Temporal interpretation and discourse structure in Northern Paiute

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1 Introduction

- English, like many languages, can mark temporal relations with adverbial subordinators like *before* and *after*:

(1) a. Max fell before John pushed him. falling $\prec$ pushing
b. Before John pushed him, Max fell. pushing $\succ$ falling

(2) a. Max fell after John pushed him. falling $\succ$ pushing
b. After John pushed him, Max fell. pushing $\prec$ falling

- Northern Paiute (Uto-Aztecan, Numic: western United States) lacks such specific temporal subordinators (and perhaps subordinators in general, except for a quotative marker).

- It does have one verbal morpheme—the so-called SEQUENTIAL morpheme—which contributes in some way to temporal interpretation:

(3) Su=naatsi'i=bɨno'o u-ma **sɨ'e-hu-si** yaa **poyoha-ga'a**.
NOM=boy=PTC 3SG-LOC **scare-PUNC-SEQ** there **run-MOT**
'The boy got scared of him and started to run.' (prompted narrative, EM, BP25-2-t1:85)
getting scared $\prec$ running

- Thornes (2003:456) says that, when *-si* '...marks the verbs of subordinate clauses that code events that temporally precede another event.'

- While many instances of the sequential morpheme satisfy this description, there are counterexamples:

(4) ...ka=papaba-ggu-na-ggwe-tu **hanni-ggwɨne'e** ka=tɨba tɨmma-we-tu **hani-si**.
OBJ=big.PL-OBJ-LOC-LOC-LOC **do-send.away** OBJ=pinenut basket-LOC-LOC **do-SEQ**
'...you take the bigger pieces out and set them aside, then the pinenut goes into the sifting basket.' (procedural narrative, MS, BP09-1-t4:51) sending away $\prec$ doing

(5) Yaa hɨbbɨ tɨbbi-ma **katɨ** pita-ga su=naatsi'i u-ma **sɨ'e-hu-si**.
there PTC rock-LOC **sit** below-LOC NOM=boy 3SG-LOC **scare-PUNC-SEQ**
'The boy went to sit on the rock, because he got scared of him.' (prompted narrative, EM, BP25-2-t1:86) sitting $\succ$ getting scared

$\Rightarrow$ I want to explore the idea that the sequential morpheme is not a direct marker of temporal relations. Instead, it marks a certain rhetorical relation, the *Narration* relation in Asher and Lascarides' (2003) terms.

$\Rightarrow$ This indirectly determines the temporal interpretation of clauses containing *-si*, accounting for the variability in (3-5).

- §2: Lay out my assumptions about the syntax of the sequential clauses.
- §3: Describe the range of temporal interpretations the sequential morpheme has.
- §4: Provide some background on the rhetorical relations that relate clauses in discourse.
- §5: Give a meaning for the sequential morpheme in terms of rhetorical relations.
- §6: Raise some additional questions arising from my proposal.

2 The syntax of the sequential morpheme

- Northern Paiute essentially has three syntactic strategies for clause combination:
  - asyndetic coordination

    (6) Yaisi amamu'a-naggwi yaisi **taba kai tsibuini**; yaisi nanisudɨhe-ggɨ-ti.
    PTC morning-LOC PTC **sun NEG rise** PTC pray-APPL-TNS
    'Then, in the early morning, before the sun comes up, they pray.' (narrative, MS, BP13-4-t2:10)

  - nominalization

    (7) **Isu tsiadamɨ i=bisabi-na** wadzi-mia-hu.
    DEM.NOM girl 1SG.GEN=like-NMZ hide-go-PUNC
    'The girl that I like ran away.' (elicitation, MS, BP32-4-s:40)

    (8) **Nanikoi-na** ma aata'a.
    laugh.PL-NMZ there sit.PL
    'They were really laughing, sitting there.' (prompted narrative, MS, BP24-1-t3:95)

  - quotation

    (9) **Mimia-huka mi** ɨne tɨɨtsi-ggu pa'mogo ggwɨɨ-nna.
    go.PL-INCEP QUOT say little-ACC frog carry-NMZ
    'They said they are going to leave, carrying a little frog.' (prompted narrative, EM, BP25-2-t2:91)

