}]$

⟶ ja rja' x-**e**-tz'et-ö **rje'**
FOC him COM-**3pl.ABS**-see-AF **them**
'It was him who saw them.' *[=(16b)]*

- this assumes that at the relevant stage of the derivation, the probe is located above both the subject and the object;
- that is a plausible assumption given what we know about clausal syntax in Mayan (see, e.g., Aissen 1992)

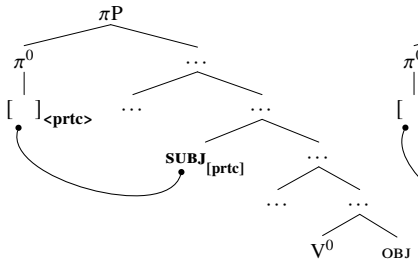
4.3. Analysis

(27) BASIC CLAUSE STRUCTURE IN KICHEAN AF

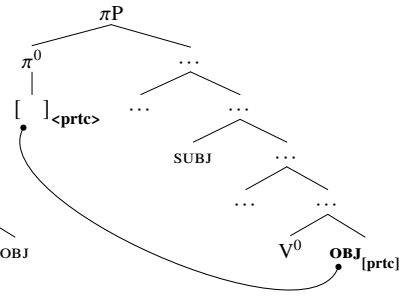


(28) **STEP 1:** PROBING FOR [PARTICIPANT]

a. 1ST/2ND PERSON SUBJECT, 3RD PERSON OBJECT

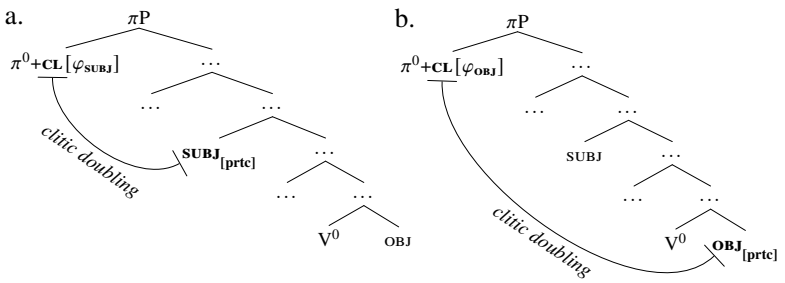


b. 3RD PERSON SUBJECT, 1ST/2ND PERSON OBJECT



- Following Béjar & Rezac's (2003) analysis of PCC effects in ditransitives:
  - π^0 triggers clitic doubling of whichever phrase it probes

(29) **STEP 1.5:** CLITIC DOUBLING OF PROBED-BY-π^0 PHRASE



⇒ Therefore, when one of the arguments is 1st/2nd person:

- a clitic(=reduced pronoun) will be created that matches the argument's φ-features

- Pronominalization treats φ-sets as complete, atomic units

  ⇒ both the PERSON and NUMBER features of this argument will be reflected in the clitic

↦ This is exactly the attested state of affairs:

(30) a. ja **yïn** x-**i**-tz'et-ö rje'
FOC **me** COM-**1sg.ABS**-see-AF them
'It was me who saw them.'

b. ja rje' x-**i**-tz'et-ö **yïn**
FOC them COM-**1sg.ABS**-see-AF **me**
'It was them who saw me.'
[=(17a–b)]

(31) a. ja **röj** x-**oj**-tz'et-ö rja'
FOC **us** COM-**1pl.ABS**-see-AF him
'It was us who saw him.'

b. ja rja' x-**oj**-tz'et-ö **röj**
FOC him COM-**1pl.ABS**-see-AF **us**
'It was him who saw us.'
[=(18a–b)]

. . . . . .

- Furthermore, this analysis derives the *AF person restriction*, given independently motivated assumptions

(32) PERSON LICENSING CONDITION (PLC)
A [participant] feature on a DP must take part in a valuation relation.
[*following Béjar & Rezac 2003*]

- The PLC is required, in one form or another, on any syntactic account of the *Person Case Constraint* (PCC; a.k.a. the **me-lui* constraint)

On the current analysis, the [participant] probe (π^0) only ever agrees with one DP argument.

