

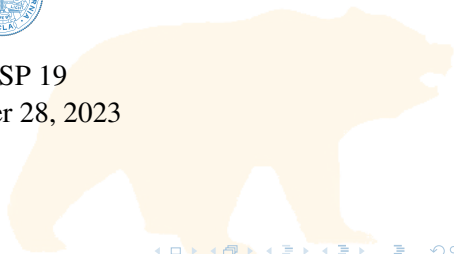
Embedded Tenses in Conditionals

Zahra Mirrazi

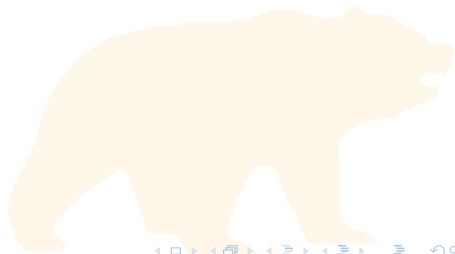
UCLA



WoSSP 19
September 28, 2023



Setting the stage



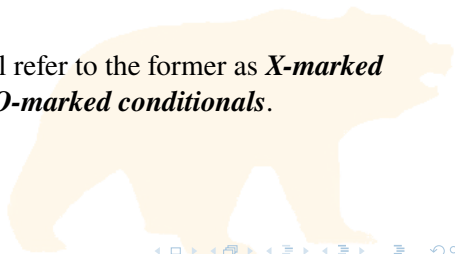
- Conditional constructions like (1) typically convey that their antecedents are false.

(1) If kangaroos **had** no tail, they **would topple** over. ?

- The antecedent of conditionals like (2), on the other hand is an open issue.

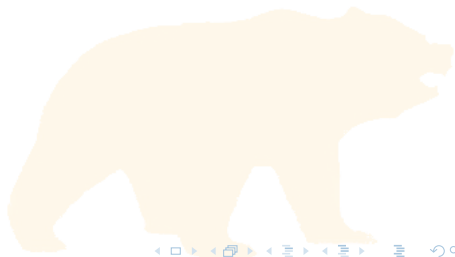
(2) If a kangaroo **has** no tail, it will topple over.

- Following terminology of ?, I will refer to the former as *X-marked conditionals*, and to the latter as *O-marked conditionals*.



- Basic but difficult questions:

- What do X-marked conditionals really mean?
- How does *antecedent falsity* come about?



- X-marked conditionals do not always imply falsity of their antecedents :

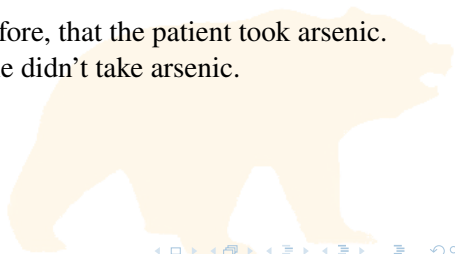
(3) **Future Less Vivid (?)**

If I **won** the lottery, I **would buy** a house.

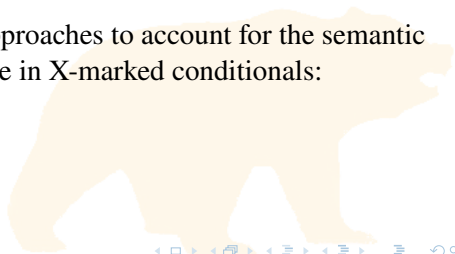
(4) **? examples (?)**

If Jones **had taken** arsenic, he **would have shown** just exactly the symptoms that he does in fact show.

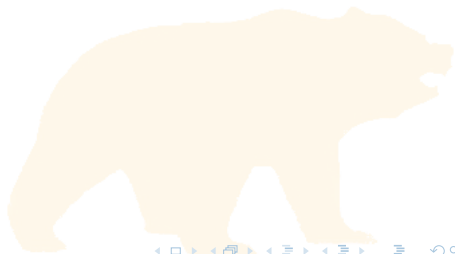
- ✓ We conclude, therefore, that the patient took arsenic.
- ✓ But we know that he didn't take arsenic.



