Decomposing Morphological Number in Local Contexts[1]

John Gluckman, UCLA
WCCFL 33, Simon Fraser University
March 27, 2015

1 Introduction

Based on a cross-linguistic pattern where number morphology on a transitive verb appears to express **the combined number of the subject and object**, I propose that morphological number is composed of discrete elements, and does not rely on dedicated number features, e.g., ±plural, ±singular, Group, Minimal, etc.

- The empirical domain will focus on Local Effects.
  - **Local Effects:** Irregularities in agreement which arise in Local Contexts (Heath, 1991, 1998; Cysouw, 2003; Siewerska, 2004).
  - **Local Contexts:** When 1st person acts on 2nd person, or 2nd person acts on 1st person.
- Heath's survey of Local Effects reveals that languages employ various strategies in Local Contexts, including,

(1) i. both arguments realized normally on the verb
ii. "agreement portmanteau" realized on the verb
iii. neither argument is realized on the verb
iv. "**number neutralization**"

- It has recently been argued that strategies i – iii are more or less the same, only differing morphologically (Georgi, 2011, 2013; Woolford, 2012).
  - Agreement portmanteaux express the features of both the subject and the object.
  - Null morphology in local contexts is a portmanteau.

[1]Thanks to Anoop Mahajan, Carson Schütze, Jessica Rett, Dave Embick, Jonathan Bobaljik, Pam Munro, Hilda Koopman, and especially Michael Diercks for helpful comments on this work. All errors are my own.

- I'm interested in strategy iv, "number neutralization", which is the "use of 'pl' for semantic 'sg'" (Heath, 1991, p. 85, strategy 4).
  - In these languages, the morphology expressed on the verb in Local Contexts is syncretic with morphology otherwise used to reference non-singular (usually 1st person) arguments.
  - Informally: *I saw you (sg)* looks like *We saw*.
- This talk has two goals.
  1. Why do irregularities arise in Local Contexts?
     - I adopt what's been previously argued: the agreement mechanism is constructed in a way to get the features from the subject and object into a single bundle, which is spelled out as a portmanteau (Bobaljik and Branigan, 2006; Woolford, 2012; Georgi, 2011, 2013; Oxford, 2014).
  2. Why do we see non-singular morphology?
     - I'll propose that **there are no number features**, e.g., ±plural, (±)augmented, Group, etc. Rather, morphological number is a **collection of atomic features**, paralleling semantic analyses of plurality.
- Using the same proposal concerning number features, and some standard assumptions about the mechanics of agreement, I'll be able to derive both the prevalence for irregularities in Local Contexts, as well as the irregularities themselves.
- Roadmap
  1. Number syncretism in Local Contexts
  2. Proposal: decomposing number features
  3. Deriving Local Effects
  4. Clusitivity and Local Effects
  5. Extensions and Conclusion

2 Number syncretism in Local Contexts

2.1 Case study: Nocte (Tibeto-Burman)

In Nocte, the morpheme *-e* is used to reference 1pl arguments in all contexts, and also appears whenever 1st person acts on 2nd person.

- Nocte's agreement paradigm is given in Table 1. The "unexpected" morphological forms are framed.[2]

A/S↓,O→	1sg	1pl	2sg	2pl	3/intrans
1sg	–	–	**-e**	**-e**	-ang
1pl	–	–	**-e**	**-e**	**-e**
2sg	-ang	**-e**	–	–	-o
2pl	-ang	**-e**	–	–	-an
3	-ang	**-e**	-o	-an	∅

Table 1: Nocte agreement (Gupta, 1971)

- Agreement in Nocte is governed by a person hierarchy where 1>2>3.
  - Given any two arguments of a transitive verb, the morphology on the verb can be predicted by appealing to this hierarchy.
  - If the object outranks the subject, an "inverse" morpheme *-h* is used.)[3]

[2] In Table 1, it's ambiguous whether 1pl→2 results in Local Effects, since *-e* is the morpheme we would expect anyway. The analysis proposed later would suggest that this too is a portmanteau, and not simply agreement with 1pl.

[3] All Nocte data is from Gupta (1971). Glosses are provided by me (following Trommer (2006, 2010)). Examples throughout this paper are for the most part given as in the sources, unless otherwise noted. Page numbers where the examples can be found are given in parens after the example.