⇒ This derives the AF person restriction, repeated here:

(33) THE AF PERSON RESTRICTION *[=(20)]*
In the Kichean AF construction, at most one of the two core arguments can be 1st/2nd person.

. . . . . .

What about derivations in which both arguments are 3rd person…?

- By the same *Relativized Minimality* logic: both DPs will be skipped by π^0

  - no 1st/2nd person DP will have been successfully probed by π^0

    ⇒ no clitic will be created

- This derives the absence of any pronoun-like material in the agreement complex when all arguments are 3rd person

(34) a. ja **ri tz'i'** x-∅-etzel-an **ri sian** *[=(9a–b)]*
FOC **the dog** COM-**3sg.ABS**-hate-AF **the cat**
'It was the dog that hated the cat.'

b. ja **ri xoq** x-∅-tz'et-ö **ri achin**
FOC **the woman** COM-**3sg.ABS**-see-AF **the man**
'It was the woman who saw the man.'

. . . . . .

- 1st/2nd person agreement markers in Kichean are not the overt spellout of π^0 (=the [participant] probe)

  - they are clitics *adjoined to* π^0

    (recall the morphophonological evidence for this; §3.2)

- No reason to think that the syntactic features on π^0 are not also valued when a [participant]-bearing argument is found

- Conceivably, as a matter of lexical idiosyncrasy, the exponents of valued features on π^0 all happen to be null

⇒ But the facts of Kichean lend themselves to the following generalization:

(35) MORPHOLOGICAL COMPETITION IN MAYAN ABS SLOT

a. the overt exponents of π^0, $\#^0$, and any clitics adjoined to them, all compete for a single morphological slot

b. a clitic will always beat out other competing morphological material

Evidence:

- In Tzotzil, a Mayan language not of the Kichean branch —
  - person agreement morphology can be prefixal or suffixal
  - the plural morpheme (*-ik*) is always a suffix
- ↦ When person agreement is suffixal—and only then—it preempts the appearance of the plural suffix (Aissen 1987, Woolford 2011)

. . . . . .

⇒ Following (35): the exponence of the [plural] probe ($\#^0$) can only surface when clitic doubling has not occurred

- which only happens when both arguments are 3rd person (see above)

- Assuming $\#^0$ is relativized to [plural] —

  (just like π^0 is relativized to [participant])

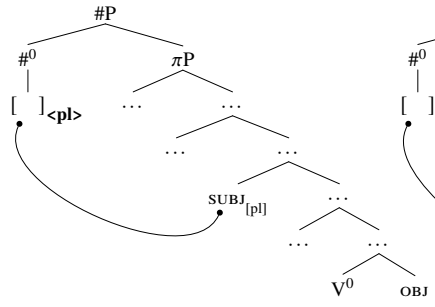
  — only DPs bearing [plural] will give rise to valuation:

(36) a. $\#^0$ with valued [plural]: /**e-**/

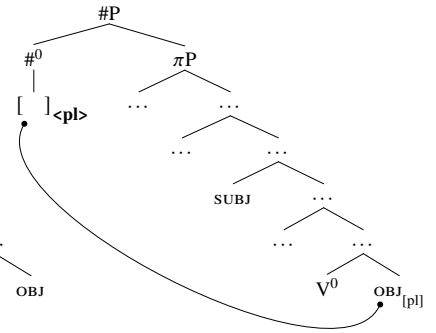
b. $\#^0$ without valued [plural]: ∅

(37) **STEP 2:** PROBING FOR [PLURAL]

a. PL SUBJECT, SG OBJECT



b. SG SUBJECT, PL OBJECT



- (37a–b) occur whether the arguments in question are 3rd person or not;

↦ **But given (35):**

it is only when both arguments are 3rd person —

(and thus, probing by π^0 does not give rise to a clitic)

— that the spellout of $\#^0$ (36a–b) will be surface-observable.

⇒ … and that's why person appears to "rule all."

4.4. Licensing asymmetries in Kichean AF

Despite the overall similarity between probing for [participant] and for [plural] (compare (37a–b) with (28a–b)) —

- There is one important difference, having to do with licensing.

