

The Interplay of Semantic Fieldwork and Theory: An Example from Cheyenne Reflexive/Reciprocal Underspecification

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Introduction

Empirical findings from fieldwork inform our theories of natural language semantics: what is cross-linguistically possible, what current theories can and cannot account for, what type of representations we need, and so on.

Formally precise analyses can also inform our fieldwork, making predictions that need to be tested in the field and providing novel questions to ask.

This poster: an example from my fieldwork on the semantics of the reflexive/reciprocal construction in Cheyenne

Background on Cheyenne

Cheyenne is a Plains Algonquian language spoken in Montana and Oklahoma. It is an endangered language, with fewer than 1,000 remaining native speakers of Cheyenne in Montana, most of whom are over 50.

Data presented is primarily from my own fieldwork, 6 summers on the Northern Cheyenne Indian Reservation in Montana, supplemented with paradigms from Cheyenne Grammar (Leman 1980) and dictionary (Fisher et al. 2006).

Fieldwork methods (drawing on Matthewson 2004) used include observation of language use; textual studies, glossing, and (re)translating texts; elicitations; constructing mini-discourses and stories; learning the language, language classes, and volunteering at language immersion camp for kids.

Cheyenne Reflexives and Reciprocals

In Cheyenne, reflexivity and reciprocity are both expressed by a single verbal affix. Cheyenne *-ahte* is compatible with **plural antecedents**, e.g. (1).

- ▶ (1) allows a reflexive construal, as in (2)
- ▶ (1) allows a reciprocal construal, as in (3)

(1) [Several children were playing in the woods and got in some poison ivy. Not long after, they were covered in itchy bumps.]

Ka'ěškóne-ho é-axeen-áhtse-o'ó.
child-PL.AN 3-scratch.AN-*ahte*-3PL.AN

- (2) The children scratched *themselves*
- (3) The children scratched *each other*

Cheyenne *-ahte* is also compatible with **singular antecedents**, e.g. (4)

- ▶ (unmarked) singular agreement on the noun and verb
- ▶ specifies a reflexive interpretation

(4) *Hetané-ka'ěškóne é-axeen-áhtse.*
man-child 3-scratch.AN-*ahte*
'The boy scratched himself.'

This data suggests a unified analysis of the reflexive/reciprocal morpheme, one where it is underspecified, not ambiguous.

- ▶ In Cheyenne, a reciprocal construal can be specified with the addition of a modifier *noná-mé'tó'e*
- ▶ Only one morpheme, so a unified analysis, if possible, may be preferred
- ▶ Many languages express reflexivity and reciprocity with a single form

Underspecification Analysis

I developed an analysis in Dynamic Plural Logic (van den Berg 1996) that makes use of the distinction between global and dependent values (Murray 2007, 2008).

- ▶ In Dynamic Plural Logic, information states are *plural* – sets of assignment functions (depicted below as matrices), instead of single assignments
- ▶ Variables have both global values (columns) and dependent values (rows)

Proposal: Cheyenne *-ahte* requires only global identity – identity at the column level – with no requirements on the row relations

(5) Proposed translation of *-ahte*: $-ahte \rightsquigarrow +[y = x]$

- ▶ *-ahte* only requires identical subject (x) and object (y) sets

Singular antecedents, as in (4):

- ▶ Singular subject (antecedent), so singular (identical) object: **reflexive**
- ▶ Allows assignments with identical singleton sets assigned to x and y , e.g.:

G	x	y
g_1	b_1	b_1

 where $G(x) = G(y) = \{b_1\}$ (the boy)

Plural antecedents, as in (1):

- ▶ Several assignment structures are allowed, e.g., for children = $\{c_1, c_2, c_3\}$, where $G'(x) = G'(y) = \{c_1, c_2, c_3\} = G''(x) = G''(y)$:

G'	x	y
g_1	c_1	c_1
g_2	c_2	c_2
g_3	c_3	c_3

 reflexive

G''	x	y
g_1	c_1	c_2
g_2	c_2	c_3
g_3	c_3	c_1

 reciprocal

Unexpected prediction: This analysis predicts a **mixed construal**, which is partially reflexive and partially reciprocal

G'''	x	y	
g_1	c_1	c_1	reflexive
g_2	c_2	c_3	reciprocal
g_3	c_3	c_2	

 where $G'''(x) = G'''(y) = \{c_1, c_2, c_3\}$

Testing the Predictions

I tested these predictions with three tasks:

- ▶ Judgements of sentences like (1) in situations described in English
- ▶ Judgements of sentences like (1) with drawings of various situations
- ▶ Judgements of discourses like (6) that spell out the mixed construal

(6)a. *Ka'ěškóne-ho é-axeen-áhtse-o'ó.*
child-PL.AN 3-scratch.AN-*ahte*-3PL.AN

b. *Hetané-ka'ěškóne é-axeen-áhtse*
man-child 3-scratch.AN-*ahte*
naa he'é-ka'ěškóne-ho noná-mé'tó'e é-axeen-áhtse-o'ó.
and woman-child-PL.AN *noná*-NON.ID 3-scratch.AN-*ahte*-3PL.AN

- ▶ specifies a **reflexive relation** for the subgroup of the **boy** and a **reciprocal relation** for the subgroup of the **girls**

(7) **Best English translation:** '(a) The children *were scratching*. (b) The boy scratched *himself* and the girls scratched *each other*.'

(8) # The children scratched $\{themselves, each other\}$. The boy scratched *himself* and the girls scratched *each other*.

Results

Mixed construals are allowed in Cheyenne

Supporting evidence comes from each of the three tasks: (1) was judged true in mixed scenarios (both visual and described) and the mixed elaboration in (6) is grammatical and felicitous.

This provides further evidence that Cheyenne *-ahte* is **underspecified for reflexivity and reciprocity, not ambiguous**. Mixed elaborations are unavailable with English reflexives and reciprocals.

The proposed analysis accounts for both singular and plural antecedents, the variety of construals, and the possibility of mixed elaboration.

Robust Cross-linguistic Pattern: Examples like (6) are also possible in Polish (M. Bittner, p.c.), Romanian (A. Brasoveanu, p.c.), French (V. Déprez, p.c.), Spanish (C. Fasola, p.c.), and German (J. Tonhauser, p.c.). The above proposal is a step toward understanding what appears to be a robust cross-linguistic pattern.

Conclusions

Formal semantic training is valuable for fieldwork

- ▶ Formally precise analyses make predictions that must be tested in the field
- ▶ These predictions might be things we wouldn't otherwise ask
- ▶ Coming from my English perspective, I might never have thought up such a scenario as (6), and perhaps this is not the type of scenario we would find in naturally occurring data.

There is a symbiotic relationship between fieldwork and theory

- ▶ Semantic fieldwork provides novel and varied data that pushes the limits of our current theories.
- ▶ Making our semantic analyses formally precise can provide new lines of inquiry for fieldwork.

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