I use the convention where X→Y means X is the subject, and Y is the object. A double-sided arrow ("↔") comprises both scenarios.

(2) **1sg, intransitive**

*nga roantang rang- ka -**ang***
1sg always ASP- go -**1sg**

'I always go' (16)

(3) **{1sg, 3sg}** $\rightsquigarrow$**1sg**

a. *nga -ma ate hetho -**ang***
1sg -ERG 3sg teach -**1sg**
'I shall teach him' (21)

b. *ate -ma nga -nang hetho -h -**ang***
3sg -ERG 1sg -ACC teach -INV -**1sg**
'He shall teach me' (21)

(4) **2sg, intransitive**

*nang roantang rang- ka -**o***
2sg always ASP- go -**2sg**

'You always go' (16)

(5) **{2sg, 3sg/pl}** $\rightsquigarrow$ **2sg**

a. *nang -ma thannin -nang hetho -**o***
2sg -ERG 3pl -ACC teach -**2sg**
'You shall teach them' (21)

b. *ate -ma nang -nang hetho -h -**o***
3sg -ERG 2sg -ACC teach -INV -**2sg**
'He shall teach you' (21)

- Observe that "winning" the hierarchy means that *all* the phi-features of the higher-ranked argument are expressed on the verb.
- Hierarchy effects obtain when 2→1. The expected winner is 1st person (and the inverse morpheme *-h* shows up).[4]

[4]So *-h* is not 3rd person agreement.

(6) **2sg→1sg ⇝ 1sg**

nang -ma nga hetho -h ***-ang***
2sg -ERG 1sg teach -INV -**1sg**

'You shall teach me' (21)

- However in the context where 1sg→2sg, we expect to see *-ang* on the verb, as that's the morphology associated with 1sg. Instead, we see *-e*, which is the morphology associated with 1pl in all other contexts (e.g., intransitives, 1pl↔3).

(7) a. **1pl, intransitive**

ni roantang rang- ka ***-e***
1pl always ASP- go -**1pl**

'We always go' (16)

b. **1sg→2sg ⇝ 1pl?**

nga -ma nang hetho ***-e***
1sg -NOM 2sg teach -**1pl?**

'I shall teach you' (21)

- Informally, the agreement appears to express the "accumulated" features of both the subject and the object, but only in one context, where 1→2.
- Importantly, the exact same pattern is seen across a number of different languages, as shown in Table 2.[5]

[5]Table 2 is not exhaustive. These are the languages I feel confident enough in to report on. Moreover, some languages are representative of languages families, where syncretisms are prevalent (Tibeto-Burman, Austronesian). For additional languages, see Heath (1991, 1998); Liao (2010) and further examples in Trommer (2010). I also do not include Georgi (2011, 2013)'s examples of inclusive morphology, which should be included in the pattern above. I discuss these briefly later.

language	*morpheme used when 1→2*	*use outside of 1→2*	*source*
Nocte (Tibeto-Burman)	*-e*	1pl	(Gupta, 1971)
Karuk (Hokan)	*kín-/nú/nuˀ*	1pl	(Macaulay, 1992)
Yimas (Papuan)	*ka-mpa-n*	1sg-3dl-2/3sg	(Foley, 1991)
Wayampi (Tupí-Guaraní)	*oro=*	1pl.excl	(Jensen, 1990)
Mapudungun (S.A. isolate)	*-u/-iñ*	dl/pl	(Smeets, 2008)
Bolinao (Austronesian)	*=ta*	1dl	(Liao, 2010)
Tongva (Uto-Aztecan)	*re=*	1pl	(Pam Munro, p.c.)
Anindilyakwa (Australian)	*ngarra-*	1pl.incl	(Leeding, 1989)
Colloquial Ainu (Ishikari dialect)	*as-/an-*	1pl.excl/1pl.incl	(Shibatani, 1990)

Table 2: Number syncretisms in Local Contexts

- In all languages here, the agreement system diverges from the expectation in the same context, when 1→2.
  - The resulting morphology is syncretic with morphology otherwise used to reference non-singular arguments.
- The fact that this **same syncretism** appears in a number of unrelated languages **in the same contexts** suggests that this isn't merely a case of accidental homophony.
- Ideally what we want is a theory that can capture both the syncretisms, and also why these syncretisms occur in exactly one context.

