

# Interaction and satisfaction in $\phi$ -agreement

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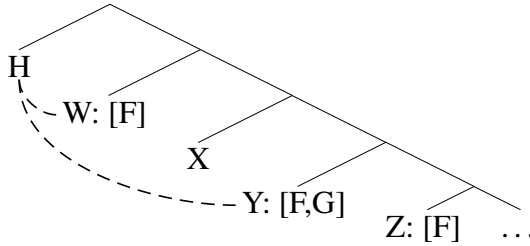
## 1 Introduction: interaction and satisfaction

- We can understand the operation Agree in terms of *search*, *copying* and *valuation* steps, each of which involves features in some way:
  - (1) a. *Search*. A probe initiates a search for an element with matching features (a goal).  
b. *Copy*. Features are copied from the goal to the probe.  
c. *Valuation*. The probe's features are valued, and the search is halted.
- The usual assumption is that the features involved in each step are the same.
- I argue that the usual assumption is incorrect, and offer an alternative that draws on two influential recent ideas about Agree(ment).
  - (2) Probes can be specified for particular features in the  $\phi$  set, e.g. [PL] or [SPKR] (Béjar 2003, Rezac 2003, Béjar and Rezac 2003, 2009)
  - (3) The component steps of Agree are subject at least partially distinct conditions, so that (for instance) Search is obligatory, but Valuation is not (Preminger, 2011a)
- Introducing some new terms: The conditions on a probe's *interaction* should be differentiated from those on its *satisfaction*
  - (4) **Interaction**: the search space is assessed in a structured way for goals with appropriate features; if such are found, features are copied to the probe.  
(= Search and, if appropriate, Copy)
  - (5) **Satisfaction**: unvalued features on the probe receive a value, and interaction stops.  
(= Valuation)  
(Restating Preminger 2011a: interaction is obligatory but satisfaction is not)
- My core empirical proposal is that interaction and satisfaction should be differentiated in featural terms (not just in terms of obligatoriness). In particular:
  - (6) A probe may interact with feature set F even if it may only be satisfied by feature set G, where  $F, G \subseteq \Phi$  (the set of  $\phi$ -features) and  $F \neq G$

(Satisfaction entails interaction: valuation of [uG] requires copying of G from a goal. The new proposal is that satisfaction features may be a *proper* subset of interaction features.)

- Schematically:

(7)



- ▷ Interaction with F: probing is initiated, [F] is copied to the probe
- ▷ Satisfaction by G: Interaction with [G] halts the search

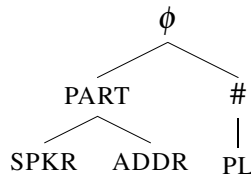
Suppose  $F = \Phi$  and  $G = [\text{ADDR}(\text{ESSEE})]$ :

H stops probing only when it encounters [ADDR], but it interacts with all  $\phi$  features in its domain until the search is terminated.

- Previous theories allow a probe to interact with features that do not satisfy it only under certain conditions:

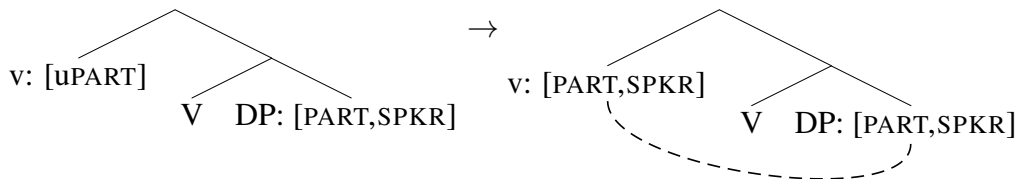
- ▷ Béjar and Rezac 2009: A probe satisfied by G interacts with features entailing G in a feature geometry

(8) A geometry for  $\phi$ :



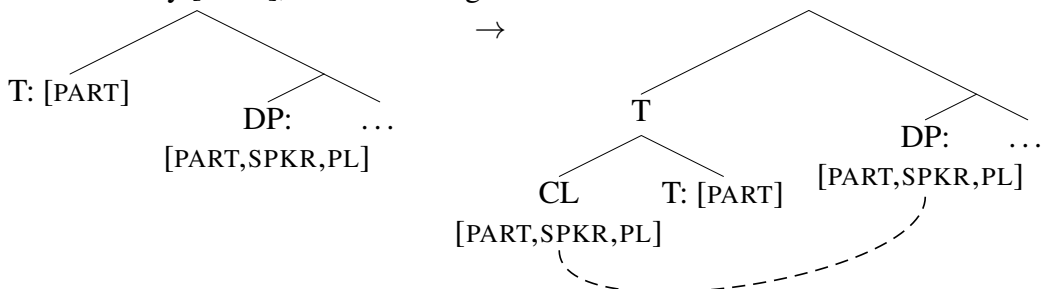
(based on Harley and Ritter 2002)

(9) Satisfaction by [PART], interaction with a feature entailing [PART]:



- ▷ Preminger 2011a: Additionally, a person probe may interact with number features when Agree triggers clitic doubling

(10) Satisfaction by [PART], clitic doubling:



- I will argue that the phenomenon is more general than these models allow, and that the best response is to regulate interaction and satisfaction in largely independent terms.