In particular, there is no **"AF number restriction"** —

- A restriction that would mirror the AF person restriction, but forbid the co-occurrence of two *plural* arguments

(38) a. ja **rje'** x-oj-tz'et-ö **röj**
FOC **them** COM-1pl.ABS-see-AF **us**
'It was them who saw us.'

b. ja **röj** x-oj-tz'et-ö **rje'**
FOC **us** COM-1pl.ABS-see-AF **them**
'It was us who saw them.'

- This is derived, if we assume—with Béjar & Rezac (2003)—that the PLC (32) is a *sui generis* licensing requirement on [participant]
  - rather than, e.g., a licensing requirement on marked φ-features more generally (Baker 2011; see also Béjar & Rezac 2009)

⇒ a **1st/2nd person DP** that has not been agreed with will give rise to ungrammaticality; a **plural DP** that has not been agreed with will not

4.5. Summary

We have arrived at a *probe-goal* account of agreement in Kichean AF, which:

(i) captures the effects of 'salience' hierarchies/scales like (39)

(39) 1st/2nd person ≫ 3rd person plural ≫ 3rd person singular

- without recourse to an extrinsic device of this sort

(ii) derives the *AF person restriction* as a theorem

(iii) captures the distinctions in morphophonological form between 1st/2nd person agreement markers and 3rd person ones

(40)

	1sg	1pl	2sg	2pl	3sg	3pl
strong pronoun	*yïn*	*röj*	*rat*	*rïx*	*rja'*	*rje'*
agreement marker	*i(n)-*	*oj-*	*a(t)-*	*ix-*	*∅-*	*e-*

[=(22)]

(iv) is compatible with the fact that these so-called 'salience' effects occur nowhere in the language except in AF

(v) is compatible with the fact that it is the formal, rather than referential, properties of an expression that determine its behavior w.r.t. agreement

5. The inadequacy of 'interface conditions'

Agreement in Kichean AF is obligatory:

(41) a. * ja **rat** x-∅-ax-an ri achin *[≈(11a–b)]*
FOC **you(sg.)** COM-**3sg.ABS**-hear-AF the man
Intended: 'It was you(sg.) that heard the man.'

b. * ja ri achin x-∅-ax-an **rat**
FOC the man COM-**3sg.ABS**-hear-AF **you(sg.)**
Intended: 'It was the man that heard you(sg.).'

(42) a. * ja **rje'** x-∅-tz'et-ö rja' *[≈(16a–b)]*
FOC **them** COM-**3sg.ABS**-see-AF him
Intended: 'It was them who saw him.'

b. * ja rja' x-∅-tz'et-ö **rje'**
FOC him COM-**3sg.ABS**-see-AF **them**
Intended: 'It was him who saw them.'

↬ *Can this be derived from 'interface conditions'?*

. . . . . .

Here are schemata of a few derivations —

- and what we would need the interfaces' verdict to be in each case, based on the data surveyed in section 3

(43)

	PROBE	SUBJ	OBJ	*desired verdict*	
a.	#^{0} '*e-*'	*3pl*	*3sg*	✓	(agreement w/closest available *pl* target)
b.	#^{0} '*e-*'	*3sg*	*3pl*	✓	(agreement w/closest available *pl* target)
c.	#^{0} ∅	*3sg*	*3pl*	✗	("gratuitous non-agreement": *pl* target available) *[=ex. (42b)]*
d.	#^{0} ∅	*3sg*	*3sg*	✓	(no *pl* targets, no agreement)

What rules out "gratuitous non-agreement", as schematized in (43c)?

- Can "gratuitous non-agreement" be ruled out because of a property of the probe (#^{0})—e.g. an unchecked 'uninterpretable' feature—that causes ungrammaticality at the interface?

↦ **No.** — There are two possibilities to consider:

- If *3sg* targets can remove this property (check the 'uninterpretable' feature), then (44) should be good… contrary to fact:

(44)

PROBE	SUBJ	OBJ	*desired verdict*	
#^{0} ∅	*3sg*	*3pl*	✗	("forced" agreement w/*sg* target; cf. (43b), above)

(remember:
what we are evaluating here is a theory where *the only thing compelling agreement to occur is the interfaces' demands w.r.t. the probe's features*)

- If *3sg* targets cannot remove this property (check the 'uninterpretable' feature), and only *3pl* ones can, then (43d) (above) should be bad…
  - again, contrary to fact.

. . . . . .