3 Decomposing number

- I assume that agreement portmanteaux are the result of morphology spelling out two sets of phi-features in one morpheme (Bobaljik and Branigan, 2006; Georgi, 2011, 2013; Woolford, 2012; Oxford, 2014).
- Moreover, the Local Effects discussed here involving number neutralization are also examples of portmanteaux morphology.
  - The agreement mechanism can get the features of the subject and object into one bundle (to be formalized presently).
- Given this assumption, consider the implications for Nocte.

– *-e* shows up whenever there's a 1pl argument, or when 1→2. Thus we need two feature bundles, corresponding to two different *-e* morphemes.

(8) a. $\begin{bmatrix} +1 \\ +pl \end{bmatrix} \longleftrightarrow /e_1/$ **1pl**

b. $\begin{bmatrix} +1 \\ +sg \\ +2 \\ +sg \end{bmatrix} \longleftrightarrow /e_2/$ **portmanteau**

Preliminary solutions:

1. Could *-e* just be a default/elsewhere morpheme?
   – There's no way to let *-e* be a default, but still make sure that it doesn't apply anywhere else.
   – This is regardless of the number feature we choose (e.g., ±singular, ±plural, (±)augmented, Minimal, Group, etc.)
2. Post-syntactic operations on features? (Noyer, 1998; Harbour, 2003)
   – We could "transform" the bundle in (8b) to look like (8a) using feature co-occurence restrictions and processes like impoverishment and/or feature insertion.
     * For instance, in the context of [+1, +2], all number features are deleted (at the interface).
     * If there's a feature bundle without number features in PF, use the rule in (9), which inserts a non-singular feature into the bundle.[6]

     (9) $\varnothing \longrightarrow -\text{singular}$ (Harbour, 2003)

   – This is an *ad hoc* solution that would merely be a restatement of the facts: "We see plural morphology, so there must be process that deletes the unwanted features, and inserts the wanted feature."
   – Also doesn't easily explain why this is restricted to just the context of 1→2.
3. Accidental homophony:
   – Since this same syncretism occurs in a number of languages, it suggests that we'd be missing a generalization by calling this accidental homophony.

[6] −singular is assumed to be the least marked feature. See also Chomsky (1995) for Redundancy Rules.

- I propose instead that there is a single feature bundle that corresponds to *-e*, and that this bundle can either reflect 1pl morphology, or the combination of 1sg and 2sg features.

3.1 Proposal: morphological number is constructed

- I propose a feature INDIVIDUAL (IND). A single IND feature corresponds to singular, while a bundle of two IND features corresponds to non-singular – it's plural in English, but might be dual in a language that makes a three-way distinction in number.[7]

(10) a. **singular**
[IND]

b. **plural**
$\begin{bmatrix} \text{IND} \\ \text{IND} \end{bmatrix}$

- IND features are discrete, "atomic" elements, picking out individuals in the discourse.
- 1st and 2nd person features are represented with SPEAKER (SPKR) and PARTICIPANT (PART) features, and the features are arrayed in a feature geometry where SPKR entails the presence of PART, since speakers are, by definition, speech-act participants (Harley and Ritter, 2002).[8]
- PART entails IND since, by definition, every speech-act participant is an individual in the discourse.
  - Note that there is a one-to-one mapping between IND and PART – as there is between PART and SPKR.
- Given this array of features, the following are the feature specifications for a pronominal system which differentiates two numbers and three persons (e.g., English).

[7] See Trommer (2006, 2010) for a similar proposal.

[8] I remain agnostic as to whether we need a distinct 2nd person feature, e.g., ADDRESSEE. It will not be necessary for the present discussion, but there's nothing here that rules it out.

(11) a. **1sg** $\begin{bmatrix} \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$ b. **2sg** $\begin{bmatrix} \text{IND} \\ \text{PART} \end{bmatrix}$ c. **3sg** [IND]

(12) a. **1pl** $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$ b. **2pl** $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \end{bmatrix}$ c. **3pl** $\begin{bmatrix} \text{IND} \\ \text{IND} \end{bmatrix}$

- Adopting this system in Nocte, we can now specify a correspondence between phi-features and phonological form as in (13).

