X-marking decomposed

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This talk

The puzzle

Why do we see (*traces of*) PAST morphology in the following sentences?

(1) If I **felt** better (right now), I **would** join your pub crawl (tonight).

(2) **Ging-e** Joe fischen, **fing-e** er nur wenige Fische.
went-X Joe fishing, **cought-X** he only few.PL fish.PL
'If Joe went fishing, he would catch only a few fish.' (German)

⇒ **Term for this 'distance from reality' marking: 'X-marking'.**
(Crowley 2023; von Fintel and Iatridou 2023)

Proposal

- **Temporal past-marking** realizes:
  - [SUB]
- X-marking realizes:
  - [SUB]
  - [CSTR]

⇒ **What we see in English (1) is a case of** SYNCRETISM

- The semantics of the [SUB]-feature contributes the **'abstracting away from the settled now'** component we find in both cases.
- I suggest a compositional semantics for [SUB] and [CSTR] capturing both readings.

X-marking

Conditionals with a hypothetical flavor

(3) If I **had** a cold tomorrow, I **would** cancel my meeting.

Unattainable desire constructions

(4) I wish I **had** a dog (now, tomorrow, in two weeks...)

Weak necessity modals

(5) Tha **eprepe** na plinis ta piata.
FUT must.PST NA was the dishes
'You should wash the dishes.' (von Fintel and Iatridou 2023:1492)

⇒ **Cross-linguistic tendency for past morphology** (also: habitual)
(von Fintel and Iatridou 2023; Steele 1975; Verstraete 2006)

⇒ **None of those sentences is conceivably about a past time**

This talk's empirical focus

- The cross-linguistic marking of meanings like (3) – (5)
- I will **not** talk about conditionals like (6)

(6) If I **had** closed my car window, my groceries **would** have remained dry.

Preview

Empirical data

- Languages in which X-marking properly contains past tense morphology
  - Past tense → *past*
  - X-marking → *past* plus *something else*

Analysis

Past tense morphology

Realizes feature

- [SUB]

Interpretation

- Temporal back shifting

X-marking

Realizes features

- [SUB]
- [CSTR]

Interpretation

- Distancing from reality

Outline

X-marking as morphologically complex

Hunzib (North East Caucasian, Tsezic)

Temporal back shift

(7) ož-di-l quw-**ís** t'eχ̂
boy-OBL-ERG read-PRETN book/5
'The boy didn't read the book' (van den Berg 1995, p. 84)

X-marked conditional

(8) [əg k'ok'-**ís** **q'ə(də)**], ilu-s klas bi-ž-αr zuq'u-**r**
that/1 be.ill-PRETN IRR we class/4 4-win-FUT be.PRETN
'If he were not ill, our class would have won.'
(van den Berg 1995, p. 106)

X-marking as morphologically complex

Ik (Nilo Saharan[?], Spoken in Uganda)

Temporal back shift

(9) ŋkákˈ-í-a=**nak^{a}**
eat-1SG-REAL=PST1
'I ate (earlier today)' (Schrock 2014, p. 419)

X-marked conditional

(10) [na=kˈ**á**=**naa** ɲárɛm-a bɪa-ʊ-k^{ɔ}]
conj=HYPO=PST1 insecurity-nom not.be-3SG-SEQ
kˈa-í-ísin-a kˈ**a**=**nak^{a}**
go-PLUR-1PL.INC-REAL HYPO=PST1
'If insecurity were not there, we would go regularly.'
(Schrock 2014, p. 517)

X-marking as morphologically complex

Mauwake (Nuclear Trans New Guinea)

Temporal back shift

(11) miim-a-k
hear-PAST-3sg
'He heard' (Berghäll 2015, p. 157)

X-marked conditional

(12) [Yena aamun aakisa uruf-**ek**-**a**-m=na],
1s.gen s/p.younger.sibling now see-CNTF-PAST-1s=TP
kemel-**ek**-**a**-m.
be.happy-CNTF-PAST-1s
'If I saw my younger brother now, I would be happy.'
(Berghäll 2015, p. 377)

X-marked desire

(13) [Yo=ko wia uruf-**ek**-**a**-m] na-ep.
1s.UNM=NF 3P.ACC see-CNTF-PAST-1s say-SS.SEQ
'I would like to see him.' (Berghäll 2015, p. 367)

X-marking as morphologically complex

Palula (Indo-Ayran, spoken in Pakistan)