Crucially, the same contradiction obtains *even if we avail ourselves of covert expletives, and/or other undetectable agreement targets*.

- Suppose #^{0} in (43d) successfully agrees with some XP β; then either:

(i) β is formally singular $\longrightarrow \perp$

- if #^{0} could target singular DPs, (42b) (as schematized in (44)) would be okay, contrary to fact

(ii) β is formally plural $\longrightarrow$ then #^{0}, having agreed with β, would be spelled out as '*e-*' (pl.) $\longrightarrow \perp$

- this is simply not so, in the relevant cases
  - e.g. (34a–b), as schematized in (43d)

. . . . . .

- Can "gratuitous non-agreement" be ruled out because of a property of one of the DP arguments—e.g. a lack of 'Case'—that causes ungrammaticality at the interface?

↦ **No.** If DPs in this language/construction *needed* to be agreed with, then (43a–b) would be bad—as would (45), below—contrary to fact.

(45)

PROBE	SUBJ	OBJ	*desired verdict*	
#^{0} '*e-*'	*3pl*	*3pl*	✓	(agreement w/closest available *pl* target)

. . . . . .

⇒ **There is no way to enforce the obligatoriness of agreement by checking properties of the probes and/or goals *at the interface(s)***

- and still make the right predictions w.r.t. data like (43–45)

On alternative analyses, and their respective shortcomings: see the APPENDIX.

- *Multiple Agree*
- Last Resort
- a lexical ambiguity approach

Interim conclusion:

- There is no adequate theory of agreement where the obligatoriness of the agreement operation is enforced exclusively through *interface conditions*
  (the need to check 'uninterpretable' features)

6. Proposal

6.1. Excluding outcomes by non-generation

- Consider *minimality* again —

(46) If $\alpha \gg \beta, \gamma$; $\beta \gg \gamma$; and $\gamma \not\gg \beta$:
['$\gg$' denotes c-command]

i. $\alpha \ldots \beta \ldots \gamma$

ii. * $\alpha \ldots \beta \ldots \gamma$

- This is obviously motivated above and beyond just looking at Kichean AF;
- But consider how derivations that violate minimality are ruled out:
  - (46.ii) is not ruled out due to any representational property of the probe and/or the goals on their own
    - if it were, there would be no empirical content to *minimality*
  - ↦ instead, it is ruled out simply because the grammar **does not produce derivations that involve a step like (46.ii)**

⇒ Thus: even in 'canonical' implementations of minimalist syntax —
- some outcomes are ruled out not because, once generated, they violate conditions on the featural content of probes/goals;
- ↦ but simply because they can never be generated, in the first place.

. . . . . .

6.2. The obligatory operation FIND(f)

(47) FIND(f): when a head H^0 with an unvalued feature f is merged, look for an XP bearing a value of f, and assign that value to H^0
[*Preminger 2014*]

- **FIND(f) is not *Agree*** —
  - It is triggered upon the merger of any H^0 that has unvalued features
    - not because the result will necessarily be more interface-amenable than if FIND(f) were never triggered;
    - but rather, because (47) itself has obligatory status in the grammar

↦ This is not an entirely new idea; some important predecessors:
- Schütze's (1997) *Accord Maximization Principle*
- Anand & Nevins' (2006) *maximized, but not obligatory* agreement
- López's (2007) *reactive/non-teleological* reformulation of *Agree*

. . . . . .

- Two examples —
  - in (48), finite T^0 enters the derivation bearing unvalued φ-features:

(48) a. The children were bobbing for apples.
b. T^0 [$_{v\text{P}}$ [the children] [$_{v'}$ …]]

  - consequently, FIND(φ) is obligatorily triggered when T^0 is merged
    - it finds the External Argument (*the children*), accessible & within the same phase, bearing plural φ-features

    ⇒ valuing the features on T^0 (thus, *'were'*)

  - in (49) we find "gratuitous non-agreement":

(49) * The children was bobbing for apples.

    - (49) is bad not because the probes and/or goals, unto themselves, bear properties that are inadmissible at the interface(s);
    - ↦ but because the grammar does not generate derivations in which *obligatory operations* like (47) are not initiated
    - and thus, there is no derivation generated by the grammar that leads to (49).