(13) a. $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix} \longleftrightarrow$ /-*e*/

- (13a) will apply when a 1pl argument is referenced on the verb
  - . . . but also (by the Subset Principle) to a feature bundle that contains the features of a singular subject and singular object, ((11a)+(11b)=(14b))

(14) a. **1pl** $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$ b. **"collected" bundle** $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$

- Thus, under the assumption that Local Effects are the result of spelling out a feature bundle consisting of the features of both the subject and the object, the patterns of syncretism here fall out by treating morphological number as decompositional.
  - Note that this decomposition parallels nicely with a standard semantics for plurality (Link, 1983; Schwarzschild, 1992).
- In the next section, I show how these same assumptions about phi-features can derive how the agreement system manages to get the features from the subject and object into one bundle only in one context.

4 Deriving Local Effects

4.1 Assumptions about agreement

- **Agree**: (Chomsky, 2000, 2001)
  A syntactic relation between a probe P bearing interpretable/unvalued features and a goal G bearing interpretable/valued counterparts.
- Probes can be **Relativized** to Agree with person features.[9]
  - Practically, a probe relativized to look for speech-act participants will fail to agree with a 3rd person argument.
- **Match** is type-identity:
  When *u*IND finds IND.
- **Value** is feature-copying:
  When *u*PART/*u*SPKR finds PART/SPKR.
  - A probe's features are "deactivated" by Value.
- By stipulation, successful Value copies all the Goal's features to the probe, not just those that are in correspondence.
- **Cyclic probing:** (Béjar, 2003; Řezáč, 2003; Béjar and Řezáč, 2009)
  A Probe may be situated in between the subject and object (on *v*) and act cyclically. If it fails to fully value its features on the object, it can look at the subject.

4.2 Walkthrough

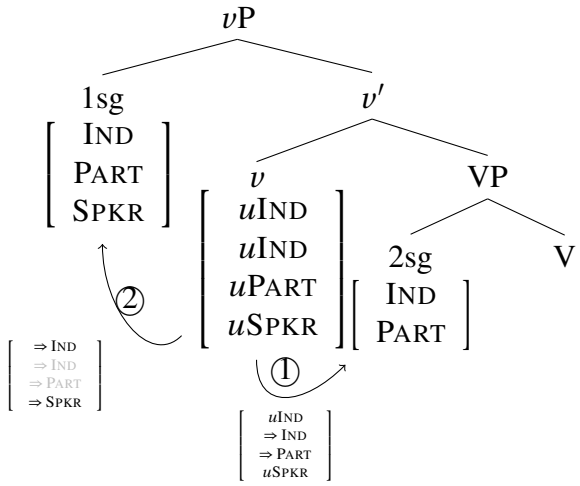
- To derive the patterns of syncretism in Table 2 I propose that the probe in each language is specified with the following uninterpretable/unvalued features.[10]

(15) $\begin{bmatrix} u\text{IND} \\ u\text{IND} \\ u\text{PART} \\ u\text{SPKR} \end{bmatrix}$

[9] This and Value, below, are subject to parametric variation.

[10] Due to time considerations, I discuss *why* it might be specified as such in Appendix I.

(16) *nga-ma nang hetho -e*
'I shall teach you (sg)'
[Match and value on first cycle; Match and value on second cycle]



a. **Step 1:** The probe Matches and Values with the object, copying IND and PART.

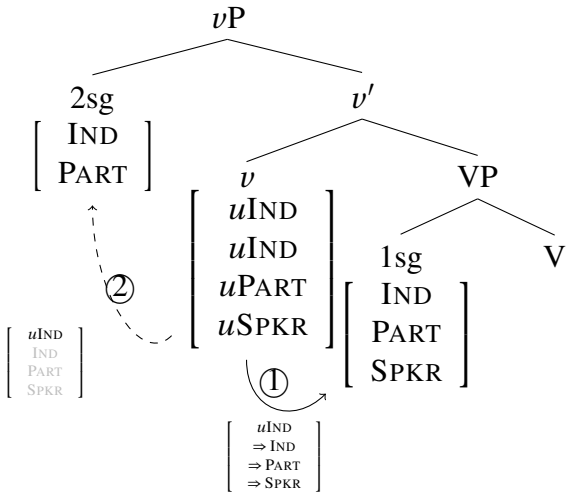
b. **Step 2:** The probe still bears an unvalued *u*IND and *u*SPKR feature, and so Agrees with the subject, where it successfully Matches and Values, copying IND, PART, and SPKR. (PART is copied by stipulation.)