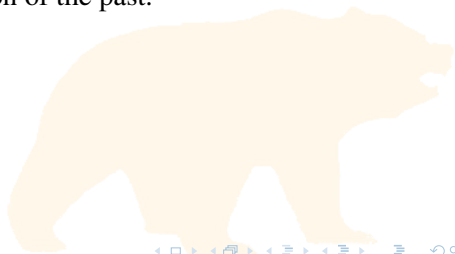
- Many unrelated languages use *past* tense morphology in the antecedent of X-marked conditionals (?).
- The Grammatical Puzzle :
 - What is the role of past tense in bringing about the meaning associated with X-marked conditionals?
- There are broadly two kinds of approaches to account for the semantic contribution of the past morpheme in X-marked conditionals:



- *The ambiguous past approach* (?; ?; ?, and ?):
- Past tense morpheme contributes either temporal reference to a time different from the present time or modal reference to a set of worlds different from the worlds in the context set.



- *The uniform past approach* (?; ?; ?; ?, ?)
- The past tense morpheme always has a uniform temporal meaning.
- The special interpretation of the past in X-marked conditionals is compositionally derived from the interaction of past tense and the modal, as a result of the structural position of the past.



What is shared

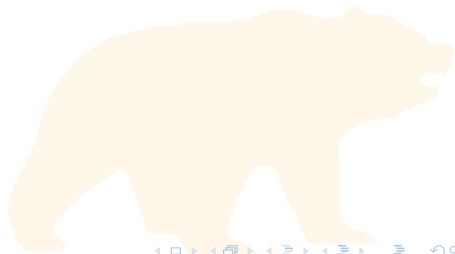
- Under both approaches, past tense does not function as the tense in the antecedent.
- Under both approaches, past tense affects a modal parameter:
 - directly in the ambiguous past approach (*past as modal*)
 - indirectly in the uniform past approach (*past as past*)

Conclusion

- Past is **outside** the antecedent.

(5) [PAST_X [[WOLL [ϕ]]ψ]]

Farsi Conditionals



X-marked conditionals in Farsi

- Like English and many other languages, the antecedent of X-marked conditionals in Farsi appears with past tense morphology.

(6) Past imperfective

- a. agar Ava javaab ro **mi-dunes-t**, barande-ye
if Ava answer RA IMPF-know.PST-3SG winner-EZ
mosabeghe mi-šod.
competition IMPF-become.PST-3SG
'If Ava knew the answer, she would win/have won the competition.'

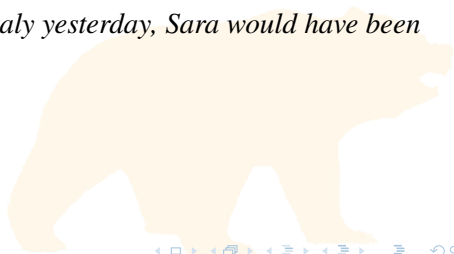
(7) Pluperfect

- a. Agar Oswald Kennedy ro **na-košte bud**,
if Oswald Kennedy RA NEG-kill-PP AUX.PST.3SG,
kas-e digar-i ou ro mi-košt.
person-EZ another-INDF him RA IMPF-kill.PST.3SG
'If Oswald hadn't killed Kennedy, someone else would have.'

Temporal orientation of the antecedent

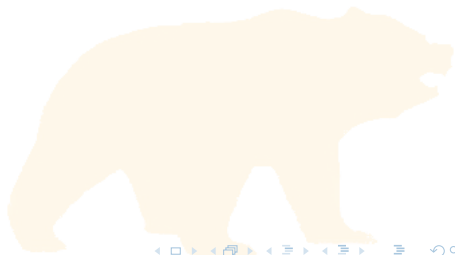
- In Farsi, X-marked conditionals whose antecedent carry one instance of past tense morphology can describe a counterfactual past event.