- It is unclear whether the sequential clause is subordinated to or coordinated with the clause it is juxtaposed to, though they together form a syntactic unit, judging from intonation:

(10) H*L–H% H*L– L%
Yaisi amamu'a-naggwi yaisi taba kai tsibuini; yaisi nanisudɨhe-ggɨ-ti.
PTC morning-LOC PTC sun NEG rise PTC pray-APPL-TNS
'Then, in the early morning, before the sun comes up, they pray.' (narrative, MS, BP13-4-t2:10)

(11) H*L–H% H*L– L%
Su=naatsi'i=bɨno'o u-ma sɨ'e-hu-**si** yaa poyoha-ga'a.
DEF.NOM=boy=PTC 3SG-LOC scare-PUNC-**SEQ** there run-MOT
'The boy got scared of him and started to run.' (prompted narrative, EM, BP25-2-t1:85)

(12) H*L− H% H*L− L%
Yaa hɨbbɨ tɨbbi-ma katɨ pita-ga su=naatsi'i u-ma sɨ'e-hu-**si**.
there PTC rock-LOC sit below-LOC DEF.NOM=boy 3SG-LOC scare-PUNC-**SEQ**
'The boy went to sit on the rock, because he got scared of him.' (prompted narrative, EM, BP25-2-t1:86)

- It is tempting to assume that the sequential clause is asydentically coordinated (*pace* Thornes 2003:456), since when multiple *-si* clauses occur in a row, they are related semantically to one another rather than to the unmarked clause (what would be the 'main clause'):

(13) Su=naatsi'i=bɨno'o yaa **nabagia-maggwɨ-hu-si** yaa **tsibui-ki-si**=sɨka
DEF.NOM=boy=PTC there **bathe-COMPL-PUNC-SEQ** there **rise-MOT-SEQ**=PTC
tɨ=bbaa'a-ggwe-tu nabagia-na-ggwe uka pa'mogo puni-na pisa **sua'i**=bɨno'o.
GEN=water-LOC-LOC bathe-NMZ-LOC DEM.ACC frog see-NMZ good **laugh**=PTC
'After the little boy was through taking a bath and got out of the bathtub, when the frog saw that, he started laughing.' (prompted narrative, MS, BP24-1-t3:93)

3 The temporal interpretation of the sequential morpheme

- While the temporal interpretation described by Thornes (2003) is common, there are variety of other possibilities when the sequential clause FOLLOWS the clause it is juxtaposed to:

(14)

	V_1-*si* V_2	V_1 V_2-*si*
$V_1 \prec V_2$	§3.1	§3.2
$V_1 \succ V_2$	not attested	§3.3

- But, when the sequential clause PRECEDES the clause it is juxtaposed to, it can only be interpreted as temporally preceding it.

3.1 V_1-*si* temporally precedes V_2

(15) Su=naatsi'i=bɨno'o u-ma **sɨ'e-hu-si** yaa **poyoha-ga'a**.
DEF.NOM=boy=PTC 3SG-LOC **scare-PUNC-SEQ** there **run-MOT**
'The boy got scared of him and started to run.' (prompted narrative, EM, BP25-2-t1:85)
scaring ≺ running

(16) Paa'a-gguba-tu **tsibui-si** ma-tu witua tɨ=ddzopigi-guba **wɨna-katɨ**.
water-LOC-LOC **emerge-SEQ** there-LOC pail REFL=head-LOC **wear-IMPF**
'After he crawled out of the water, he had the pail on his head.' (prompted narrative, MS, BP24-1-t3:27)
crawling ≺ wearing

(17) ...tabu'u kudu'u **kwɨɨ-hu-ka-si** **nɨmmi**.
cottontail stick **carry-PUNC-MOT-SEQ** **walk**
'...the cottontail picked up the stick and went after.' (narrative, MS, BP09-1-t1:11) carrying ≺ walking

