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 \( \varphi \)-feature agreement obeys (5b)
  ○ other empirical domains were then modeled by analogy to (this conjectured behavior of) \( \varphi \)-agreement
    – e.g. negative concord; sequence-of-tense; the relation between a bound pronoun and its antecedent; etc. 1

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

2.1. Some basics of Kichean

- Kichean (‘Quichean’): a branch of the Mayan language family
  - narrowly defined, includes: Kaqchikel, K’iche’, 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-ϕ-uk’lun
    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-ϕ-aw-ax-aj
    you(sg.) com-3sg.abs-2sg.erg-hear-act
    ‘You(sg.) heard the man.’

    b. ri achin x-a-r-ax-aj
    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

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; nom = nominalization; obl = oblique; perf = perfect; pl/pl. = plural; poss = possessive; prep = preposition; pres = present; prfv = perfective; part = 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 tzi’/ f.sc/o.sc/c.sc/com-3sg.abs-hate-af/rithe the dog ‘It was the dog that hated the cat.’
   b. ja ri xoq x-x-tz’et-ö/ f.sc/o.sc/m.sc/3sg.abs-see-af/rithe the woman ‘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/*φ-ax-an/ f.sc/o.sc/m.sc/2sg/*3sg.abs-hit-af/rithe the you(sg.) ‘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/*φ-ax-an/ f.sc/o.sc/m.sc/3sg.abs-hear-af/rithe the man you(sg.) ‘It was you(sg.) that heard the man.’
   b. ja ri achin x-at/*φ-ax-an/ f.sc/o.sc/m.sc/3sg.abs-hear-af/rithe you(sg.) the man ‘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/ f.sc/o.sc/m.sc/2sg.abs-3sg.erg-hear-act/rithe the man you(sg.) ‘The man heard you(sg.).’
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February 13, 2015
UCLA Linguistics Colloquium

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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 yín x-in/φ-ax-an rî achîn
foC me com-1sg/3sg.abs-hear-AF the man
‘It was me that heard the man.’
b. ja rî achîn x-in/φ-ax-an yín
foC the man com-1sg/3sg.abs-hear-AF me
‘It was the man that heard me.’

- (16a–b): 3pl ≫ 3sg

(16) 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.’

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

- (17–18) 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/φ-ax-an yín
foC you(sg.) com-1sg/2sg/3sg.abs-hear-AF me
Intended: ‘It was you(sg.) that heard me.’
b. * ja yín x-in/at/φ-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.]

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).

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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


• 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 account:

(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
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that is not the case:

<table>
<thead>
<tr>
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<th>2sg</th>
<th>2pl</th>
<th>3sg</th>
<th>3pl</th>
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<tbody>
<tr>
<td>strong pronoun</td>
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<td>røj</td>
<td>rat</td>
<td>rix</td>
<td>rja'</td>
<td>rje'</td>
</tr>
<tr>
<td>agreement marker</td>
<td>i(n)-</td>
<td>oj-</td>
<td>a(t)-</td>
<td>ix-</td>
<td>φ-</td>
<td>e-</td>
</tr>
</tbody>
</table>

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 φ 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


- and person comes first

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

(ii) clitics are reduced pronouns


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


- depending on an EPP-like property of the probe

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


[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]]$
    \[\Rightarrow\] $[C^0 \[John\] gave [what]_{<wh>} to [Bob]]$
    \[\uparrow\] What did John give to Bob?

  b. $[C^0 \[John\] gave [this dish] to [who]_{<wh>} ]$
    \[\Rightarrow\] $[C^0 \[John\] gave [this dish] to [who]_{<wh>} ]$
    \[\uparrow\] Who did John give this dish to?

⇒ This is nothing more than Rizzi’s (1990) Relativized Minimality

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

(26) a. $[\#^0 [ them]_{<ploc>} \ V^0 [ him]]$
    \[\Rightarrow\] $[\#^0 [ them]_{<ploc>} \ V^0 [ him]]$
    \[\uparrow\] ja $rje’$ x-e-tz’et-{ö} $rja’$
    foc them COM-3pl.abs-see-AF him
    ‘It was them who saw him.’ $\Rightarrow(16a)$

  b. $[\#^0 [ him] \ V^0 [ them]_{<ploc>} ]$
    \[\Rightarrow\] $[\#^0 [ him] \ V^0 [ them]_{<ploc>} ]$
    \[\uparrow\] ja $rja’$ x-e-tz’et-{ö} $rje’$
    foc him COM-3pl.abs-see-AF them
    ‘It was him who saw them.’ $\Rightarrow(16b)$