(8) agar John dirooz {**mi-raft/ rafte bud**} italia,
if John yesterday IMPF-go.PST.3SG/ go.PP AUX.PST.3SG Italy
Sara xošhal mi-šod
Sara happy IMPF-become-PST.3SG
*If John {*went/ had gone} to Italy yesterday, Sara would have been happy.*



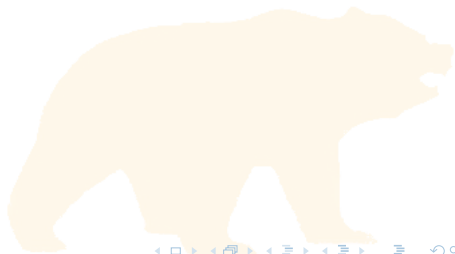
Strong Counterfactuality

- The antecedent falsity inference associated with Farsi X-marked conditionals is not *cancellable* as easily as their English counterparts.
- They are infelicitous in classic cases in which the falsity of antecedent is not implied.



Context: The result of DV-lottery will be announced tomorrow.

- (9) #agar latary ro **mi-bord**-am, green card mi-gereft-am
if lottery RA IMPF-win.PST-1SG green card IMPF-get.PST-1sg
'If I won the lottery, I would get a green card.'



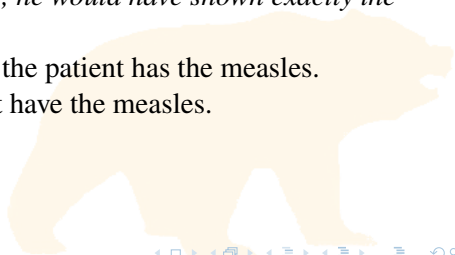
(10) agar بیمار سوزاک **gerefte bud**, daghighan in alayem-i
if patient measles get-PP AUX.PST.3SG exactly this
ke alan neshan mi-dah-∅-ad ra
symptoms-INDF that now show IMPF-give-PRES-3.SG
neshan mi-daad.

RA show IMPF-give-PST-3.SG

'If the patient had the measles, he would have shown exactly the symptoms he shows now.'

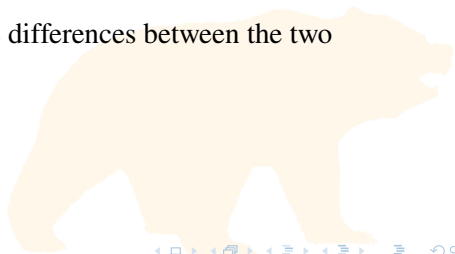
XWe conclude, therefore, that the patient has the measles.

✓But we know that he doesn't have the measles.



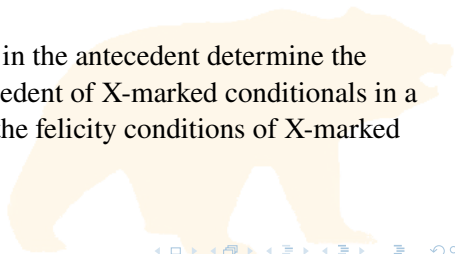
The Puzzle

- Is the semantic contribution of past tense to X-marking in Farsi and English the same or different?
- If different, why are these different meanings expressed via the same morphology?
- If the same, what accounts for the differences between the two languages?

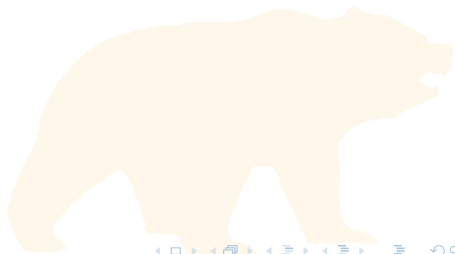


Overview of the proposal

- I argue that there are two tenses in the structure of X-marked conditionals that contribute to semantics and pragmatics of conditionals:
 - Tense **outside** the antecedent (X-marker past)
 - Tense **inside** the antecedent
- I posit that the semantic contribution of X-marker past is the same across-languages.
- Properties of the embedded tense in the antecedent determine the temporal orientations of the antecedent of X-marked conditionals in a given language. They also affect the felicity conditions of X-marked conditionals.