- The same holds of "gratuitous non-agreement" in Kichean, as well:

(50) * ja rja' x-∅-tz'et-ö **rje'** *[=(42b)]*
FOC him COM-**3sg.ABS**-see-AF **them**
Intended: 'It was him who saw them.'

  - there is no derivation of (50) generated by the grammar in which FIND([plural]) is not triggered immediately upon the merger of $\#^0$;
  - and thus, no derivation leading to this result.

↦ But crucially:

  - nothing in the definition of FIND(f) sets off any adverse effects if, for example, no suitable XP is found

- This is precisely what's going on in examples like (51):

(51) ja **ri xoq** x-∅-tz'et-ö **ri achin** *[=(9b)]*
FOC **the woman** COM-**3sg.ABS**-see-AF **the man**
'It was the woman who saw the man.'

  - here, both arguments are *3sg* —
    - and are therefore unsuitable targets for both π^0 and $\#^0$
      - which, as you'll recall, are parameterized in Kichean to target only XPs bearing [participant] and [plural], respectively (§4.2)

⇒ FIND([participant]) and FIND([plural]) are triggered upon the merger of π^0 and $\#^0$, respectively;

  - both scan the entire phase, locating no suitable XP target
  - no [participant] or [plural] values are copied onto the probes
    - resulting in what we have come to call '3rd person singular' morphology

↦ ***and the derivation continues unimpeded***.

7. Beyond agreement: *obligatory operations* in other domains

- Suppose we have some operation *Op*, which has particular structural conditions that must be met for it to be able to apply
- We have been discussing two models for enforcing the application of *Op*, schematized in (52–53)
  - NOTE: when we, as linguists, say, "*Op* is obligatory," we are usually just looking at the first(=lefthand) column of (52–53)

(52) INTERFACE CONDITIONS

		structural conditions on *Op*:	
		met	not met
Op applies:	yes	*grammaticality*	*ungrammaticality*
	no	*ungrammaticality*	***ungrammaticality***

(53) OBLIGATORY OPERATIONS

		structural conditions on *Op*:	
		met	not met
Op applies:	yes	*grammaticality*	*ungrammaticality*
	no	*ungrammaticality*	***grammaticality***

↦ We might therefore ask ourselves whether there are other domains (besides agreement) that seem to favor (53) over (52)

⇒ Examples:

  - the interaction of *Object Shift* with specificity
  - the *Definiteness Effect*
  - *wh*-movement out of embedded declaratives

- Object Shift & specificity

(54) ICELANDIC: VERB-MOVEMENT → SPECIFICITY CO-VARIES WITH OS

a. þau sýna$_1$ [viðtöl við Blair]$_2$ alltaf [$_{VP}$ t$_1$ t$_2$] klukkan ellefu.
they show interviews with Blair always clock eleven
~ 'Whenever there are interviews with Blair, they are always shown at 11 o'clock.' (***generic* reading**)

b. þau sýna$_1$ alltaf [$_{VP}$ t$_1$ [viðtöl við Blair]] klukkan ellefu.
they show always interviews with Blair clock eleven
~ 'It is always the case that they show interviews with Blair at 11 o'clock.' (***existential* reading**)

(55) IMMOBILE VERB → SPECIFICITY-IN-SITU POSSIBLE FOR "TRAPPED" OBJECT

a. * þau hafa [viðtöl við Blair]$_2$ alltaf [$_{VP}$ sýnt t$_2$] klukkan ellefu.
they have interviews with Blair always shown clock eleven

b. þau hafa alltaf [$_{VP}$ sýnt [viðtöl við Blair]] klukkan ellefu.
they have always shown interviews with Blair clock eleven
'They have always shown interviews with Blair at 11 o'clock.' (***ambiguous***)

[*Thráinsson 2007:78; examples modeled after Vikner 1997*]

- suppose that just like —

(56) unvalued feature $f \longrightarrow$ FIND(f)

- there was also —

(57) $\alpha_{[+\text{specific}]} \longrightarrow \text{OS}(\alpha)$

⇒ in configurations where the structural conditions for OS are met (e.g. the verb has moved high) —
  - a [+specific] argument not having moved out of VP is impossible(=ungrammaticality)
    - i.e., the lower-left corner of (53) ("gratuitous non-OS")