- ▷ A probe satisfied by G may interact with F regardless of the geometric relationship between G and F.
- ▷ A probe may interact with features that do not satisfy it even in agreement proper (not clitic doubling).

- **The evidence:** A pattern of complementizer agreement in Nez Perce:

- (11) a.  $\left\{ \begin{array}{l} \text{ke-m kaa } \textit{pro.2} \\ \text{C-2 then } \textit{pro.2} \end{array} \right\}$  cew'cew'-teetu *pro.1*  
 call-TAM *pro.1*  
**2 subj/1 obj:** When you call me
- b.  $\left\{ \begin{array}{l} \text{ke-m-ex kaa } \textit{pro.1} \\ \text{C-2-1 then } \textit{pro.1} \end{array} \right\}$  cew'cew'-teetu *pro.2*  
 call-TAM *pro.2*  
**1 subj/2 obj:** When I call you

- ▷ Satisfaction condition on C: [ADDR]
- ▷ Interaction condition on C:  $\Phi$

- Talk outline

2. An introduction to Nez Perce complementizer agreement (CA)
  - ▷ CA involves Agree
3. Interaction versus satisfaction
  - ▷ Person asymmetries: C interacts with [SPKR] but is only satisfied by [ADDR]
  - ▷ Number asymmetries: C interacts with [PL] but is only satisfied by [ADDR]
  - ▷ CA is not clitic doubling
4. Extending the account: goals and results of Agree
  - ▷ CA in relative clauses
  - ▷ Scrambling: why no effect on CA?
  - ▷ CA is indirect agreement. Agreement is feature movement.
5. Results of Agree: the morphological dimension
  - ▷ Sometimes Agree results in a structured list of feature-bundles.
  - ▷ Sometimes Agree results in a “bag of features”
6. Conclusions for the nature of Agree

## 2 Nez Perce complementizer agreement: preliminaries

### 2.1 Agreeing complementizers

- Nez Perce has a series of clause-initial functional elements which show agreement with first and second person arguments internal to the clause, including:

▷ Yes/no complementizer *weet(e)*

(12) **Weete-ex** *pro<sub>subj</sub>* ki-yo'qa?

Y.N-1 PRO.1SG go-TAM

Can I go?

(13) **Weete-m-ex** *pro<sub>agt</sub>* 'inii-yo'qa *pro<sub>goal</sub>* *pro<sub>theme</sub>*?

Y.N-2-1 PRO.1SG give-TAM PRO.2SG PRO.3SG

Can I give it to you?

▷  $\bar{A}$  complementizer *ke* (Deal, To appear a)

(14) Relative clauses

cickan yo $\hat{x}$  **ke-x** *pro<sub>subj</sub>* 'ew-'nii-ye *pro<sub>obj</sub>*  
blanket.NOM RP.NOM C-1 PRO.1SG 3OBJ-give-TAM PRO.3SG  
the blanket that I gave to her

(15) Wh-questions

'Ituu-ne **ke-x** *pro<sub>subj</sub>* 'ee-pi-se?  
what-ACC C-1 PRO.1SG 3OBJ-eat-TAM  
What am I eating?

(16) When-clauses

**ke-x** kaa *pro<sub>subj</sub>* 'e-cew'cew'-ice Angel-ne  
C-1 then PRO.1SG 3OBJ-telephone-TAM Angel-ACC  
when I call Angel

▷ Evidential *'eete*, conditional/ignorance marker *ku'*, negator *neecu'* ...

- Given the position and the function of these elements, I assume that they are heads in the C domain.

### 2.2 The basic pattern of complementizer agreement (CA)

- All 3rd person arguments: no agreement on C

(17) **ke** kaa Angel-nim pe-cew'cew'-teetu Tatlo-na  
C then Angel-ERG 3/3-telephone-TAM Tatlo-ACC  
**3sg/3sg**: when Angel calls Tatlo

- 1st person subject or object, all other arguments 3rd person: suffix *-(e)x*

- (18) a. **ke-x** kaa *pro<sub>subj</sub>* 'e-cew'cew'-teetu Angel-ne  
 C-1 then PRO.1SG 3OBJ-telephone-TAM Angel-ACC  
**1sg/3sg**: when I call Angel
- b. **ke-x** kaa Angel-nim hi-cew'cew'-teetu *pro<sub>obj</sub>*  
 C-1 then Angel-ERG 3SUBJ-telephone-TAM PRO.1SG  
**3sg/1sg**: when Angel calls me

- 2nd person subject or object, all other arguments 3rd person: suffix *-m*

- (19) a. **ke-m** kaa *pro<sub>subj</sub>* 'e-cew'cew'-teetu Angel-ne  
 C-2 then PRO.2SG 3OBJ-telephone-TAM Angel-ACC  
**2sg/3sg**: when you call Angel
- b. **ke-m** kaa Angel-nim hi-cew'cew'-teetu *pro<sub>obj</sub>*  
 C-2 then Angel-ERG 3SUBJ-telephone-TAM PRO.2SG  
**3sg/2sg**: when Angel calls you

- This is a pattern of *promiscuous* (Béjar 2003) or *omnivorous* (Nevins 2011) agreement in person features. (Béjar 2011, Preminger 2011a)