X-marked conditional

(14) [á ar thíi dóodu ǰáand-u heensíl-u **heentá**], tasíi
if 2SG.GEN grandfather alive-MSG stay.PFV-MSG CONDL 3SG.GEN
úmur típa čuurbhišá kaal-á **de** **heentá**
age now eighty year-PL be.PST CONDL
''If your grandfather were still alive, he would by now be 80 years old.'
(Liljegren 2016, p. 370)

X-marking as morphologically complex

Huniq (Nakh-Daghestanian)

(15) [di r-iq-**iš**-me **q'ede**] hadbe=n aldoɣo c'uk'-no
I.GEN.1 NHPL-happen-PST-NEG IRR these=and in.front drive-CVB
de hadi-r Ø-aq'-a zoq'^{w}e-s-me
I here-LAT I-come-INF be-PST-NEG
'If they were not mine, I (masc.) would not have come here driving them.' (Forker 2013)

(16) [hoboži eli Čačan- 'o zoq'^{w}e-**s** **q'ede**] ʕeza ʕan b-eg
now we Chechnya-SPR be-PST IRR very III-good being(III)=and
ruq'a.raq'i=n b-iči goɬi
III-be be.IRR
'If we were now in Chechnya, we would live very well.' Forker 2013

X-marking as morphologically complex: Turkish

X-marked conditional

(17) John önümüzdeki salı gel-**se**-**ydi**. annesi çok mutlu
John next Tue come-SA-PST his.mom very happy
or-ur-du.
be(come)-AOR-PST
'If John arrived next Tuesday, his mom would be very happy.'
(von Fintel and Iatridou 2023:1488)

X-marked desire

(18) Keşke önümüzdeki salı gel-**se**-**ydi**.
keske next Tue come-SA-PST
'I wish he would come next Tuesday.' (ibid.)

X-marking as morphologically complex: German

Some German verbs: X-marking identical to past-marking (like English)

Present Ind.	**Past**	**X-marked**
er fühl-t	er fühl-te	er fühl-te
he feel-s	he feel-ed	he feel-ed
'he feels'	'he felt$_P$'	'he felt$_X$' ('he would feel')

Other verbs show complex X-marking

Present Ind.	**Past**	**X-marked**
sie muss	sie muss-te	sie müss-te
she must	she must-ed	she must-ed
'she must'	'she had$_P$ to'	'she had$_X$ to' ('she would have to')

Present Ind.	**Past**	**X-marked**
sie sing-t	sie sang	sie säng-e
she sing-s	she sang	she saeng-X
'she sings'	'she sang$_P$'	'she sang$_X$' ('she would sing')

Present Ind.	**Past**	**X-marked**
sie geh-t	sie ging	sie ging-e
she goe-s	she went	she went-X
'she sings'	'she sang$_P$'	'she sang$_X$' ('she would sing')

Outline

Interim conclusion

We have seen

- Languages where X-marked form **properly contains** the past-marked form
- Points to potential implicational universal →

> *If a past tense marked form **a** has the overt morphological complexity **c**, then the overt morphological complexity of the X-marked variant of **a** is at least as high as **c**.*
> (Potential counterexample: Yakha (Schackow 2015, Sec. 8.5.1))

Suggests

- X-marking ***contains*** the feature realized by past tense
- But X-marking does *not only* realize this feature

Next section

- Decomposing the X-marking into two components: [SUB] and [CSTR]
- [SUB] does **not** denote **an inherently temporal function**
- [SUB] occurs alone → temporal back shift
- [SUB] occurs with [CSTR] → distancing from reality (without back shift)

Outline

Domain expansion view of X-marking

Guiding idea in semantic research on X-marking

> *"[...]the subjunctive mood in English and some other languages is a conventional device for indicating that* ***presuppositions are being suspended****"*
>
> (Stalnaker 1975, p. 276, my emphasis)

- Sentences are evaluated relative to Modal Domain $\bigcap \mathcal{C}^*(w, t)$

  Derived from the Context Set $\mathcal{C}^*(w, t)$, the set of mutually recognized propositions in w at t

Indicative conditionals: modal domain is restricted to $\mathcal{C}^*$

(19) If Ian is home, he will be cooking soup.

$\Rightarrow$ **Signals:** it's compatible with $\bigcap \mathcal{C}^*(w, t)$ that Ian is at home

X-marked conditionals: modal domain can reach outside $\bigcap \mathcal{C}^*(w, t)$

(20) If Ian were home, he would be cooking soup.