- The complement of the set of X-marked conditionals (i.e. *O-marked conditionals*) is not a homogeneous group.
- Farsi morphologically distinguishes between two types of O-marked conditionals: hypothetical and factual conditionals.



Hypothetical Conditionals: Zero tense antecedent

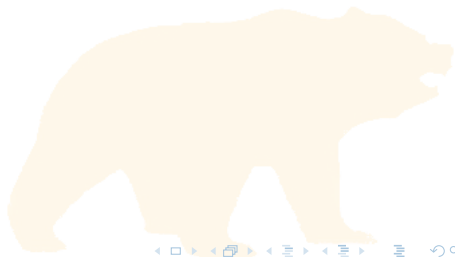
- Conditionals whose antecedent carry **zero tense** (traditionally called subjunctive) imply that their antecedent is an open issue.

(11) *Context: Police holds a press conference, and announces that they are investigating the speculation that Oswald might not be the murderer, but **nothing is certain**. John and his friend are watching the press conference.*

John to his friend:

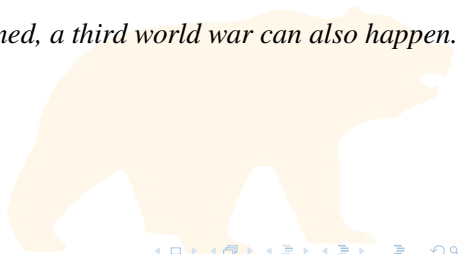
- a. Agar Oswald Kennedy ro **na-košte** **baš-ad**, kas-e
if Oswald Kennedy RA NEG-kill-PP AUX.∅.3SG, person-EZ
digar-i ou ro košte ast
another-INDF him RA kill.PP AUX.PRES.3SG
'If Oswald didn't kill Kennedy, someone else did.'

- **Zero tense** conditionals cannot be used when the *truth* or *falsity* of their antecedent is settled in the context.



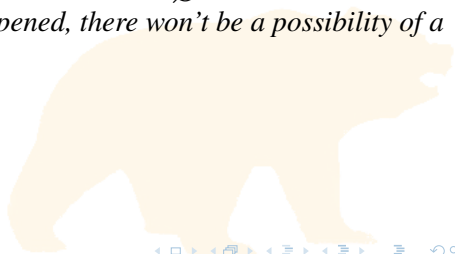
When the truth is settled:

- (12) #Agar do ta jang-e jahani ettefagh **oftaade baš-ad**,
if two CL war-EZ worldwide occurrence fall.PP AUX.∅-3SG,
jang-e jahani-e sevvom ham mi-tavan-∅-ad ettefagh
war-EZ worldwide-EZ third also IMPF-can-PRES-3SG occurrence
be-oft-ad
IMPF-fall-3SG
If two world wars have happened, a third world war can also happen.



When the falsity is settled:

- (13) #Agar do ta jang-e jahani ettefagh **na-yoftaade**
if two CL war-EZ worldwide occurrence NEG-fall.PP
baš-ad, emkan na-dar-∅-ad ke jang-e
AUX.∅-3SG possibility NEG-have-PRES-3SG that war-EZ
jahani-e sevvom ettefagh be-of-t-ad
worldwide-EZ third occurrence IMPF-fall-∅-3SG
*If two world wars haven't happened, there won't be a possibility of a
third world war.*



Factual Conditionals: Present tense antecedent

- Conditionals whose antecedent carry **present tense**¹ imply that the truth of their antecedent is either *presupposed* or has been already *asserted* and is currently under negotiation.