- The feature bundle that results is $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$, which, as discussed earlier, will be subject to the correspondence in (17).

(17) $\begin{bmatrix} \text{IND} \\ \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix} \longleftrightarrow$ */-e/*

- Furthermore, we can correctly prevent the probe from agreeing with multiple arguments in all other contexts. In particular, in the opposite syntactic configuration of person features.

(18) *nang -ma nga hetho -h -ang*
'You shall teach me'
[Match and value on first cycle; Match and no Value on second cycle]



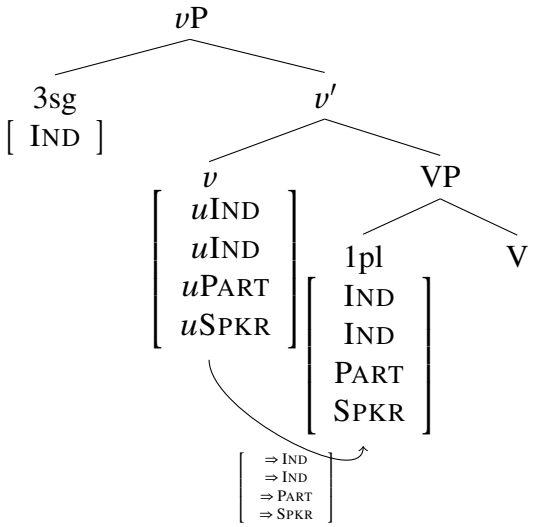
a. **Step 1:** The probe Matches and Values with the object, copying IND, PART, and SPKR.

b. **Step 2:** The probe still has an unvalued *u*IND feature, and so can successfully Match, but it cannot Value, since it lacks *u*PART/*u*SPKR.[11]

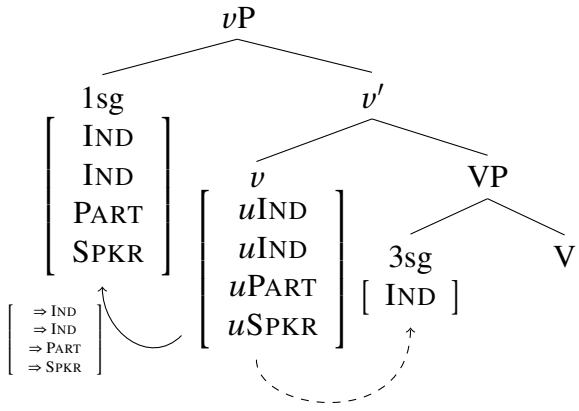
- In (18), the probe ends up with $\begin{bmatrix} \text{IND} \\ \text{PART} \\ \text{SPKR} \end{bmatrix}$, and so will be predicted to be spelled out as 1sg morphology.[12]
- When there is only one local argument in a derivation, only one set of features will be copied, as 3rd person is systematically skipped by the relativized probe.

[11] I assume that failure to Agree does not lead to a crash (Preminger, 2011).
[12] The inverse morpheme *-h* is the spell-out of *v* when there is only Agreement with an object.

(19) a. *ate-ma nang-nang hetho-h-e*
'He shall teach us'
[match and value with object]



b. *no-ma ate-bang chien-t-e*
'We asked him'
[Match with object, but no value; Match and value with subject]



- Thus, given the features proposed in the previous section and some independently motivated theoretical assumptions about agreement, we can derive why abnormalities in agreement are restricted to 1→2 contexts, as well as the morphological syncretisms.