$\Rightarrow$ **Does not signal compatibility with** $\bigcap \mathcal{C}^*(w, t)$

$\Rightarrow$ **X-marking signals expansion of the modal domain** $\bigcap \mathcal{C}^*(w, t)$
$\approx$ **X-marking signals shrinking of context set** $\mathcal{C}^*(w, t)$

Two main approaches

Past-as-Past Approaches

- X-marking signals evaluation at worlds that **previously were** accessible
  (e.g. Arregui 2009; Ippolito 2013; Khoo 2015; Romero 2014)

(21) If Bernie were in Paris now, he would drink a lot of wine.
≈ *In all worlds that were once accessible and in which Bernie is in Paris now, he drinks a lot of wine.*

⇒ ☺ Makes sense of presence of past morphology
→ form-meaning mapping: 1-to-1
⇒ ☹ Problematic semantics
⇒ ☹ We often see **more than past morphology**

Past-as-Modal

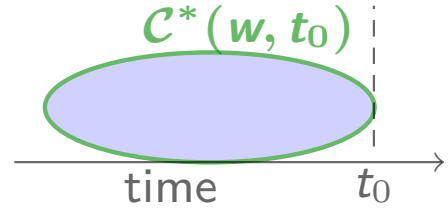
- The past we see in X-marking is 'fake'. It does not induce back shifting.
- More direct implementation of *domain expansion*
  (e.g. Iatridou 2000; Mackay 2019; past-as-∅ Crowley 2023; Leahy 2018)

⇒ ☺ Semantics
⇒ ☹ Past morphology remains puzzling
→ Form-meaning mapping: 1-to-2

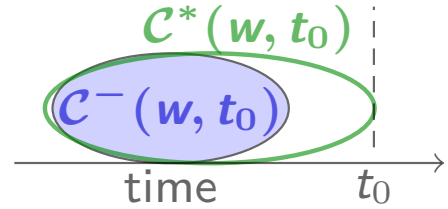
Common denominator of back shifting and hypothetical meanings

Guiding intuition behind my proposal

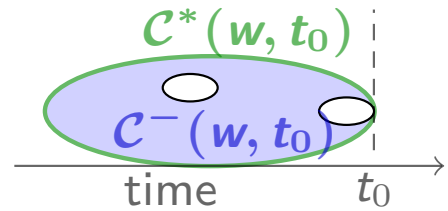
- PRESENT INDICATIVE (ϕ): evaluates ϕ at current stage of history $\mathcal{C}^*(w, t_0)$.



- PAST-TENSE(ϕ): evaluates ϕ at an earlier stage $\mathcal{C}^-(w, t_0)$ of history $\mathcal{C}^*(w, t_0)$



- X-MARKING(ϕ): evaluates ϕ at a version $\mathcal{C}^-(w, t_0)$ of $\mathcal{C}^*(w, t_0)$ from which certain single facts have been removed.



$\Rightarrow$ **In both cases $\mathcal{C}^-(w, t_0) \subset \mathcal{C}^*(w, t)$**

(Mackay 2019 hints at '$\subset$' being relevant for both meanings)

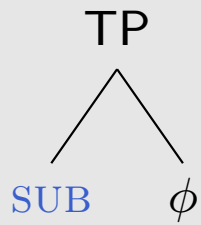
$\Rightarrow$ **Common property: removing information from $\mathcal{C}^*(w, t_0)$**

$\Rightarrow$ **A domain expansion view, since $\bigcap \mathcal{C}^*(w, t) \subset \bigcap \mathcal{C}^-(w, t_0)$**

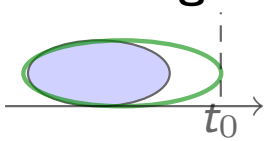
Preview on proposal

Past marking

(22)

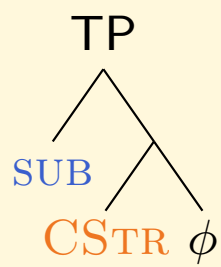


- Context set $\mathcal{C}^*(w, t)$ has temporal structure per default
- When occurring alone, feature [SUB] will lead to **'temporal shrinking'** of default context set

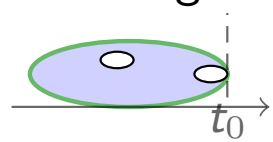


X-marking

(23)