(18) Yaisi oo'ni yaisi **na-mamaggwɨ-hu-si** yaisi **tɨka**, na-dɨka-ggɨ-ti.
PTC that.kind PTC **REFL-finish.PL-PUNC-SEQ** PTC **eat** REFL-eat-APPL-TNS
'Then, after they finish, they eat, they have a feast for her.' (narrative, MS, BP13-4-t2:13)
finishing ≺ eating

3.2 V_1 temporally precedes V_2-*si*

(19) Yaa yaisi sɨku **tɨggwɨtsani** paa'a-we **habi-hu-pitɨ-sɨggai-si** hau. Paa'a-gguba tsibui-si
there PTC PTC **trip** water-LOC **lay.down-PUNC-INCH-?-SEQ** PTC water-LOC emerge-SEQ
ma-tu witua tɨ=tsopigi-guba wana-katɨ.
there-LOC pail 4.GEN=head-LOC catch-STAT
'They tripped and fell into the water. After he crawled out of the water, he had the pail on his head.' (prompted narrative, MS, BP24-1-t3:26–27) tripping ≺ laying down

(20) Yaisi ɨmɨ kidɨ duamo-no **sɨggwe-nno'o** u tɨbbi-duha **aata'a-hu-si**. Yaisi
PTC 2/3PL.NOM groundhog children-? **yell-MOT** 3SG rock-LOC **sit.PL-PUNC-SEQ** PTC
su=tabu'u oi-ma-gga-na kimma-no'o.
DEF.NOM=cottontail there-LOC-LOC-LOC come-MOT
'Then, hollering, the groundhog kids went and sat under the rock. Then the cottontail kept on coming.' (narrative, MS, BP09-1-t1:17–18) going yelling ≺ sitting

(21) Una nauma-kwai yaisi, oono wɨnɨ-kwɨnai-si yaisi tɨ=ddzida-ga **gwɨɨ-u** oono
there midway-LOC PTC then stand-MOT-SEQ PTC REFL=cup-LOC **carry-PUNC** then
hibi-u-kwɨ-si nauma-kwai tia'a, oo yaisi tɨ=tsida du paa hani-u-si yaisi
drink-PUNC-IRR-SEQ midway-LOC thusly so then REFL=cup also water do-PUNC-SEQ PTC
hibi-u.
drink-PUNC
'Out in the middle then, (she) stopped and got out her cup to get a drink there in the middle, and then having gotten out her cup for water, she then drank.' (narrative, Thornes 2003:499) carrying ≺ drinking

3.3 V_1 temporally follows V_2-*si*

(22) Yaa hɨbbɨ tɨbbi-ma **katɨ** pita-ga su=naatsi'i u-ma **sɨ'e-hu-si**. O=toogga-tsi
there PTC rock-LOC **sit** below-LOC NOM=boy 3SG-LOC **scare-PUNC-SEQ** 3SG.ACC=dog-DIM
yaa-su habi-hu yaa tiipɨ-na.
there-ADV lie-PUNC there ground-LOC
'The boy went to sit on the rock, because he got scared of him. The dog laid down on the ground.' (prompted narrative, EM, BP25-2-t1:86–87) sitting ≻ getting scared

(23) Yaa tɨbbi-ggu kaisu **kadɨ-hu-bitɨ** kuyaa ma **nadawɨne-hu-si**. Ka=naatsi'i tɨ=dduisi
there rock-LOC not.yet **sit-PUNC-INCH** far there **jump-PUNC-SEQ** DEF.ACC=boy GEN=pet
tsakada-hu=sɨku.
catch-PUNC=MOD
'It landed on the rock and stayed there after jumping. The boy catches his pet.' (prompted narrative, MS, BP24-1-t3:64–65) landing ≻ jumping

(24) Yaisi yaa su=hɨbbɨ tɨhɨdda **mia-hu** umɨ mɨ=**sɨ'e-hu-si**... Ka=boi
PTC there NOM=PTC deer **go-PUNC** 2/3PL.NOM 2/3PL.ACC=**get.scared-PUNC-SEQ** DEF.ACC=boy
hau ma'i, yaa-tu wa'i-hu.
how do there-LOC fall-PUNC
'Then the deer ran because he got scared of them...The boy did something, he fell down.' (prompted narrative, EM, BP25-2-t1:93–95) going ≻ getting scared

4 Discourse structure and temporal interpretation

- Temporal interpretation is usually considered forward moving: the event described by a clause is interpreted as following the event described by the preceding clause (Kamp and Rohrer 1983, Partee 1984, Dowty 1986, Hinrichs 1986).