- (20) Omnivorous agreement (based on Nevins 2011)  
 An agreement morpheme dedicated to realizing [F] shows up under the condition that either – or both – of the subject and object is [F]

### 2.3 CA involves Agree

- Locality effects show that CA in some way involves Agree, a phase-bounded operation ("person agreement at a distance", Preminger 2011b; *pace* Baker 2008, 2011):
- No complementizer agreement into an embedded CP

- (21) ke(\*x) kaa Beth hi-nak-saqa [<sub>CP</sub> 'iin-e-cim *pro<sub>subj</sub>*  
 C-(\*1) then Beth.NOM 3SUBJ-think-TAM [ 1SG-ACC-only PRO.3SG  
 hi-weqy-uu-yu' ]  
 3SUBJ-rain-APPL-TAM ]  
 when Beth thought it was going to rain on only me

- No complementizer agreement into an adjunct / oblique / PP

- (22) ke(\*m) 'isi hii-we-s [<sub>PP</sub> 'im-im-x ] qetu kuhet  
 C-(\*2) who.NOM 3SUBJ-be-TAM [ 2SG-OBL-from ] more tall  
 someone who is taller than you

- Complementizer agreement with possessors is possible only for possessors in Spec,DP

Two ways to say ‘my mother’, and a correlation with possessor raising (Deal, 2013):

- (23) a. [<sub>DP</sub> ’iin-im ∅ [<sub>NP</sub> pike ]] *Analytic possessive*  
 [ D [ 1SG-GEN D [ mother ] ] ]  
 b. Possessor CA:  
 ke-x kaa [<sub>DP</sub> ’iin-im ∅ [<sub>NP</sub> pike ]] hi-pnim-ce  
 C-1 then [ 1SG-GEN D [ mother.NOM ] ] 3SUBJ-sleep-TAM  
 when my mother is sleeping  
 c. Possessor raises:  
 [<sub>DP</sub> ’iin-e ]<sub>i</sub> [<sub>DP</sub> t<sub>i</sub> pike ] hi-tqecimk-ey’-six titooqan-m.  
 [ 1SG-ACC ]<sub>i</sub> [ t<sub>i</sub> mother.NOM ] 3SUBJ-dislike-μ-TAM Indians-ERG  
 The Indians dislike my<sub>DO</sub> mother<sub>chomeur</sub>. (Rude, 1986, 122)
- (24) a. [<sub>DP</sub> ∅ [<sub>NP</sub> ne-’iic ]] *Synthetic possessive*  
 [ D [ 1SG-mother ] ]  
 b. No possessor CA:  
 ke(\*x) kaa [<sub>DP</sub> ∅ [<sub>NP</sub> ne-’iic ]] hi-pnim-ce  
 C-(\*1) then [ D [ 1SG-mother.NOM ] ] 3SUBJ-sleep-TAM  
 when my mother is sleeping  
 c. Possessor does not raise:  
 [<sub>DP</sub> Ne-’iic-ep ] pee-tqecimk-cix titooqan-m.  
 [ 1SG-mother-ACC ] 3/3-dislike-TAM Indians-ERG  
 The Indians dislike [my mother]<sub>DO</sub>. (Aoki, 1979)

- These effects are naturally explained if CA involves Agree, which is phase-bounded, and CPs, PPs, and DPs are phases.

## 2.4 No interaction between CA and standard subject agreement

- In addition to CA, Nez Perce shows verb agreement with subject and object. Agreement is on a nominative-accusative alignment. (Rude 1985, Deal To appear b)
- The presence of CA has no effect on subject (or object) agreement, and features in the two loci may freely mismatch:

- (25) ke-x kaa ’iin-im pike hi-pnim-ce *Possessor CA*  
 C-1 then 1SG-GEN mother 3SUBJ-sleep-TAM  
 when my mother is sleeping
- (26) ke-x kaa Angel-nim hi-cew’cew’-teetu *pro<sub>obj</sub>* *Object CA*  
 C-1 then Angel-ERG 3SUBJ-telephone-TAM PRO.1SG  
 when Angel calls me

- > The participation of C in Agree is independent of the behavior of lower subject agreement heads T / Agr / Infl (Haegeman and van Koppen 2012, *pace* Chomsky 2008).

### 3 Interaction vs. satisfaction

#### 3.1 Relativized probing and the 1/2 asymmetry

- Clauses with two [PART(ICIPANT)] arguments show an asymmetry in CA:

(27) 2nd person subject, 1st person object: agreement only with 2nd person

ke-m kaa *pro<sub>subj</sub>* cew'cew'-teetum *pro<sub>obj</sub>*  
 C-2 then PRO.2SG telephone-TAM PRO.1SG  
**2sg/1sg**: when you call me

(28) 1st person subject, 2nd person object: agreement with both

ke-m-ex kaa *pro<sub>subj</sub>* cew'cew'-teetu *pro<sub>obj</sub>*  
 C-2-1 then PRO.1SG telephone-TAM PRO.2SG  
**1sg/2sg**: when I call you

(29) **The 1/2 asymmetry:**

There is CA with both arguments when 1 is higher than 2, but only with 2 when 2 is higher than 1.