- Feature [CSTR] imposes a more refined structure on the default context set $\mathcal{C}^*(w, t)$
- Feature [SUB] will lead to refined shrinking



Outline

Assumptions

Domain sensitive evaluation

- $[\![\ ]\!]$ is defined relative to a world, a time and a premise set $\mathcal{C}$

(24) $[\![\phi]\!]^{w,t,\mathcal{C}} = 1$ iff $\forall w' \in \bigcap \mathcal{C}(w,t) : [\![\phi]\!]^{w',t,\mathcal{C}} = 1$ (cf. Yalcin 2007)

Default premise set

- The default premise set $\mathcal{C}^*(w,t)$ is the **metaphysical premise set**
- $\mathcal{C}^*(w,t)$ is *temporally structured*

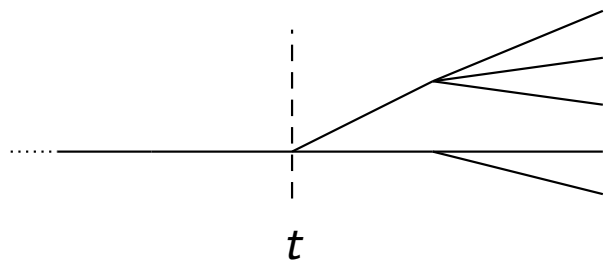
Temporal structure of the metaphysical premise set $\mathcal{C}^*(w,t)$

$\mathcal{C}^*(w,t)$ contains for any $t' \leq t$ the set $S^{t'}$ containing all the atomic sentences true at t' in w

Example

t_1	t_2
scratch – match	match – burns
bird – chirps	car – honks
sun – shines	sun – shines

$\bigcap \mathcal{C}^*(w,t)$

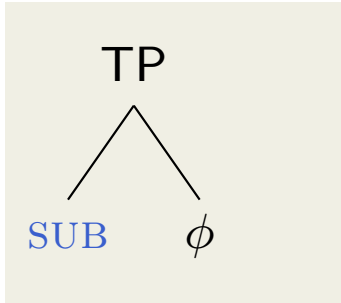


Outline

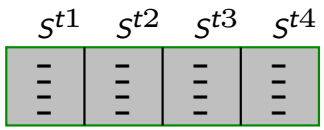
Proposal Part I – Past component

- Past tense realizes feature [SUB]

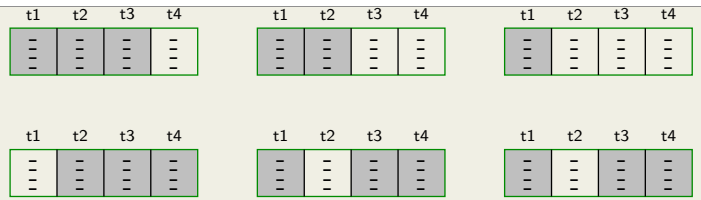
(25) $[\![\text{SUB } \phi]\!]^{g,w,t,\mathcal{C}^*} = 1$ iff $[\![\phi]\!]^{g,w,t,\mathcal{C}_i^-} = 1$,
where $\mathcal{C}_i^-(w,t) \subset \mathcal{C}^*(w,t)$



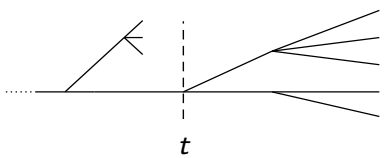
- [SUB] changes the premise set parameter to a salient subset of $\mathcal{C}^*(w,t)$
- Temporal shrinking is relatively **coarse** → targets only whole time slices



- Subsets of $\mathcal{C}^*(w,t)$ we want to refer to:
- We don't want to refer to:

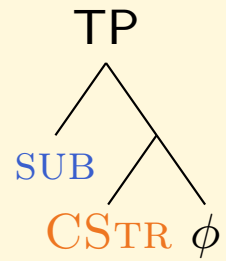


(26) $[\![\text{SUB } \phi]\!]^{w,t,\mathcal{C}^*} = 1$ iff $[\![\phi]\!]^{w,t,\mathcal{C}_i^-}$
$= 1$ iff $\forall w' \in \bigcap \mathcal{C}_i^-(w,t)$: $[\![\phi]\!]^{w',t,\mathcal{C}_i^-}$
(where $\mathcal{C}_i^-(w,t) \subset \mathcal{C}^*(w,t)$)



Proposal Part II – Component [CStr]