- 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

```
#P - number probe
    #P
<branch>
    πP - person probe
        πP
        \[\uparrow\]
        \[\downarrow\]<ploc>
        \[\downarrow\]<prtc>
        \[\downarrow\]<ploc>
        SUBJ
        \[\downarrow\]
        \[\downarrow\]
        V^0
        OBJ
```

(28) STEP 1: PROBING FOR [PARTICIPANT]

a. 1ST/2ND PERSON SUBJECT,

b. 3RD PERSON SUBJECT,

3RD PERSON OBJECT

1ST/2ND PERSON OBJECT

- Following Béjar & Rezac’s (2003) analysis of PCC effects in ditransitives:
  - $\pi^0$ triggers clitic doubling of whichever phrase it probes
(29) **STEP 1.5:** CLITIC DOUBLING OF PROBED-BY-\(\pi^0\) PHRASE

\[
\begin{align*}
\text{a.} & \quad \pi^P \\
\text{b.} & \quad \pi^P \\
\end{align*}
\]

\[\pi^o + \text{CL[}\phi_{\text{val}}]\]

\[\text{SUBJ[prtc]} \]

\[\text{V}^0 \]

\[\text{OBJ} \]

- Therefore, when one of the arguments is 1st/2nd person:
  - a clitic(=reduced pronoun) will be created that matches the argument’s \(\phi\)-features
- Pronominalization treats \(\phi\)-sets as complete, atomic units
  - both the person and number features of this argument will be reflected in the clitic

\[
\begin{align*}
\text{a.} \quad \pi \quad \text{π}_0 + \text{CL[ϕ]} \\
\text{b.} \quad \pi \quad \text{π}_0 + \text{CL[ϕ]} \\
\end{align*}
\]

\[\text{SUBJ[prtc]} \]

\[\text{V}^0 \]

\[\text{OBJ[prtc]} \]

- This is exactly the attested state of affairs:

\[
\begin{align*}
\text{a.} \quad \text{yin x-i-tz’et-ö rje’} \quad \text{FOC me COM-3sg.abs-see-AF them} \\
\text{b.} \quad \text{rje’ x-i-tz’et-ö yin} \quad \text{FOC them COM-3sg.abs-see-AF me} \\
\end{align*}
\]

- ‘It was me who saw them.’

\[
\begin{align*}
\text{a.} \quad \text{roj x-oj-tz’et-ö rja’} \quad \text{FOC us COM-3pl.abs-see-AF him} \\
\text{b.} \quad \text{rja’ x-oj-tz’et-ö roj} \quad \text{FOC him COM-3pl.abs-see-AF us} \\
\end{align*}
\]

- ‘It was us who saw him.’

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

\[
\begin{align*}
\text{a.} \quad \text{rizh’i’ x-φ-etzel-an rjian} \quad \text{FOC the dog COM-3sg.abs-hate-AF the cat} \\
\text{b.} \quad \text{rja’ x-oj-tz’et-ö rjian} \quad \text{FOC the woman COM-3sg.abs-see-AF the man} \\
\end{align*}
\]

- ‘It was the dog that hated the cat.’

- ‘It was the woman who saw the man.’

- **1st/2nd person agreement markers in Kichean are not the overt spellout of \(\pi^0\) (=the [participant] probe)
- they are clitics adjoined to \(\pi^0\)
  (recall the morphophonological evidence for this; §3.2)
- No reason to think that the syntactic features on \(\pi^0\) are not also valued when a [participant]-bearing argument is found
- Conceivably, as a matter of lexical idiosyncrasy, the exponents of valued features on \(\pi^0\) all happen to be null

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

\[\Rightarrow\text{This derives the AF person restriction, repeated here:}\]

(33) **THE AF PERSON RESTRICTION**  \[\Rightarrow(20)\]

In the Kichean AF construction, at most one of the two core arguments can be 1st/2nd person.

\[
\begin{align*}
\text{a.} \quad \text{ja yiy x-i-tz’et-ö rje’} \quad \text{FOC me COM-3sg.abs-see-AF them} \\
\text{b.} \quad \text{rje’ x-i-tz’et-ö yin} \quad \text{FOC them COM-3sg.abs-see-AF me} \\
\end{align*}
\]

‘It was me who saw them.’

\[
\begin{align*}
\text{a.} \quad \text{ra’ x-oj-tz’et-ö ria’} \quad \text{FOC us COM-3pl.abs-see-AF him} \\
\text{b.} \quad \text{rja’ x-oj-tz’et-ö roj} \quad \text{FOC him COM-3pl.abs-see-AF us} \\
\end{align*}
\]

‘It was us who saw him.’