(Sidenote: the asymmetry is unaffected by changes in word order – See section 4.)

- The 1/2 asymmetry can be modeled in the system of Béjar and Rezac (2009) if C is a relativized probe bearing both [PART] and [ADDR]:

(30)  $\left\{ \begin{array}{l} \text{--- [PART, ADDR] ---} \\ \text{--- [PART] ---} \end{array} \right\}$   
 ke-m kaa *pro<sub>subj</sub>* cew'cew'-teetu *pro<sub>obj</sub>*  
 C-2 then PRO.2SG call-TAM PRO.1SG  
**2sg/1sg**: when you call me

> Interaction with a 2nd person subject fully satisfies the probe

(31)  $\left\{ \begin{array}{l} \text{----- [ADDR] -----} \\ \text{----- [PART] -----} \end{array} \right\}$   
 ke-m-ex kaa *pro<sub>subj</sub>* cew'cew'-teetu *pro<sub>obj</sub>*  
 C-2-1 then PRO.1SG call-TAM PRO.2SG  
**1sg/2sg**: when I call you

> Interaction with a 1st person satisfies [PART] only

> Interaction with a 2nd person object takes place to satisfy [ADDR]

- If the same feature set – [PART, ADDR] – is copied to the probe in both cases, why does C take two different forms?

- ▷ Béjar and Rezac (2009): A probe satisfied by F interacts with features entailing F
- ▷ The [PART] probe on C interacts with both [PART] and [SPKR] on a first person subject
- ▷ ke-m-ex (C-2-1) = C + [PART] + [ADDR] + [SPKR]

- Interim conclusion: one probing feature on C is [PART], and satisfaction by [PART] can lead to interaction with [SPKR].

### 3.2 Person, number, and 2nd person blocking

- In addition to the basic paradigm of person agreement, complementizers may show plural agreement via suffix *pe*. This, too, behaves omnivorously:

(32) ke-pe-m kaa *pro<sub>subj</sub>* 'e-cew'cew'i-nitee'nix Angel-ne  
 C-PL-2 then PRO.2PL 3OBJ-telephone-TAM Angel-ACC  
**2pl/3sg**: when you(pl) call Angel

(33) ke-pe-m kaa Angel-nim hi-cew'cew'-teetu *pro<sub>obj</sub>*  
 C-PL-2 then Angel-ERG 3SUBJ-telephone-TAM PRO.2PL  
**3sg/2pl**: when Angel calls you(pl)

- Number marking showcases a second separation between interaction and satisfaction:

(34) **Plural complementizer agreement generalization**  
 C bears plural suffix *pe* whenever [PL] is alongside or higher than [ADDR]

- A first person plural subject interacts with C in both person and number:

(35) ke-pe-m-ex kaa *pro<sub>subj</sub>* cew'cew'-tee'nix *pro<sub>obj</sub>*  
 C-PL-2-1 then PRO.1PL telephone-TAM PRO.2SG  
**1pl/2sg**: when we call you(sg)

- A third person plural subject interacts with C in number:

(36) ke-pe-m kaa Angel-nim kaa Tatlo-nm hi-cew'cew'-tee'nix *pro<sub>obj</sub>*  
 C-PL-2 then Angel-ERG and Tatlo-ERG 3SUBJ-telephone-TAM PRO.2SG  
**3pl/2sg**: when Angel and Tatlo call you(sg)

- But *pe* cannot appear when plural appears only lower than [ADDR]:

(37) ke-m kaa *pro<sub>subj</sub>* 'ee nees-cew'cew'-teetum *pro<sub>obj</sub>* (Compare (35))  
 C-2 then PRO.2SG 2SG.CL O.PL-telephone-TAM PRO.1PL  
**2sg/1pl**: When you(sg) call us

(38) ke-m kaa *pro<sub>subj</sub>* 'ee 'e-nees-cew'cew'tetu *pro<sub>obj</sub>* (Compare (36))  
 C-2 then PRO.2SG 2SG.CL 3OBJ-O.PL-telephone-TAM PRO.3PL  
**2sg/3pl**: when you(sg) call them

- The generalization about [PL] is similar to the generalization about [SPKR]: it's found if it's higher than [ADDR], but once the probe has interacted with [ADDR], probing stops.

(39) **2nd person blocking**:  
 C does not probe past a 2nd person argument. (subsumes the 1/2 asymmetry)



- 2nd person blocking describes the *satisfaction* conditions on C – C is satisfied by [ADDR].
- Above: C interacts with [SPKR] because C is satisfied by [PART], and [SPKR] entails [PART].

No similar move is possible for [PL]:

- ▷ if C bears [ADDR,PL]: no asymmetry between 1pl/2sg and 2sg/1pl; probing will stop only when both [ADDR] and [PL] have been located
  - ▷ if C bears [ADDR, $\phi$ ] or [ADDR,#]: no omnivorous number;  $\phi$  or # will be located on the highest argument, and only [ADDR] will be possibly probed for in the object
- What we need to say is that C has just one satisfaction condition – [ADDR] – which will make it stop probing.

However, it interacts with all  $\phi$  features encountered until probing stops (due to satisfaction, or exhaustion of possible goals).