(27)



- The feature [CSTR] makes evaluation sensitive to a **causally structured** premise set
- It demands that the evaluation of its scope is defined relative to a premise set with causal structure

(28) $[\![\text{CSTR } \phi]\!]^{w,t,\mathcal{C}^*} = 1$ iff $[\![\phi]\!]^{w,t,\mathcal{C}^c} = 1$, where $\mathcal{C}^c(w,t)$ is the causally restructured version $CStr(\mathcal{C}^*(w,t))$ of $\mathcal{C}^*(w,t)$

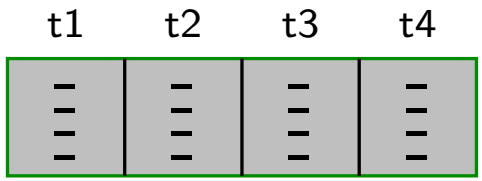
Causal restructuring

(29) For any set of sets of sentences $\mathcal{C}(w,t)$, the set $CStr(\mathcal{C}(w,t))$ is the set of sets of sentences such that

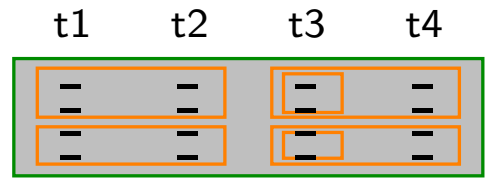
a. $\forall\phi[\phi \in \bigcup\mathcal{C}(w,t) \rightarrow \exists S[S \in CS(\mathcal{C}(w,t)) \;\&\; \phi \in S]]$
b. $\&\; \forall S \in CStr(\mathcal{C}(w,t))$: X is **closed under causal ancestors** in $\bigcup C$

$\approx$ If p is in S and causally dependent on q, then q is in S

(See Kaufmann 2013 for closure under ancestors)



$\mathcal{C}^*(w,t)$



$CStr(\mathcal{C}^*(w,t))$

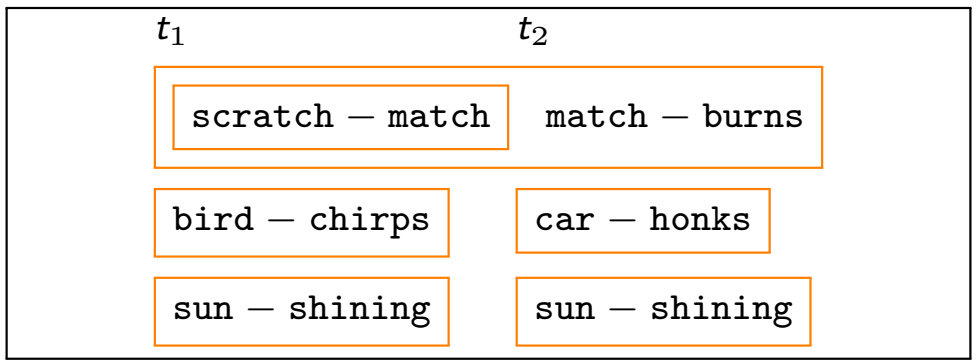
Causal restructuring of temporally structured premise set

Temporally structured premise set

t_1	t_2
scratch − match →	match − burns
bird − chirps	car − honks
sun − shining	sun − shining

$\mathcal{C}^*(w, t2) = \{ \{\texttt{scratch} - \texttt{match}, \texttt{bird} - \texttt{chirps}, \texttt{sun} - \texttt{shining}\}, \{\texttt{match} - \texttt{burns}, \texttt{car} - \texttt{honks}, \texttt{sun} - \texttt{shining}\} \}$

Causally restructured premise set $CStr(\mathcal{C}^*(w, t2))$



$\mathcal{C}^*(w, t2) = \{\{\texttt{scratch} - \texttt{match}\}, \{\texttt{scratch} - \texttt{match}, \texttt{match} - \texttt{burns}\}, \{\texttt{bird} - \texttt{chirps}\}, \{\texttt{car} - \texttt{honks}\}, \{\texttt{sun} - \texttt{shining}\}\ (\ldots)\}$

Intuition behind closure under ancestors (see Kaufmann 2013)

(30) ??If the match had not been scratched, it still might be burning

(31) If the match were not burning, it might still have been scratched.