(25) Max tripped. He fell. tripping $\prec$ falling

(26) John pushed Max. He fell. pushing $\prec$ falling

- But, not all discourses are forward moving:
  - Two clauses can overlap in their temporal interpretation:

    (27) Mary came home. It was pouring rain. pouring $\circ$ coming

    (28) Max had a lovely meal last night. He ate lots of salmon. having a lovely meal $\sqsupseteq$ eating

  - The event described by a clause can even PRECEDE the event described a clause it follows in linear order:

    (29) Max fell. John pushed him. falling $\succ$ pushing

4.1 Rhetorical relations

- The RHETORICAL RELATIONS that hold clauses together in discourse can also contribute to temporal interpretation.
- The basic inventory in Segmented Discourse Representation Theory (Asher and Lascarides 2003):

(30)
a. *Narration*(α,β): 'The event described in β is a consequence of (but not strictly speaking caused by) the event described in α; e.g. [(25)].'
b. *Result*(α,β): 'The event described in α caused the event or state described in β; e.g. [(26)].'
c. *Background*(α,β): 'The state described in β is the "backdrop" or circumstances under which the event in α occurred (no causal connections but the event and state temporally overlap); e.g. [(27)].'
d. *Elaboration*(α,β): 'β's event is part of α's (perhaps by being in the preparatory phase); e.g. [(28)].'
e. *Explanation*(α,β): 'The event described in β explains why α's event happened (perhaps by causing it); e.g. [(29)].'

(Lascarides and Asher 1993:440)

- There are other theories of discourse structure that have broadly similar inventories of rhetorical relations:
  - Hobbs (1979, 1983): *Occasion, Cause, Background, Elaboration, Explanation,...*
  - Mann and Thompson (1988) (Rhetorical Structure Theory): *Sequence, (Non-)Volitional Result, Background, Elaboration, Evidence,...*
  - Kehler (2002): *Occasion, Result, Generalization, Exemplification, Explanation,...*

4.2 Temporal interpretation

- Rhetorical relations have consequences for temporal interpretation (after Asher and Lascarides 2003:460ff.):

(31)
a. *Narration*$(\alpha,\beta) \Rightarrow \alpha$ immediately temporally precedes β
Max tripped. He fell. tripping $\prec$ falling
b. *Result*$(\alpha,\beta) \Rightarrow \alpha$ temporally precedes β
John pushed Max. He fell. pushing $\prec$ falling
c. *Background*$(\alpha,\beta) \Rightarrow \alpha$ and β temporally overlap
Mary came home. It was pouring rain. pouring $\circ$ coming
d. *Elaboration*$(\alpha,\beta) \Rightarrow \beta$ is a subpart of α
Max had a lovely meal last night. He ate lots of salmon. having a lovely meal $\sqsupseteq$ eating
e. *Explanation*$(\alpha,\beta) \Rightarrow \left\{ \begin{array}{l} \beta \text{ temporally precedes } \alpha\text{, if } \beta \text{ is an event} \\ \alpha \text{ does not temporally precede } \beta\text{, if } \beta \text{ is a state} \end{array} \right\}$
Max fell. John pushed him. falling $\succ$ pushing

- There are other rhetorical relations that do not have consequences for temporal relations, e.g. *Parallel* and *Contrast*.