### 3.3 *Against a clitic doubling analysis*

- The pattern of CA in number could potentially be modeled following Preminger (2011a) if
  - ▷ C bears [ADDR]
  - ▷ probing triggers clitic doubling, bringing along [SPKR] and [PL]
- There are several reasons why it's implausible that CA affixes are clitics:

A. Nez Perce has a set of uncontroversial 2nd person clitics, which are optional (cp. Kramer 2014), case- and TAM-invariant (cp. Arregi and Nevins 2008, Nevins 2011), impossible to coordinate or modify, and able to double full pronouns (cp. Cardinaletti and Starke 1999):

(40) Second person clitics

'ee	2nd person singular
'eetx	2nd person plural
kiye	1st person plural inclusive (1st person + 2nd person)

(41) *Pro<sub>subj</sub>* 'ime-né 'ee 'iyóóxo-sa.  
 PRO.1SG 2SG-ACC 2SG.CLITIC wait.for-TAM  
 I'm waiting for you (sg).

(42) 'Iim 'ee wee-s wepcúux.  
 2SG.NOM 2SG.CLITIC be-PRES smart  
 You (sg) are smart.

By the logic of Arregi and Nevins (2008)'s TAM-invariance test, clitics have the same form no matter what they are cliticized to.

Thus if 'ee/'eetx/kiye are clitics, 2nd person CA -m isn't.



(47) Omnivorous 2nd person CA

- a. cickan yo $\hat{x}$  ke-m *pro<sub>subj</sub>* Beth-ne 'ew-'nii-ye \_\_\_  
 blanket.NOM RP.NOM C-2 PRO.2SG Beth-ACC AGR-give-TAM \_\_\_  
 the blanket that you gave to Beth
- b. cickan yo $\hat{x}$  ke-m Beth-nim hi-'nii-ye *pro<sub>obj</sub>* \_\_\_  
 blanket.NOM RP.NOM C-2 Beth-ERG AGR-give-TAM PRO.2SG \_\_\_  
 the blanket that Beth gave to you

(48) The 1/2 asymmetry

- a. cickan yo $\hat{x}$  ke-m-ex *pro<sub>subj</sub>* 'inii-ye *pro<sub>obj</sub>* \_\_\_  
 blanket.NOM RP.NOM C-2-1 PRO.1SG give-TAM PRO.2SG \_\_\_  
 the blanket that I gave to you
- b. cickan yo $\hat{x}$  ke-m *pro<sub>subj</sub>* pii-'ni-me *pro<sub>obj</sub>* \_\_\_  
 blanket.NOM RP.NOM C-2 PRO.2SG AGR-give-TAM PRO.1SG \_\_\_  
 the blanket that you gave to me

- Deal (To appear a): TP is a phase (only) in relative clauses.

The puzzle:

- ▷ Why does TP phasehood not interfere with CA in relative clauses?
- ▷ If TP is a phase only in relative clauses, how do relative clauses and questions have the same CA pattern?

## 4.2 A puzzle about scrambling

- Nez Perce word order is very flexible; any order of S, V, and O is accepted and at least occasionally volunteered. (Rude 1992; Crook 1999; Deal 2010, pp. 21-22)

(49) **Invisibility of scrambling generalization:**

Word order variation does not affect agreement, including CA.

- (50) ke-m kaa *pro<sub>subj</sub>* cew'cew'-teetum *pro<sub>obj</sub>*  
 C-2 then PRO.2SG telephone-TAM PRO.1SG  
**2sg/1sg:** when you call me

- (51) ke-m(-\*ex) kaa 'iin-e(=cim) *pro<sub>subj</sub>* ('ee) cew'cew'i-ne  
 C-2-\*1 then 1SG-ACC(=only) PRO.2SG (2SG.CLITIC) telephone-TAM  
**2sg/1sg:** when you called (only) me

- Could this be because CA occurs in syntax, whereas scrambling occurs at PF?
- No: Nez Perce shows patterns of WCO/superiority obviation characteristic of languages with A-scrambling (Mahajan 1990 and many others)
  - ▷ Short wh-movement: no WCO or superiority
  - ▷ Long wh-movement: WCO, superiority

- Short wh-movement

(52) Short wh-movement: No WCO

'isii-ne<sub>1</sub> [ 'ip-nim<sub>1</sub> lawtiwaa-ma-pim ] pee-cepinmi-siix \_1?  
 who-OBJ [ 3SG-GEN friend-PL-ERG ] 3/3-mock-TAM \_1  
 Who<sub>1</sub> are his<sub>1</sub> friends making fun of \_1?

(53) Short wh-movement: No superiority

- a. **'isii-nm** **'ituu-ne** pee-p-e  
 who-ERG what-ACC 3/3-eat-TAM  
 Who ate what?
- b. **'ituu-ne** **'isii-nm** pee-p-e  
 what-ACC who-ERG 3/3-eat-TAM  
 What did who eat?

- ▷ The object may A-scramble over the local subject before undergoing  $\bar{A}$  movement.
- ▷ In its derived A-position, the object may bind into the subject (so, no WCO) and counts as closer to  $C_{wh}$  than the subject does (so, no superiority)
- ▷ To capture the effects on binding/locality, scrambling must take place in the syntax.