⇒ but when the structural conditions for OS are not met (e.g. the verb has remained low) —
  - a [+specific] argument staying in VP is just fine
    - i.e., the lower-right corner of (53)

- the *Definiteness Effect*:
  - if a DP is eligible for movement to subject position, it cannot be definite while remaining in situ
  - but a DP that is ineligible for movement to subject position (e.g. a dative in English) can be definite in situ w/o causing ill-formedness

- *wh*-movement out of embedded declaratives:
  - if there is a *wh*-phrase in the clause, it is must be displaced to [Spec,CP]
  - but if there is none, the lack of *wh*-displacement does not lead to a "crash" at C^0; it is tolerated

8. Conclusion

- The derivation-level version of 'design adequacy' ((5b), repeated below) can be ruled out on empirical grounds:

(5) a. *GRAMMAR*-LEVEL DESIGN ADEQUACY
the general properties of the syntactic computation are a response to demands of the semantic and morphophonological interfaces

b *DERIVATION*-LEVEL DESIGN ADEQUACY
the steps that occur in the course of any single (well-formed) derivation occur only to satisfy interface conditions imposed on the resulting structure

↦ We've seen an empirical domain where you cannot adhere to (5b) and still get the facts right.
  - specifically, we saw that 'interface conditions' are inadequate for deriving the obligatoriness of agreement in Kichean AF
    - this includes, but is not limited to, Chomsky's (2000, 2001) 'uninterpretable features' proposal

- An alternative, which is equipped to handle the facts, replaces 'interface conditions' (5b) with 'obligatory operations' (58):

(58) OBLIGATORY OPERATIONS
syntactic operations (e.g. agreement) are obligatorily triggered upon the merger of certain lexical items (e.g. a head bearing unvalued φ-features)

. . . . . .

- Independent support for the very same conclusion:
  - from empirical domains other than agreement proper:
    the interaction of *Object Shift* with specificity, the *Definiteness Effect*, *wh*-movement out of embedded declaratives
  - further cases involving agreement proper: [not shown today]
    - verbal morphosyntax in Zulu (based on Halpert 2012)
      - *in a nutshell:* there is a probe in Zulu that must agree with the closest unmoved XP inside *v*P, but no "crash" arises when *v*P is empty
    - the syntax of unergative verbs in Basque (Preminger 2012)
      - *in a nutshell:* Basque unergatives lack an 'implicit object' (contra much earlier work); but when φ-probing for an object fails, no "crash" arises

  see Preminger 2014, for details.

- **Bigger picture:** there is a need to rethink the nature of feature interaction in syntax more generally
  - φ-feature agreement was supposed to be the "poster child" for the interface-driven model of computation
  - in fact, the observation that φ-features make a semantic contribution on nominals but (seemingly) not on verbs is the very reason for the term 'uninterpretable' (see, e.g., Chomsky 1995:368)
  - ↦ and yet, as it turns out, φ-feature agreement cannot be modeled in this way, to begin with

⇒ It's time to stop using 'uninterpretable features' —
  - when talking about agreement, certainly;
  - when talking about other things, too. . . ?

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Appendix: Some alternatives, and their shortcomings

A.1. Multiple Agree

- Maybe the Kichean data we have analyzed in terms of Relativized Minimality (and the skipping of unsuitable arguments) actually involve agreement with *both* arguments
  - on this view, the arguments we previously thought were skipped would be agreed with, after all

↦ **Such an analysis isn't applicable to agreement in Kichean AF.**

- there are several reasons to reject a *Multiple Agree* analysis of these data; I'll present only one here
- one of the central tenets of *Multiple Agree* (Anagnostopoulou 2005, Hiraiwa 2001, 2004, a.o.):

(59) $\textsc{features}(y) \not\subseteq \textsc{features}(x) \Rightarrow {}^{*}MA(x,y)$

- but recall that agreement in Kichean AF is fully symmetrical
- so combinations like, e.g., (60)—as well as (62), below—are perfectly acceptable in this construction:

(60) a. SUBJECT: *3sg* { } [GOOD IN AF]
b. OBJECT: *3pl* {[plural]}

(61) a. SUBJECT: *3pl* {[plural]} [GOOD IN AF]
b. OBJECT: *3sg* { }

(62) a. SUBJECT: *3pl* {[plural]}
b. OBJECT: *1pl* {[plural], [participant], [author]}
[GOOD IN AF]