4.3 Hierarchical structure in discourse

- In addition to their semantics, rhetorical relations can be either COORDINATING or SUBORDINATING (Asher and Vieu 2005), creating a hierarchical discourse structure.
  - COORDINATING: *Narration*, *Result*
  - SUBORDINATING: *Elaboration*, *Background*, *Explanation*, *Result*
- Coordinating relations obligatorily push discourse forward, by making only their second argument available for attachment: i.e. subsequent clauses can only be related to their second argument.
- (32e) cannot be attached to (32c) because (32c) is continued through a *Narration* relation by (32d).

(32)
a. John had a great evening last night.
b. He had a great meal.
c. He ate salmon.
d. He devoured a lot of cheese.
e. # It was a beautiful pink.
e′. He then won a dancing contest.

- Subordinating relations do not necessarily push the discourse forward, since they allow subsequent discourses segments to attach to either of their arguments.
- So, (32e′) can be attached to (32b) because (32d) stands in an *Elaboration* relation to (32b).
- Hierarchical order is also recognized in other theories of discourse structure: e.g. multinuclear vs. nuclear-satellite relations (Mann and Thompson 1988), satsifaction-precedence vs. dominance (Grosz and Sidner 1986).

5 The sequential morpheme as a marker of *Narration*

- I propose that when a clause is marked with the sequential suffix, it introduces the *Narration* relation:

(33) For a clause α that precedes a clause β in linear order, if the verb of α is marked with *-si*, then:
  i. *Narration*(α, β), or
  ii. there is a clause γ to which α is subordinated and *Narration*(γ, β).

- The meaning in (33) accounts for the full range of attested temporal interpretations:

(34)

	V_1-*si* V_2	V_1 V_2-*si*
$V_1 \prec V_2$	§3.1	§3.2
$V_1 \succ V_2$	not attested	§3.3

5.1 The canonical case: V_1-*si* $\prec V_2$

- Since a subsequent clause can be attached to the sequential clause with the *Narration* relation, it is obvious why the event it describes immediately temporally follows:

(35) Su=naatsi'i=bɨno'o u-ma **sɨ'e-hu-si** yaa **poyoha-ga'a**.
DEF.NOM=boy=PTC 3SG-LOC **scare-PUNC-SEQ** there **run-MOT**
'The boy got scared of him and started to run.' (prompted narrative, EM, BP25-2-t1)
scaring $\prec$ running

(36) Paa'a-gguba-tu **tsibui-si** ma-tu witua tɨ=ddzopigi-guba **wɨna-katɨ**.
water-LOC-LOC **emerge-SEQ** there-LOC pail REFL=head-LOC **wear-IMPF**
'After he crawled out of the water, he had the pail on his head.' (prompted narrative, MS, BP24-1-t3:27)
crawling $\prec$ wearing

(37) ...tabu'u kudu'u **kwɨɨ-hu-ka-si** **nɨmmi**.
cottontail stick **carry-PUNC-MOT-SEQ** **walk**
'...the cottontail picked up the stick and went after.' (narrative, MS, BP09-1-t1:11)
carrying $\prec$ walking

(38) Yaisi oo'ni yaisi **na-mamaggwɨ-hu-si** yaisi **tɨka**, na-dɨka-ggɨ-ti.
PTC that.kind PTC **REFL-finish.PL-PUNC-SEQ** PTC **eat** REFL-eat-APPL-TNS
'Then, after they finish, they eat, they have a feast for her.' (narrative, MS, BP13-4-t2:13)
finishing $\prec$ eating

- In (35), the boy's running is a consequence of—and immediately temporally follows—his getting scared.
- This 'no-significant-gaps' effect of Narration also accounts for why the sequential clause never temporally follows the clause it precedes in linear order.