- Long wh-movement

(54) Long wh-movement: WCO

'isii-nm<sub>1</sub> [ 'ip-nim<sub>2/\*1</sub> lawtiwaa ] 'ee hi-hi-ne  
 who-ERG<sub>1</sub> [ 3SG-GEN<sub>2/\*1</sub> friend.NOM ] 2SG.CL 3SUBJ-say-TAM  
 [ \_1 'ee hi-'pewi-se ]?  
 [ \_1 2SG 3SUBJ-look.for-TAM ]  
 Who<sub>1</sub> did his<sub>2/\*1</sub> friend tell you \_1 is looking for you?

(55) Long wh-movement: Superiority

- a. **'isii**<sub>1</sub> \_1 hi-neki-se [ **'isii-nm** pee-p-e k'atk'at-na ]?  
 who.NOM \_ 3SUBJ-think-TAM [ who-ERG 3/3-eat-TAM cookie-ACC ]  
 Who<sub>1</sub> \_1 thinks who ate the cookies?
- b. \* **'isii-nm**<sub>1</sub> **'isii** hi-neki-se [ \_1 pee-p-e k'atk'at-na ]?  
 who-ERG who.NOM 3SUBJ-think-TAM [ \_ 3/3-eat-TAM cookie-ACC ]  
 Who<sub>1</sub> does who think \_1 ate the cookies?

- ▷ The object may not A-scramble over the subject of a higher clause.
- ▷ No WCO/superiority obviation is possible.

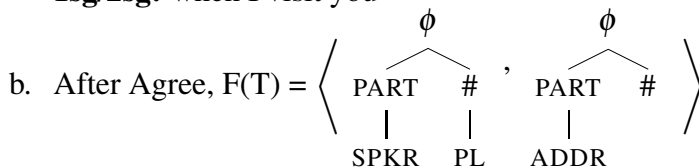
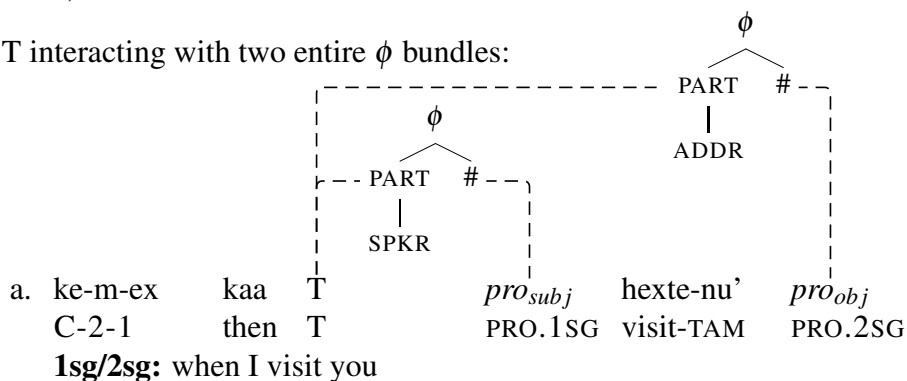
- Why does A-scrambling not affect CA? The puzzle refined:

- ▷  $C_{wh}$  attracts the highest [wh]. This calculation *is* affected by object scrambling, (53b).
- ▷  $C_\phi$  interacts with the highest  $\phi$ . This calculation is *not* affected by object scrambling, (51). Why not?

### 4.3 Rethinking the goal of CA: insatiable probes and indirect agreement

- Given that satisfaction features are always a subset of interaction features, we expect three interesting types of cases:
  - ▷ S-features are a *proper* subset of I-features. (Nez Perce C)
  - ▷ S-features are an *improper* subset of I-features. (English T)
  - ▷ S-features are an *empty* subset of I-features. (Proposal 1: Nez Perce T)
- A probe with no satisfaction features is an **insatiable probe**, which probes everything in the domain regardless of the features there.
- The insatiable probe on Nez Perce T collects all features available in the domain. Subsequent to agreement, T's feature set is a structured list.

- (56) T interacting with two entire  $\phi$  bundles:



- Proposal 2: Complementizers do not obtain their features from DPs directly. They obtain them via Agree with T. (**Indirect agreement**; cp. Legate 2005, Bhatt 2005)
  - ▷ The history of a probe's interaction is recoverable from the structured list of features it presents after Agree. Feature-sets are placed in the list in the order in which the probe has copied them.
  - ▷ Indirect agreement is **structure preserving** (to reclaim and redefine an old phrase): C interacts first with the features T has interacted with first.
  - ▷ All results thus far are preserved, though it is elements of  $F(T)$  that are goals.
- A solution to the puzzle of relative clauses:

Assuming that the phase-head is part of the edge of the phase, T remains accessible for Agree with C even when TP is a phase. TP phasehood will have no effect on CA.