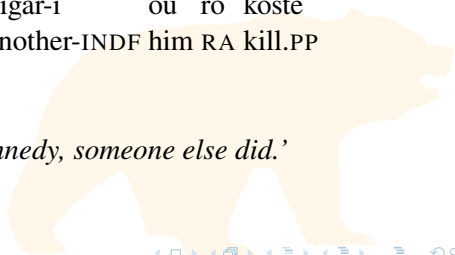
(14) Agar do ta jang-e jahani ettefagh **oftaade ast**,
if two CL war-EZ worldwide occurrence fall.PP AUX.PRES.3SG
jang-e jahani-e sevvom ham mi-tavan-∅-ad ettefagh
war-EZ worldwide-EZ third also IMPF-can-PRES-3SG occurrence
be-oft-ad
IMPF-fall-∅-3SG
If two world wars have happened, a third world war can also happen.

¹Present tense in Farsi is morphologically null (∅)

- In contexts where the antecedent proposition has been already asserted but it's not yet accepted by all participants in discourse, both zero tense and present conditionals are felicitous.

(15) *Context: Investigation is complete. Police holds a press conference, and announces that they can confirm that **Oswald wasn't the murderer**. John and his friend are watching the press conference. John to his friend:*

- a. Agar Oswald Kennedy ro na-košte **ast**/
 if Oswald Kennedy RA NEG-kill-PP AUX.PRES.3SG/
baš-ad, kas-e digar-i ou ro košte
 AUX.∅.3SG person-EZ another-INDF him RA kill.PP
 ast
 AUX.PRES.3SG
 'If Oswald didn't kill Kennedy, someone else did.'



- When the truth of the antecedent is an open issue, present tense conditionals are infelicitous.

(16) *Context: Police holds a press conference, and announces that they are investigating the speculation that Oswald might not be the murderer, but **nothing is certain**. John and his friend are watching the press conference.*

John to his friend:

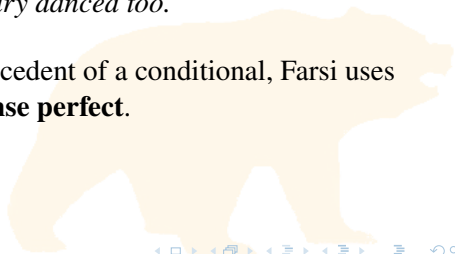
- a. #Agar Oswald Kennedy ro **na-košte** **ast**,
 if Oswald Kennedy RA NEG-kill-PP AUX.**PRES.3SG**
 kas-e digar-i ou ro košte ast
 person-EZ another-INDF him RA kill.PP AUX.PRES.3SG
 ‘*If Oswald didn’t kill Kennedy, someone else did.*’

No Past in O-marked Conditionals

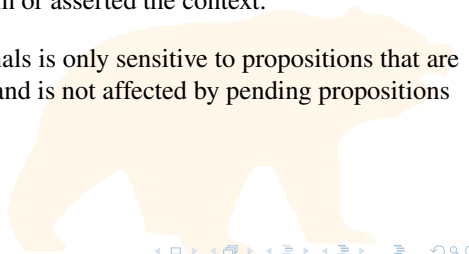
- It is infelicitous to use past tense in the antecedent of Farsi O-marked conditionals to refer to a past event.

(17) *Agar John dirooz **raghs-id/** **mi-raghs-id,**
if John yesterday dance-PERF.PST.3SG/ IMPF-dance-PST.3SG,
Mary ham raghs-id/raghs-ide ast.
Mary too dance-PERF.PST.3SG/dance-PP AXU.PRES.3SG
'If John danced yesterday, Mary danced too.'

- To refer to a past event in the antecedent of a conditional, Farsi uses either **present perfect** or **zero tense perfect**.



- The tense **inside** the antecedent of Farsi conditionals can be either **deictic tense** or **zero tense**.
- The tense **inside** the antecedent can affect felicity conditions of conditionals:
 - Conditionals with **deictic tenses** are felicitous when the antecedent proposition is already entailed in or asserted the context.
 - Felicity of **zero tense** conditionals is only sensitive to propositions that are already entailed in the context and is not affected by pending propositions in the context.