5.2 Temporal variability when the sequential clause follows

- Since *-si* only constrains the rhetorical relation with following clauses, the sequential clause can stand in a variety of different relations to preceding clauses.
- When this is a *Narration* relation, then the event described by the sequential clause temporally follows:

(39) Yaa yaisi sɨku **tɨggwɨtsani** paa'a-we **habi-hu-pitɨ-sɨggai-si** hau. Paa'a-gguba **tsibui-si**
there PTC PTC **trip** water-LOC **lie-PUNC-INCH-?-SEQ** PTC water-LOC **emerge-SEQ**
ma-tu witua tɨ=tsopigi-guba wana-katɨ.
there-LOC pail 4.GEN=head-LOC catch-STAT
'They tripped and fell into the water. After he crawled out of the water, he had the pail on his head.' (prompted narrative, MS, BP24-1-t3:26–27)
tripping $\prec$ falling

- By the first part of definition in (33), the sequential clause stands in a *Narration* relation to the following clause describing the boy's crawling out of the water.
- But, the sequential clause can also be related to the preceding clause by a rhetorical relation like *Explanation*, which reverses temporal order:

(40) Yaa hɨbbɨ tɨbbi-ma **katɨ** pita-ga su=naatsi'i u-ma **sɨ'e-hu-si**.
there PTC rock-LOC **sit** below-LOC NOM=boy 3SG-LOC **get.scared-PUNC-SEQ**
O=toogga-tsi yaa-su **habi-hu** yaa tiipɨ-na.
3SG.ACC=dog-DIM there-ADV **lie-PUNC** there ground-LOC
'The boy went to sit on the rock, because he got scared of him. The dog laid down on the ground.' (prompted narrative, EM, BP25-2-t1:86–87)
sitting $\succ$ getting scared

- The dog's laying down immediately temporally follows the boy's sitting down (not his getting scared).
- By the second part of the definition in (33), the following clause stands in a *Narration* relation—not to the sequential clause itself—but to the clause describing the boy's sitting that it is subordinated to by the *Explanation* relation.
- What is the alternative?
  - Say *-si* merely contributed temporal information: the event described by the sequential clause immediately temporally precedes the event described by the clause that follows it in linear order; cf. English *immediately after*.
  - The interpretation of (40) is completely unexpected, then, since the scaring event does not immediately temporally precede the dog's laying down on the ground.
- This is even more obvious when the sequential clause is related to the preceding clause by the *Background* relation:

(41) Inɨ ki'ma-u-si pɨno'o a-naga'a u-kuba-wai **nadowɨnai-u** ka **wo'woo'yu-si** mii...
INT come-PUNC-SEQ also 4-LOC? 3SG-over-LOC **jump-PUNC** KA **whoop-SEQ** QUOT
Yaisi ka=kwaya-kwa tɨwao **tunuubau-ka** u-kuba-wai mia-u,
then DEF.ACC=far.off-LOC also **land.on.all.fours-MOT** 3SG-LOC-LOC go.SG-PUNC
su=idza.
DEF.NOM=coyote
'He really came fast and easily jumped over it, having whooped like that...And he went over it the farthest, landing on all fours, the Coyote.' (narrative, Thornes 2003:483)

- Coyote's whooping comprises the circumstances for his jumping, but his landing on all fours immediately temporally follows his jumping—not the event described by the sequential clause itself.

⇒ Either the sequential clause itself or a clause that it is subordinated to stands in an immediate temporal precedence relation to a following clause.

⇒ This no-significant-gaps effect can only be stated over hierarchical discourse structures, by having *-si* introduce a *Narration* relation that attaches either to its own clause or one it is subordinated to.

5.3 Why the *Narration* relation?

- In Segmented Discourse Representation Theory, *Narration* is the default way of relating clauses when there is no other rhetorical relation that can be inferred to hold between them (Asher 1996).
- Why would a language have a marker of *Narration* when it is the default?
  - In French, sentence-initial *puis* has been argued to overtly signal the *Narration* relation and the absence of the *Result* relation (Bras et al. 2001).

    (42) a. Nous avons commencé à discuter calmement. Puis les choses se sont gâtées.
    'We began to chat serenely. Then things went wrong.' (Bras et al. 2001:111)

    b. L'acide tomba dans le liquide. *Puis le mélange réagit en explosant.
    'The acid fell into the liquid. Then the mixture reacted by exploding.'
    (Bras et al. 2001:137)

  - English *and* has been argued to restrict the rhetorical relations between coordinates to any COORDINATING relation—essentially, *Narration*, *Result*, and the nontemporal relations *Parallel* and *Contrast* (Gómez Txurruka 2003).
- As a marker of *Narration*, Northern Paiute *-si* is less specific than French *puis* and more specific than English *and*.
- While *Narration* might be the default, it does provide more temporal information than the *Result* relation by enforcing a no-significant-gaps temporal order.
- Speakers thus might use the sequential morpheme to communicate that the events being described form a coherent narrative sequence, as opposed to a sequence of causation.