#### 4.4 Activity and feature movement

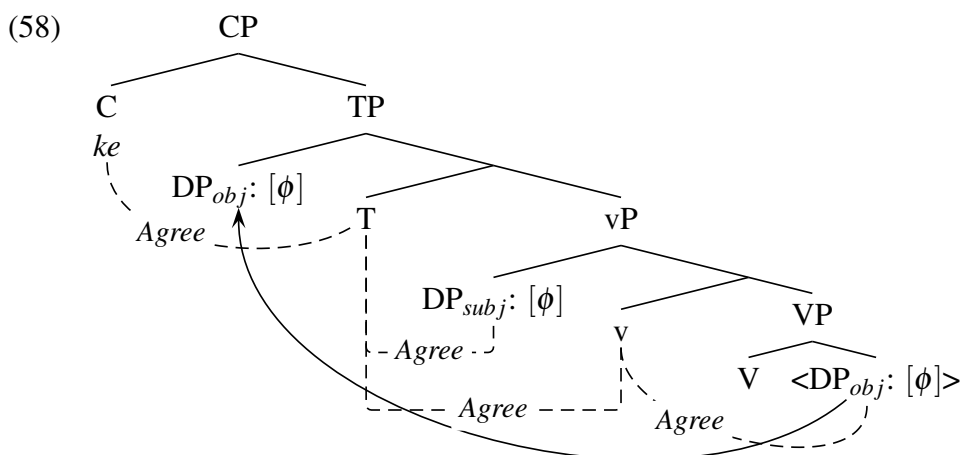
- The indirect agreement analysis makes it possible to square the CA pattern with a version of the activity condition, namely:

(57) *Activity*

A feature on a given head may serve as a goal for Agree only once.

- Activity explains why A-scrambling does not affect agreement, including CA:

- ▷  $v$   $\phi$ -agrees with the object. There can be no further  $\phi$ -agree with the object itself, e.g. in its scrambled position.
- ▷ The features of the object on  $v$  are active for Agree. T always  $\phi$ -agrees with  $v$  after it  $\phi$ -agrees with the subject:



- Agree as feature movement?

- ▷ Agree changes the probe by *adding* to its feature set.
- ▷ Agree changes the goal by rendering its agreeing feature set ineligible for further Agree (*deleting* the feature set, as far as the syntax is concerned)
- ▷ The connection between these suggests that the syntax of Agree be brought back to the old idea of *feature movement*. Feature movement explains activity: once  $\phi$  has moved from the object to  $v$ , it is not longer present on the object for Agree.

- The difference between  $C_{wh}$  and  $C_{\phi}$  derives from Agree in the clause for  $\phi$  but not [wh]:

- ▷  $C_{wh}$  attracts the highest [wh]. This calculation *is* affected by object scrambling, (53b). Explanation: nothing below C agrees with [wh]; it does not move away from the object.
- ▷  $C_{\phi}$  interacts with the highest  $\phi$ . This calculation is *not* affected by object scrambling, (51). Explanation:  $v$  agrees with the object and  $\phi$  on the object moves to  $v$ .

## 5 More on the result of Agree

- One major implication of this system is that the results of Agree may include more structure and featural content than we originally thought.
- The structure proves relevant in distinguishing 1>2 from 1st person plural inclusive:

(59) a. ke-m-ex    kaa    *pro<sub>subj</sub>*    hexte-nu'    *pro<sub>obj</sub>*  
 C-2-1    then    PRO.1SG    visit-TAM    PRO.2SG  
**1sg/2sg**: when I visit you

b. After Agree,  $F(C) = F(T) = \left\langle \begin{array}{c} \phi \\ \diagdown \quad \diagup \\ \text{PART} \quad \# \\ | \quad | \\ \text{SPKR} \quad \text{PL} \end{array} , \begin{array}{c} \phi \\ \diagdown \quad \diagup \\ \text{PART} \quad \# \\ | \\ \text{ADDR} \end{array} \right\rangle$

(60) a. ke-nm    kaa    *pro<sub>subj</sub>*    kiye    'e-pe-xte-nu'    *pro<sub>obj</sub>*  
 C-1INCL then    PRO.1PL.INCL    1PL.INCL.CL    3OBJ-S.PL-visit-TAM    PRO.3SG  
**1pl.incl/3sg**: when we(inclusive) visit him

b. After Agree,  $F(C) = F(T) = \left\langle \begin{array}{c} \phi \\ \diagdown \quad \diagup \\ \text{PART} \quad \# \\ \diagdown \quad \diagup \\ \text{SPKR} \quad \text{ADDR} \quad | \\ \quad \quad \quad \text{PL} \end{array} \right\rangle$

- Vocabulary Insertion works by considering whether particular  $\phi$  bundles in the list support a match with particular VIs:

(61) Vocabulary items for CA affixes:

- nm  $\leftrightarrow$  [SPKR,ADDR]
- m  $\leftrightarrow$  [ADDR]
- ex  $\leftrightarrow$  [SPKR]

- However the list-structure of features on C proves irrelevant in another type of person-number interaction in CA:

(62) **2nd person exponence condition:**

Plural CA suffix *pe* appears only when C expones 2nd person.