5 Clusivity and Local Effects

- The analysis proposed here also subsumes Georgi (2011, 2013)'s account, which argues that portmanteaux in Local Contexts are all instances of "inclusive" morphology.
  - **inclusive:** me, you, (and someone else)
  - **exclusive:** me and someone else, and not you
- Although differing in certain theoretical aspects, she also assumes that probes can be relativized, and that Local Effects are the result of building a feature bundle comprised of features from two distinct arguments.
- This account is supported by a number of languages which make an inclusive/exclusive distinction in their agreement paradigm, **and utilize the inclusive marker in Local Contexts.**
  - For example, Surinam Carib uses *k-* for instances of inclusive agreement ("12" in Table 3), as well as all Local Contexts.

A↓,O→	1	2	12	3
1		**k-**		s
2	**k-**			m
12				**k-** iʃ
3	y	ay	**k-**	n

Table 3: Transitive agreement in Surinam Carib (Georgi, 2011)

Problem:

- Languages which have inclusive/exclusive distinctions in agreement, but choose the **exclusive** marker.

(20) Wayampi (Tupí-Guaraní) (Jensen, 1990, 135)

a. *tataterno rape* ***oro***- *inũ* *remẽ*
airplane path **1.EXCL**- make when
'When we made the airstrip'

b. ***oro***- *esa* *remẽ*
1:2sg- meet when
'When I meet you(sg)'

- However, it should be clear that Georgi's approach is essentially subsumed by my own, *modulo* theoretical differences.[13]
- Observe in fact that inclusive morphology in Local Contexts is predicted in my account.
  - Inclusive feature bundles are specified as containing two PART features (because there are two speech-act participants) (Cowper, 2005).
- Nothing further needs to be added to my account to derive the languages which express inclusive morphology in Local Contexts.
- Moreover, languages like Wayampi are also easily handled in my system.

6 Extensions and Conclusions

- Reducing the morphological expression of number features to essentially set computation has a number of empirical and theoretical consequences.
  1. Plural agreement with coordinated (singular) arguments is trivial.

     (21) John and Mary are eating fish

  2. Bound pronouns with split antecedents are likewise trivial (given some mechanism for passing the phi-features to the pronoun).

     (22) [Each of the students]$_{sg}$ told [each of the professors]$_{sg}$ that their$_{sg+sg}$ meeting was fun (Sudo, 2012, p. 186)

[13] This goes for Woolford (2012)'s approach as well, which allows portmanteaux to be built either in the syntax or the morphology. The issue is not the formalization of agreement (although there are problems as well), rather, it's the syncretisms with on-singularity that they cannot handle.

3. A unified theory for both morphology and semantics of plurality (Harbour, 2006; Harley, 2012).

- More speculatively, typological generalizations about number might be reduced to cognitive limitations on set computation during the acquisition process.
  - That is, the reason we don't see an "octal" or "decal" number system is because it requires mapping a feature bundle containing too large a set of features.
- An outstanding issue will be how to deal with the robust empirical generalization that person and number are sometimes expressed separately in agreement. This has recently been accounted for by separating person and number agreement in the syntax.
  - As a counterpoint, in Appendix II I outline how person and number can interact in the realm of agreement (even in languages which have been argued to have separated person and number probing).

Thank you!

References

Béjar, S. (2003). *Phi-Syntax: A Theory of Agreement*. PhD thesis, University of Toronto.

Béjar, S. and Řezáč, M. (2009). Cyclic Agree. *Linguistic Inquiry*, 40(1):35–73.

Bobaljik, J. D. and Branigan, P. (2006). Eccentric Agreement and Multiple Case Checking. In *Ergativity*, pages 47–77. Springer.

Chomsky, N. (1995). *The Minimalist Program*. MIT Press.

Chomsky, N. (2000). Minimalist Inquiries: The Framework. In Martin, R., Michaels, D., and Uriagereka, J., editors, *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, pages 89–155. MIT Press, Cambridge.

Chomsky, N. (2001). Derivation by Phase. In Kenstowicz, M., editor, *Ken Hale: A Life in Language*, pages 1–52. MIT press.

Cowper, E. (2005). A Note on Number. *Linguistic Inquiry*, 36(3):441–445.

Cysouw, M. (2003). *The Paradigmatic Structure of Person Marking*. Oxford Studies in Typology and Linguistics Theory. Oxford University Press.