6 Conclusion

⇒ The semantics of Northern Paiute *-si* must be stated in terms of hierarchical discourse structures—either the sequential clause itself or a clause it is subordinated to stands in the *Narration* relation to a subsequent clause.

⇒ Any consequences the sequential morpheme has for temporal interpretation are indirect, resulting from the no-substantial-gaps effect of *Narration*. This accounts for the variability in temporal interpretation of the sequential clause relative to the clause it is juxtaposed to.

- A few questions for the future:
  - The sequential morpheme occurs on the first argument of the *Narration* relation, unlike either French *puis* (a sentence-initial adverb) or English *and* (a coordinator). How is this relevant to its discourse function?
  - Noncanonical word orders can change what discourse contexts a sentence can be felicitously used in (the work of Prince, Ward, and Birner, among others). Are the rhetorical relations the sequential clause can stand in with preceding material affected by its position relative to the juxtaposed clause?
  - Rhetorical relations also have consequences for the interpretation of pronouns and other anaphors. Does this treatment of the sequential morpheme make the right predictions for how anaphora works in Northern Paiute?

⇒ It's useful to be reminded of how important spontaneously produced speech data is, even for historically nonwritten languages like Northern Paiute where it is harder to obtain.

(43) Natadzuabi n**ɨɨ** **tɨka-hu-si** pisa **manne**.
medicine 1SG.NOM **eat-PUNC-SEQ** good **become**
'I got well after eating medicine.' (elicitation, MS, BP13-5-s:57) getting well ≺ eating

(44) N**ɨɨ** **kwopɨ-katɨ** su=nana ka=nabu'ni **tapayui-hu-si**.
1SG.NOM **shivered-STAT** DEF.NOM=man DEF.ACC=window **break-PUNC-SEQ**
'I shivered, then the man broke the window.' (elicitation, EM, BP31-5-s:24) shivering ≺ breaking

Data and acknowledgments

Northern Paiute is comprised of several closely related dialects (Babel et al., to appear). Much of the data presented here comes from my own fieldwork on the Mono Lake variety, spoken at Mono Lake in eastern California and immediately to the north in Bridgeport and Coleville, California and Sweetwater, Nevada. Additional data comes from the Burns, Oregon variety (Thornes 2003), and to a lesser extent the McDermitt, Nevada variety (Snapp et al. 1982) and the Bannock variety spoken at Fort Hall, Idaho (Liljeblad 1966). For all dialects of Northern Paiute, there are probably no more than 300 fluent speakers today (Golla 2011:174), and for the Mono Lake dialect, there are around five speakers.

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Abbreviations

ACC = accusative, ADV = adverbial suffix, APPL = applicative, CAUS = causative, COMPL = completive, DEF = definite, DEM = demonstrative, DIM = diminutive, DL = dual, DUR = durative, EMPH = emphatic particle, EXCL = exclusive, F = feminine, GEN = genitive, IMPF = imperfective, INCEP = inceptive, INCH = inchoative, INCL = inclusive, IND = free choice indefinite, INSTR = instrumental nominalizer, INT = intensive, IP = instrumental prefix, IRR = irrealis, LOC = locatival postposition, M = masculine, MOD = modal particle, MOT = motion suffix, NEG = negation, NOM = nominative, NMZ = nominalizer, NSP = nonspecific object, PASS = passive, PERF = perfect, PL = plural, PRO = resumptive pronoun, PLUR = pluractional, PTC = discourse particle, QUOT = quotative, REFL = possessive anaphor, SEQ = sequential marker, SG = singular, STAT = stative aspect, TNS = 'general tense'

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