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

(35) **morphological competition in Mayan ABS slot**

a. the overt exponents of π⁰, #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 π⁰ 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]: ø

⇒ But given (35):

it is only when both arguments are 3rd person —

(and thus, probing by π⁰ 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

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

<table>
<thead>
<tr>
<th>a. PL SUBJECT, SG OBJECT</th>
<th>b. SG SUBJECT, PL OBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

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

⇒ **But given (35):**

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⇒ But given (35):

- it is only when both arguments are 3rd person —
  - (and thus, probing by π⁰ 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.”

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⇒ But given (35):

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(38) a. ja **rje’** x-oj-tz’et-ö **rōj**

   FOC them com-1pl.abs-see-AF us

   ‘It was them who saw us.’

b. ja **rōj** 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

<table>
<thead>
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<th>1pl</th>
<th>2sg</th>
<th>2pl</th>
<th>3sg</th>
<th>3pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>strong pronoun</td>
<td>yín</td>
<td>rôj</td>
<td>rat</td>
<td>rix</td>
<td>rja’</td>
<td>rje’</td>
</tr>
<tr>
<td>agreement marker</td>
<td>i(n)</td>
<td>oj-</td>
<td>a(t)</td>
<td>ix-</td>
<td>ϕ-</td>
<td>e-</td>
</tr>
</tbody>
</table>

(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-ϕ-ax-an ri achin  x-xφ-ax-an 3sg. hear-AF the man
      f oc you(sg.) com-3sg.abs -hear-AF the man
      Intended: 'It was you(sg.) that heard the man.'

b. * ja ri achin x-ϕ-ax-an rat
      f oc the man com-3sg.abs -hear-AF you(sg.)
      Intended: 'It was the man that heard you(sg.).'

(42) a. * ja rje’ x-ϕ-tz’et-ö rja’
      f oc them com-3sg.abs -see-AF him
      Intended: 'It was them who saw him.'

b. * ja rja’ x-ϕ-tz’et-ö rje’
      f oc 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)

<table>
<thead>
<tr>
<th>PROBE</th>
<th>SUBJ</th>
<th>OBJ</th>
<th>desired verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>#0</td>
<td>'e'</td>
<td>3pl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3sg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(agreement w/closest available pl target)</td>
</tr>
<tr>
<td>b.</td>
<td>#0</td>
<td>'e'</td>
<td>3sg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3pl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(agreement w/closest available pl target)</td>
</tr>
<tr>
<td>c.</td>
<td>φ</td>
<td>3sg</td>
<td>3pl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(”gratuitous non-agreement”: pl target available) [=ex. (42b)]</td>
</tr>
<tr>
<td>d.</td>
<td>#0</td>
<td>φ</td>
<td>3sg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3sg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(no pl targets, no agreement)</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>PROBE</th>
<th>SUBJ</th>
<th>OBJ</th>
<th>desired verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td>#0</td>
<td>φ</td>
<td>3sg</td>
<td>3pl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(”forced” agreement w/sg target; cf. (43b), above)</td>
</tr>
</tbody>
</table>

(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:

  1. β is formally singular \(\rightarrow\) ⊥
     - if #0 could target singular DPs, (42b) (as schematized in (44)) would be okay, contrary to fact

  2. β is formally plural \(\rightarrow\) then #0, having agreed with β, would be spelled out as ‘e-’ (pl.) \(\rightarrow\) ⊥
     - 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)

<table>
<thead>
<tr>
<th>PROBE</th>
<th>SUBJ</th>
<th>OBJ</th>
<th>desired verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td>#0</td>
<td>'e-'</td>
<td>3pl</td>
<td>3pl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(agreement w/closest available pl target)</td>
</tr>
</tbody>
</table>

⇒ 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)

✓ §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 /f.sc/i.sc/n.sc/d.sc (/f/)
✓ §7 – Beyond agreement: obligatory operations in other domains
✓ §8 – Conclusion

6. Proposal

6.1. Excluding outcomes by non-generation
- Consider minimality again —

(46) If α ≫ β; γ; β ≫ γ; and γ ≫ β: i. α ... β ... γ
   ['≃' denotes c-command]
   ii. * α ... β ... γ

- 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 H0 with an unvalued feature f is merged, look for an XP bearing a value of f, and assign that value to H0
[Preminger 2014]

- find(f) is not Agree —
  ○ It is triggered upon the merger of any H0 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 T0 enters the derivation bearing unvalued ϕ-features:

(48) a. The children were bobbing for apples.
   b. T0 [vP [the children] [v' ... ]]
  ○ consequently, find(ϕ) is obligatorily triggered when T0 is merged
    - it finds the External Argument (the children), accessible & within the same phase, bearing plural ϕ-features
    ⇒ valuing the features on T0 (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).
Beyond interface conditions

• The same holds of “gratuitous non-agreement” in Kichean, as well:

(50) * ja rja’ x-φ-tz’et-ö rje’
   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-φ-tz’et-ö ri achin
   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 π0 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 π0 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 (=leflhand) column of (52–53)

(52) INTERFACE CONDITIONS

<table>
<thead>
<tr>
<th>structural conditions on Op:</th>
<th>met</th>
<th>not met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Op applies</td>
<td>yes</td>
<td>grammaticality</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>ungrammaticality</td>
</tr>
</tbody>
</table>

(53) OBLIGATORY OPERATIONS

<table>
<thead>
<tr>
<th>structural conditions on Op:</th>
<th>met</th>
<th>not met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Op applies</td>
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</tr>
<tr>
<td></td>
<td>no</td>
<td>ungrammaticality</td>
</tr>
</tbody>
</table>

** 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

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✓ §8 – Conclusion
Beyond interface conditions

- Object Shift & specificity

(54) Icelandic: verb-movement \(\rightarrow\) specificity co-varies with OS

a. þau sýna [viðtöl við Blair] alltaf [VP t₁ t₂] 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; alltaf [VP t₁ [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 \(\rightarrow\) specificity-in-situ possible for “trapped” object

   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 \(f \rightarrow \text{find}(f)\)

- there was also —

(57) \(α_{[+specific]} \rightarrow \text{os}(α)\)

⇒ in configurations where the structural conditions for os are met (e.g. the verb has moved high) —
  o 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) —
  o a [+specific] argument staying in VP is just fine
    ~ i.e., the lower-right corner of (53)

- the Definiteness Effect:
  o if a DP is eligible for movement to subject position, it cannot be definite while remaining in situ
  o 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:
  o if there is a \(wh\)-phrase in the clause, it must be displaced to [Spec,CP]
  o but if there is none, the lack of \(wh\)-displacement does not lead to a “crash” at C₀; 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.
  o specifically, we saw that ‘interface conditions’ are inadequate for deriving the obligatoryness 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 vP, but no “crash” arises when vP 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…?

---

**References**


Beyond interface conditions


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.):

  \[(59) \text{features}(y) \notin \text{features}(x) \Rightarrow *MA(x, y)\]

- 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:

  \[(60) a. \text{subject: 3sg } \{ \} \quad \text{[good in AF]} \]
  \[b. \text{object: 3pl } \{ [\text{plural}] \} \quad \text{[good in AF]} \]

  \[(61) a. \text{subject: 3pl } \{ [\text{plural}] \} \quad \text{[good in AF]} \]
  \[b. \text{object: 3sg } \{ \} \quad \text{[good in AF]} \]

  \[(62) a. \text{subject: 3pl } \{ [\text{plural}] \} \quad \text{[good in AF]} \]
  \[b. \text{object: 1pl } \{ [\text{plural}, [\text{participant}], [\text{author}]] \} \quad \text{[good in AF]} \]

  \[(63) a. \text{subject: 1pl } \{ [\text{plural}, [\text{participant}], [\text{author}]] \} \quad \text{[good in AF]} \]
  \[b. \text{object: 3pl } \{ [\text{plural}] \} \quad \text{[good in AF]} \]

- 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:

  \[(64) a. \text{subject: 2sg } \{ [\text{participant}] \} \quad \text{[bad in AF]} \]
  \[b. \text{object: 1sg } \{ [\text{participant}, [\text{author}]] \} \quad \text{[bad in AF]} \]

  \[(65) a. \text{subject: 1sg } \{ [\text{participant}, [\text{author}]] \} \quad \text{[bad in AF]} \]
  \[b. \text{object: 2sg } \{ [\text{participant}] \} \quad \text{[bad in AF]} \]

  ⇒ \text{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-φ-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))

\[(67)\]  

<table>
<thead>
<tr>
<th>PROBE</th>
<th>SUBJ</th>
<th>OBJ</th>
<th>desired verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ## φ 3sg 3pl ×</td>
<td>(“gratuitous non-agreement”: pl target available) [=ex. (66)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ## φ 3sg 3sg ✓</td>
<td>(no pl targets, no agreement)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⇒ 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., \#\# —
  ○ one that is equipped with ‘uninterpretable’ features, and one that is “bare”

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

\[(68)\]

<table>
<thead>
<tr>
<th>PROBE</th>
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<th>OBJ</th>
<th>desired verdict</th>
</tr>
</thead>
<tbody>
<tr>
<td>## 'e-' 3pl 3pl ✓</td>
<td>(agreement w/closest available pl target) [=ex. (66)]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⇒ As far as the interfaces are concerned, then, there should be nothing wrong with selecting the feature-bare variant of \#\# —
  ○ 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 \#\#” is not an interface condition!