Foley, W. A. (1991). *The Yimas Language of New Guinea*. Stanford University Press.

Georgi, D. (2011). Local Person Portmanteaux and Hierarchy Effects: A unified approach. handout from NELS 42.

Georgi, D. (2013). A Relativized Probing Approach to Person Encoding in Local Scenarios. Ms.

Gupta, D. (1971). *An Introduction to the Nocte Language*. Northeast Frontier Agency.

Harbour, D. (2003). Some outstanding problems of yimas. *Transactions of the Philological Society*, 1001(1):125–136.

Harbour, D. (2006). On the unity of 'Number' in morphology and semantics. In *Essex reports in linguistics (Processings of the York-Essex morphology meeting 2)*, volume 47.

Harley, H. (2012). Semantics in Distributed Morphology. *Semantics: International Handbook of Meaning*, 3.

Harley, H. and Ritter, E. (2002). Person and number in pronouns: A feature geometric analysis. *Language*, 78:482–526.

Heath, J. (1991). Pragmatic Disguise in Pronominal-Affix Paradigms. In Plank, F., editor, *Paradigms: The Economy of Inflection*, volume 9 of *Empirical Approaches to Language Typology*. Mouton de Gruyter.

Heath, J. (1998). Skewing in 1 ↔ 2 pronominal combinations in native american languages. *International Journal of American Linguistics*, 64(2):83–104.

Jensen, C. (1990). Cross-referencing changes in some Tupí-Guaraní languages. *Amazonion linguistics: Studies in lowland South American languages*, pages 117–158.

Leeding, V. J. (1989). *Anindilyakwa Phonology and Morphology*. PhD thesis, University of Sydney.

Liao, H. (2010). Morphosyntactic Irregularities in Local Pronouns in Some Western Austronesian Languages. handout from Workshop on Local Pronouns, Nijmegen, Netherlans.

Link, G. (1983). The Logical Analysis of Plurals and Mass Terms: A lattice-theoretical approach. In Bäurle, R. and von Stechow, A., editors, *Meaning, Use, and Interpretation of Language*, pages 302–323. Walter de Gruyter.

Macaulay, M. (1992). Inverse Marking in Karuk: The Function of the Suffix *-ap*. *International Journal of American Linguistics*, 58(2):182–201.

Noyer, R. (1998). Impoverishment Theory and Morphosyntactic Markedness. In *Morphology and its Relation to Phonology and Syntax*. CSLI Publications.

Oxford, W. R. (2014). *Microparameters of agreement: A diachronic perspective on Algonquian verb inflection*. PhD thesis, University of Toronto.

Preminger, O. (2011). *Agreement as a Fallible Operation*. PhD thesis, Massachusetts Institute of Technology.

Řezáč, M. (2003). The Fine Structure of Cyclic Agree. *Syntax*, 6(2):156–182.

Schwarzschild, R. (1992). Types of Plural Iindividuals. *Linguistics and Philosophy*, 15(6):641–675.

Shibatani, M. (1990). *The Languages of Japan*. Cambridge University Press.

Siewerska, A. (2004). *Person*. Cambridge Textbooks in Linguistics. Cambridge.

Smeets, I. (2008). *A Grammar of Mapuche*. Mouton de Gruyter.

Sudo, Y. (2012). *On the Semantics of Phi Features on Pronouns*. PhD thesis, Massachusetts Institute of Technology.

Trommer, J. (2006). Plural Insertion is Constructed Plural. In Müller, G. and Trommer, J., editors, *Subanalysis od Argument Encoding in Distributed Morphology*, volume 84 of *Linguistiche Arbeiten*. Universität Leipzig.

Trommer, J. (2010). The Typology of Portmanteau Agreement. slides presented as DGfS-CNRS Summer School on Linguistic Typology.

Woolford, E. (2012). Two Types of Portmanteau Agreement: Syntactic and Morphological. In *Optimality Theory Workshop, Nov 9-10*.

Appendix I: Why does the probe look like it does?