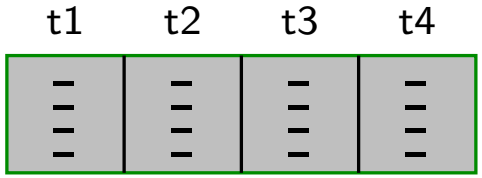
[Sub ϕ] vs. [Sub [CStr ϕ]]

[Sub ϕ] induces temporal backshift

- $\mathcal{C}^*(w,t)$ is **temporally structured**

(32) $[\![\text{SUB } \phi]\!]^{w,t,\mathcal{C}^*} = 1$ iff $[\![\phi]\!]^{w,t,\mathcal{C}_i^-} = 1$,
where $\mathcal{C}_i^-(w,t) \subset \mathcal{C}^*(w,t)$

$\mathcal{C}^*(w,t)$



[Sub ϕ] vs. [Sub [CStr ϕ]]

[Sub ϕ] induces temporal backshift

- $\mathcal{C}^*(w,t)$ is **temporally structured**

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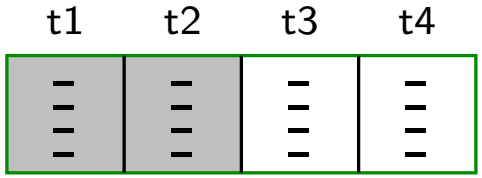
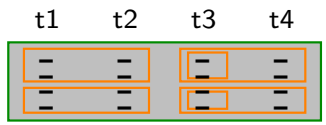
$\mathcal{C}^*(w,t)$



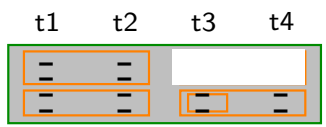
$\Rightarrow$ Shrinking of $\mathcal{C}^*(w,t)$ targets partitions in $\mathcal{C}^*(w,t)$

[Sub [CStr ϕ]] induces hypothetical shift in two steps

(34) $[\![\text{CSTR } \phi]\!]^{w,t,\mathcal{C}^*} = 1$ iff $[\![\phi]\!]^{w,t,\mathcal{C}^c}$,
where $\mathcal{C}^c(w,t) = \mathit{CStr}(\mathcal{C}^*(w,t))$



(35) $[\![\text{SUB CSTR } \phi]\!]^{w,t,\mathcal{C}^*} = [\![\text{SUB } \phi]\!]^{w,t,\mathit{CStr}(\mathcal{C}^*)} =$
1 iff $[\![\phi]\!]^{w,t,\mathcal{C}_i^-}$,
where $\mathcal{C}_i^-(w,t) \subset \mathit{CStr}(\mathcal{C}^*(w,t))$



See **mizuno2023localist**; Mackay 2019 for domain expansion/premise set shrinking accounts

$\Rightarrow$ Shrinking of $\mathit{CStr}(\mathcal{C}^*(w,t))$ targets more refined partitions.

My account vis-a-vis other semantic accounts

Semantics

- The *semantics* I assume for X-marking is much closer to existing Past-as-Modal accounts than to Past-as-Past accounts
- My semantics for X-marking can be said to represent a ***domain expansion* account** of X-marking (e.g. **mizuno2023localist**; von Fintel 1998; Kaufmann 2023; Mackay 2019; Stalnaker 1975)
- Similarities:
  - Mackay 2019: hints at '$\subset$' being the common denominator
  - Iatridou 2000: hints at modal reinterpretation of [PAST]

Form-meaning mapping

- [SUB] makes exact same contribution in X-marking and past-marking
- 'Past' is not 'fake' in hypothetical meanings
- One single mapping from the feature [SUB] to its (sole) meaning

Conclusion

We saw

- Examples where the X-marked form properly contained the past-marked form
- Language sample: genetically diverse

I took this to show that

- X-marking is composed from two components: [SUB] and [CSTR] in some languages
- When X-marking looks identical to past → **syncretism**
  Nanosyntax (and others[?]): syncretisms are the norm, not the exception

I suggested

- $A^!$ way to decompose the meaning of X-marking into a [SUB] component and a [CSTR] component
- An analysis with a unified meaning for [SUB]
- A fully compositional way to let [SUB]'s semantic effect switch between modal and temporal net effect
- A story on which morphology offers a window into the meaning of X-marking

Future work

- Look at root suppletion patterns in the IND-PAST-X paradigm
  See Bobaljik 2012 for root-*ABA patterns as a probe into containment relations in adjective gradation
- Many other things . . .

Thank you!

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