Presuppositions of O-marked conditionals

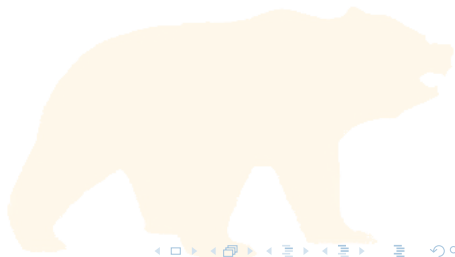
- Conditionals with **deictic tense antecedents** presuppose that the proposition is *settled* in the **projected context set**.
- Conditionals with **zero tense antecedents** do not carry any presupposition.
- The “unsettledness” implication of conditionals with **zero tense antecedents** is derived from Maximize Presupposition”.

(18) Presuppositions of O-marked conditionals

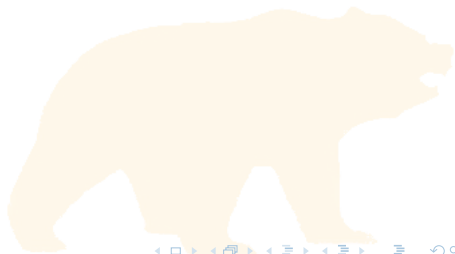
- a. [if p-TENSE⁺,q] is felicitous if and only if
 $C_s \cap p = C_{\mathcal{F}} \vee C_s \cap \neg p = C_{\mathcal{F}}^a$ (‘settledness’)
- b. [if p-~~Ø~~,q]

^aProjected context set

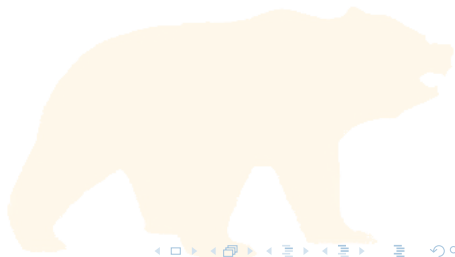
- If X-marker past is not inside the antecedent, what is the tense inside the antecedent of Farsi X-marked conditionals?



- X-marked conditionals pattern with present tense (factual) O-marked conditionals in:
 - I. **morphology** of their antecedent
 - II. **settledness** of their antecedent



- Imperfective X-marked and present tense (factual) O-marked conditionals carry the indicative version of imperfective marker (**mi-**).

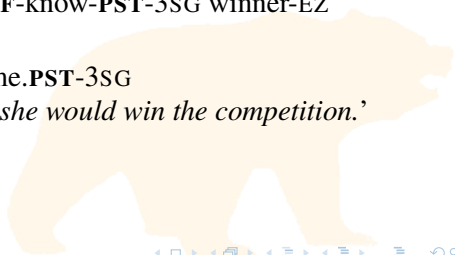


(19) **Imperfective Present tense O-marked**

agar Ava javaab ro **mi**-dan-∅-ad, barande-ye
if Ava answer RA **IMPF-know-PRES-3SG** winner-EZ
mosabeghe mi-šav-∅-ad.
competition **IMPF-become.PRES-3SG**
'If Ava knows the answer, she will win the competition.'

(20) **Imperfective Past X-marked**

agar Ava javaab ro **mi**-dunes-t, barande-ye
if Ava answer RA **IMPF-know-PST-3SG** winner-EZ
mosabeghe mi-šod.
competition **IMPF-become.PST-3SG**
'If Ava knew the answer, she would win the competition.'

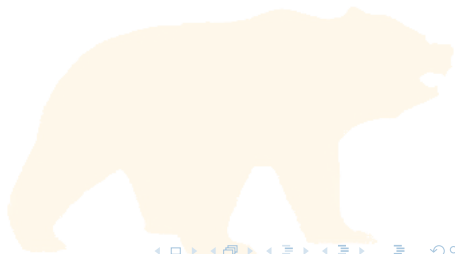


(21) **Imperfective Zero tense O-marked**

agar Ava javaab ro **be**-dan-ad, barande-ye
if Ava answer RA IMPF-know-~~Ø~~-3SG winner-EZ
mosabeghe mi-šav-~~Ø~~-ad.

competition IMPF-become.PRES-3SG

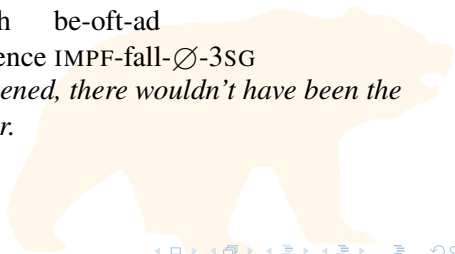
'If Ava knows the answer, she will win the competition.'