(63) a. SUBJECT: *1pl* {[plural], [participant], [author]}
b. OBJECT: *3pl* {[plural]}
[GOOD IN AF]

- of course, some combinations where the object is not a subset of the subject *are* ruled out (64); but the inverse of those (65) are also out:

(64) a. SUBJECT: *2sg* {[participant]} [BAD IN AF]
b. OBJECT: *1sg* {[participant], [author]}

(65) a. SUBJECT: *1sg* {[participant], [author]} [BAD IN AF]
b. OBJECT: *2sg* {[participant]}

⇒ ***Multiple Agree*** **both over- and under-generates w.r.t. Kichean AF**

A.2. Last Resort

- A *Last Resort* approach to agreement in Kichean AF would work; but it wouldn't change the overall conclusion —
  - that the obligatoriness of agreement cannot be enforced through 'interface conditions'

Here's why:

- Suppose there is a mechanism that is able to take features on a probe, and eliminate them if they have reached the interface(s) unchecked
  - e.g. Béjar's (2003) 'Default Valuation' operation

- To maintain observational adequacy, we would need to make sure that this mechanism is indeed deployed only as a *Last Resort*
  - otherwise, we would erroneously predict: optionality of agreement throughout (cf. (66))

(66) * ja rja' x-∅-tz'et-ö **rje'** *[=(50)]*
FOC him COM-**3sg.ABS**-see-AF **them**
Intended: 'It was him who saw them.'

- In other words, the syntactic computation needs to distinguish —
  - **(i)** cases where the probe has scanned the structure and failed to find a suitable target (as schematized in (67a)); ***from*** —
  - **(ii)** cases where there is an agreement target available, but agreement is still not instantiated (a.k.a. "gratuitous non-agreement"; (67b))

(67)

	PROBE	SUBJ	OBJ	*desired verdict*	
a.	$\boxed{\#^0}$ ∅	*3sg*	*3pl*	✗	("gratuitous non-agreement": *pl* target available) *[=ex. (66)]*
b.	$\boxed{\#^0}$ ∅	*3sg*	*3sg*	✓	(no *pl* targets, no agreement)

⇒ To achieve observational adequacy, the computational system needs to keep track of whether agreement has been *attempted* —
  - independently of whether the final representation does or doesn't contain, e.g., unchecked features

↦ Rendering any interface conditions fully redundant w.r.t. agreement.

To put it another way:

- If we put in place a Last Resort operation that turns representations that aren't interface-admissible into ones that are —
  - then there remain no ungrammatical utterances that are ruled out on the basis of the interface conditions themselves
    - e.g. due to unchecked 'uninterpretable' features
  - instead, ungrammatical utterances are ruled out because they have failed to meet the criterion for the Last Resort operation to apply

    ~ *"Did you try?"*

↦ And since that is exactly the point of today's talk, this is not really a counter-proposal.

A.3. A lexical ambiguity approach

- What if there are *two* variants of the relevant probe in Kichean, e.g., $\#^0$ —
  - one that is equipped with 'uninterpretable' features, and one that is "bare"

NB: Such lexical ambiguity is routinely posited in the analysis of declarative C^0 in long-distance *wh*-movement (cf. Chomsky 2000, 2001, McCloskey 2002).

- We have already seen that there is no absolute requirement for *pl* arguments to be agreed with in Kichean:

(68)

PROBE	SUBJ	OBJ	*desired verdict*	
$\boxed{\#^0}$ '*e-*'	*3pl*	***3pl***	✓	(agreement w/closest available *pl* target)

[≈(45)]

⇒ As far as the interfaces are concerned, then, there should be nothing wrong with selecting the feature-bare variant of $\#^0$ —
  - even in the presence of one or more viable *pl* agreement targets

(since there is no requirement on the part of *pl* targets to be agreed with)

↦ This falsely predicts that agreement in Kichean would be optional throughout.
  - and note: *"if there is a [plural]-bearing DP within the c-command domain of, and in the same phase as, $\#^0$, then you must select the feature-equipped variant of $\#^0$"* is not an interface condition!