- Why would the probe look for 1pl arguments?
- Suppose that this probe isn't looking for 1pl, rather, it's looking for **two arguments**, one of which is first person.
- By hypothesis, exploration of related languages and older forms of the languages in Table 2 should show that the related/older languages have two probe loci, which have been bundled in Nocte *et al.*

Appendix II: Local Bleeding

- The present proposal also presents a path for capturing what I call "Local Bleeding".
- For some languages, the number of the object affects whether Local Effects obtain.
- For instance, in Yimas, when the 2nd object is non-singular (dual, paucal, or plural), then Local Effects do not obtain, and the 2nd object is reference normally on the verb.

(23) *(ama)* ***kul-*** *cay -ɲcut*
1sg **2dl(obj)**- see -T/A
'I saw **you (two)**' (Foley, 1991, 217)

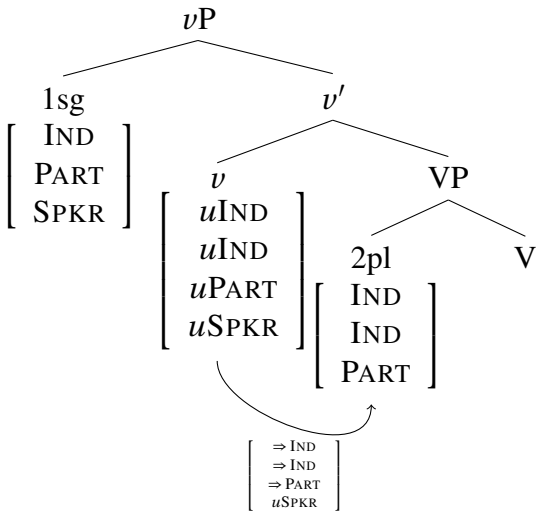
- Likewise in Karuk, when the 2nd object is plural, then the "normal" 2nd (object) morphology surfaces, *ki·k…ap*.

A↓,O→	1sg	1pl	2sg	2pl	3sg/intrans	3pl
1sg	–	–	**kín-**	ki·k-…-ap	ná-	ná-
1pl	–	–	**kín-**	ki·k-…-ap	**kín-**	**kín-**
2sg	ná–	**kín**-…-ap	–	–	∅-	∅-
2pl	kaná-…-ap	**kín**-…-ap	–	–	-ap	-ap
3sg	ná-	**kín**-…-ap	-ap	ki·k-…-ap	∅-	-ap
3pl	kaná-…-ap	**kín**-…-ap	-ap	ki·k-…-ap	-ap	kín-…-ap

Table 4: Karuk agreement (Negative paradigm) (Macaulay, 1992)

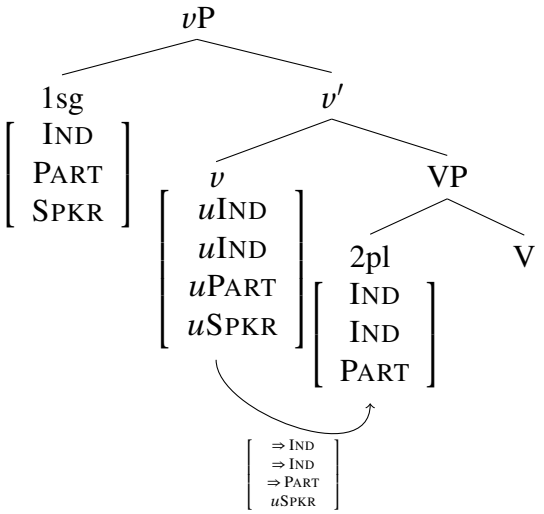
- The present proposal actually predicts this without further stipulation. Consider what happens in Karuk when there is 2pl object.

(24) 1sg→2pl = *ki·k…ap*
[Match and Value on first cycle; no second cycle possible]



- The probe is left over with *u*SPKR, but since there is no active *u*IND to Match, agreement cannot occur with the subject.
- The difference between Nocte and Yimas/Karuk can be explained by further refining agreement.
  - In Nocte, *u*IND can only be deactivated if a "dependent" *u*PART/SPKR is Value.

(25) a. Coarse agreement: (Karuk,Yimas, . . .)
[Match and Value on first cycle deactivates all *u*IND; no second cycle is possible]



b. Fine-grained agreement: (Nocte, . . .)
[Match and Value on first cycle leaves an active *u*IND; Match and Value on second cycle]