II. Settledness

- X-marked conditionals can only be used in contexts where the falsity of the antecedent proposition is either *presupposed* or has been already *asserted* and is currently under negotiation.

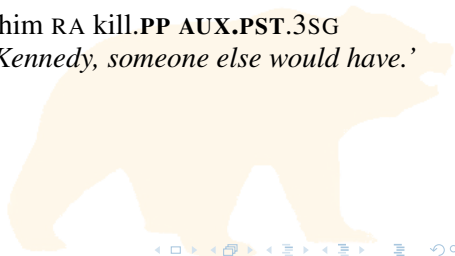
(22) Agar do ta jang-e jahani ettefagh **na-oftaade**
if two CL war-EZ worldwide occurrence NEG-fall.**PP**
bud, emkan na-dašt ke jang-e
AUX.PST.3SG possibility NEG-have.PST.3SG that war-EZ
jahani-e sevvom ettefagh be-oft-ad
worldwide-EZ third occurrence IMPF-fall- \emptyset -3SG
If two world wars hadn't happened, there wouldn't have been the possibility of a third world war.



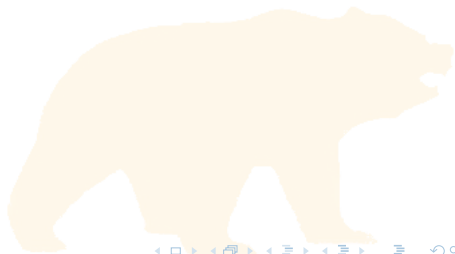
- In contexts where the falsity of the antecedent proposition has been already asserted but it's not yet accepted by all participants in discourse, both zero tense and X-marked conditionals are felicitous.

(23) *Context: Investigation is complete. Police announces that they can confirm that **Oswald was in fact the murderer.***

Agar Oswald Kennedy ro **na-košte** **bud**,
 if Oswald Kennedy RA NEG-kill-PP AUX.PST.3SG
 kas-e digar-i ou ro košte bud
 person-EZ another-INDF him RA kill.PP AUX.PST.3SG
 ‘*If Oswald hadn’t killed Kennedy, someone else would have.*’



- (24) Amma agar Oswald Kennedy ro **na-košte** **baš-ad**,
but if Oswald Kennedy RA NEG-kill-PP AUX. ~~Ø~~.3SG,
kas-e digar-i ou ro košte ast
person-EZ another-INDF him RA kill.PP AUX.PRES.3SG
‘But if Oswald didn’t kill Kennedy, someone else did.’



- When the falsity of the antecedent is an open issue, X-marked conditionals are infelicitous.

(25) *Context: Police holds a press conference, and announces that they are investigating the speculation that Oswald might not be the murderer, but **nothing is certain**. John and his friend are watching the press conference.*

John to his friend:

Agar Oswald Kennedy ro **na-košte bud**,
if Oswald Kennedy RA NEG-kill-PP AUX.PST.3SG,
kas-e digar-i ou ro košte bud
person-EZ another-INDF him RA kill.PP AUX.PST.3SG
'If Oswald hadn't killed Kennedy, someone else would have.'