(63) C interacts with both [PL] and [ADDR]: CA expones plural

a. ke-pe-m-ex    kaa    *pro<sub>subj</sub>*    cew'cew'-tee'nix    *pro<sub>obj</sub>*  
 C-PL-2-1    then    PRO.1PL    telephone-TAM    PRO.2SG  
**1pl/2sg**: when we call you(sg)

b. ke-pe-m    kaa    Angel-nim    kaa    Tatlo-nm    hi-cew'cew'-tee'nix    *pro<sub>obj</sub>*  
 C-PL-2    then    Angel-ERG and Tatlo-ERG    3SUBJ-telephone-TAM    PRO.2SG  
**3pl/2sg**: when Angel and Tatlo call you(sg)

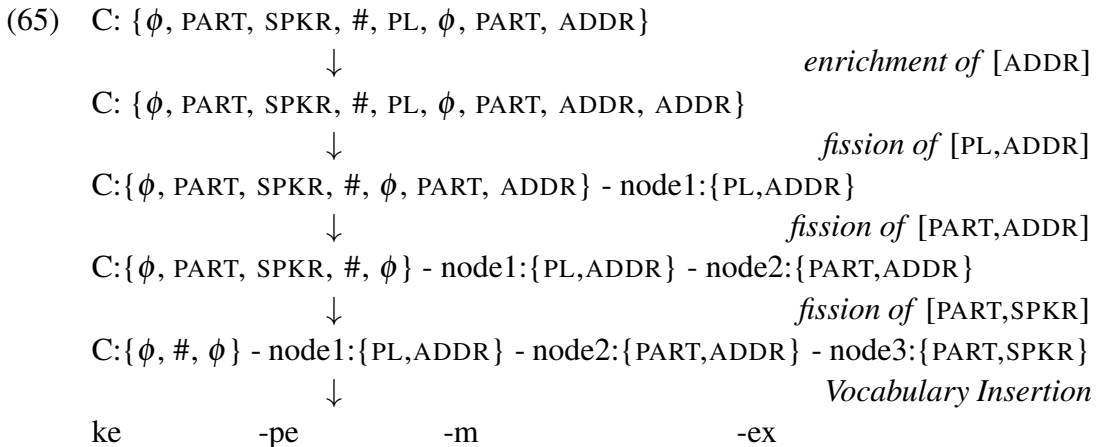
(64) C interacts with [PL] but not [ADDR]: CA does not exponen plural

- a. ke-x kaa *pro<sub>subj</sub>* 'e-nees-cew'cew'-tee'nix *pro<sub>obj</sub>*  
 C-1 then PRO.1PL 3OBJ-O.PL-telephone-TAM PRO.3PL  
**1pl/3pl**: when we call them
- b. ke-x kaa *pro<sub>subj</sub>* hi-nees-cew'cew'-tee'nix *pro<sub>obj</sub>*  
 C-1 then PRO.3PL 3SUBJ-O.PL-telephone-TAM PRO.1PL  
**3pl/1pl**: when they call us

- Here the overall set of features on C is used to calculate its form. CA suffix *pe* appears when C contains both [PL] and [ADDR], **whether or not** they come from the same argument.
- The 2nd person exponence condition requires thinking about the overall “bag of features” on C, ignoring the structure.

▷ A proposal using enrichment (Müller 2007):

If the bag of features contains [ADDR], it is duplicated. “Plural” CA affix *pe* realizes [ADDR,PL].



> *pe* realizes features contributed by two separate goals.

- The challenge is to explain how vocabulary insertion works such that *sometimes* the structure of multi-goal interaction is respected, and *sometimes* not.
- A sketch of one possible algorithm:
  - ▷ VI proceeds through the list of feature-bundles, realizing as much as possible.
  - ▷ Smashing: the list-structure is collapsed into a bag of features
  - ▷ Scavenging: VI proceeds through the bag of features a second time, realizing as much as possible.

[ADDR,PL] is available on the Scavenging step, even if it's not available before Smashing.



## 6 Conclusions and prospects

- What features of Agree are necessary to handle the Nez Perce CA pattern?
  - ▷ Some type of Cyclic Agree (Rezac 2003, Béjar and Rezac 2003, 2009)
    - \* A single probe may interact with multiple goals
    - \* Interaction is not simultaneous, but proceeds cyclically as the probe searches its domain (cf. Multiple Agree, Hiraiwa 2005, Nevins 2007, 2011)
  - ▷ Relativized probes
    - \* Probes vary in their satisfaction conditions
    - \* **Probes may quite generally interact with features that do not satisfy them**
  - ▷ The results of Agree leaves a head with a feature representation allowing it to participate in Agree as a goal.
    - \* This feature representation must be structured
    - \* Morphological realization must be able to ignore this structure some of the time.
  - ▷ Particular feature sets on individual heads may only serve as a goal for Agree once.
    - \* Apparent divergence from ‘one DP, one agreement’ reflects indirect agreement.
- The literature on relativized probes describes only the satisfaction condition on probes, which appear to vary substantially.

Given that interaction and satisfaction may be differentiated featurally, to what extent is there variation in the interaction conditions on probes? Hypothesis:

(66) **No variation in interaction.**

$\phi$ -probes always interact with all  $\phi$ -features.

Variation is in satisfaction conditions only.

- If this is correct: Nez Perce agreeing C is simply C:[ADDR].

There is no need to specify an interaction condition – only the morphological results of interaction (as is needed on all theories).
- Interaction is a dimension in which  $\phi$ -features travel together.

Only satisfaction is a dimension wherein they may diverge.

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