Conclusion

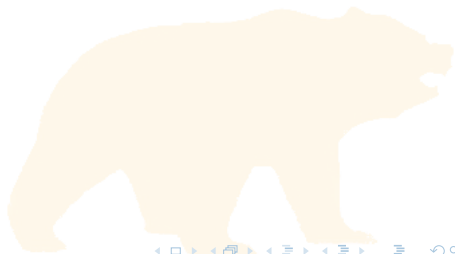
- The tense **inside** the antecedent of Farsi X-marked conditionals is **deictic**; thus, they also come with a settledness presupposition.
- Since the past tense is independently banned from appearing **inside** the antecedent of Farsi conditionals, I conclude that the antecedent of Farsi X-marked conditionals, like factual conditionals, contain present tense.

(26) [PAST [[WOLL [ϕ ... **pres** ...]] ψ]]^a

^aRemember, present tense in Farsi is morphologically null.

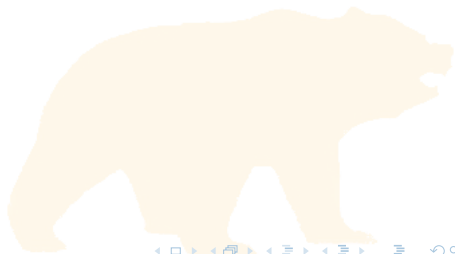


Temporal Orientation of the antecedent

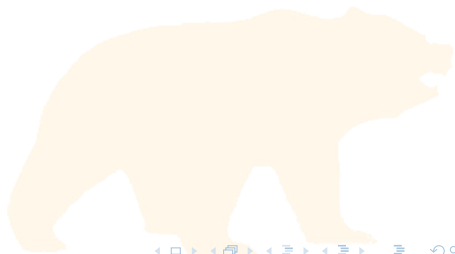


Farsi: X-marked conditionals

- (27) agar John dirooz mi-rav.∅-t italia, Sara xošhal
if John yesterday IMPF-go.**PRES-PST**.3SG Italy Sara happy
mi-šod
IMPF-become-PST.3SG
*If John ***went/had gone** to Italy yesterday, Sara would have been happy.*



- Why do Farsi and English X-marked conditionals differ in the temporal orientation of their antecedent?
- The properties of embedded tenses in the two languages are different.
 - English is a SOT language.
 - Farsi is a non-SOT language.



- In non-SOT languages, present-under-past receives a simultaneous interpretation.

Farsi: present-under-past

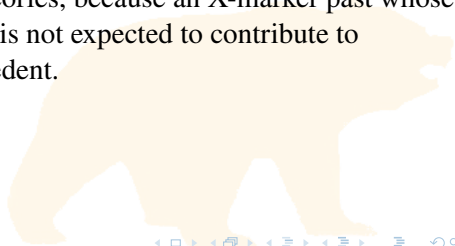
(28) do sal-e piš, Sara gof-t ke John be Italia
 two year-EZ before, Sara say-PERF.PST.3SG that John to Italy
 mi-rav. ⓧ-ad.

IMPF-go-PRES-3SG

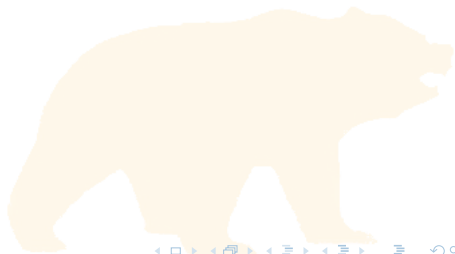
Two years ago, Sara said that John **went/*goes** to Italy
 (✓ simultaneous).’



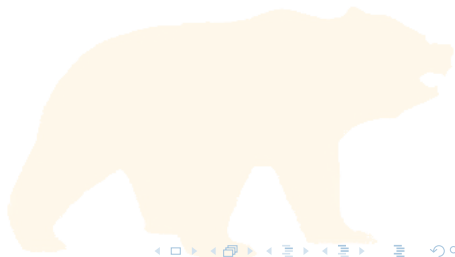
- In non-SOT languages like Farsi, present tense shifts under a c-commanding X-marker *past*: therefore, a present tense in the antecedent of an X-marked conditional can also be interpreted as a bound tense and therefore it is allowed to co-occur with past or future adverbials.
- ? show that Hebrew and Japanese, both non-SOT languages, pattern like Farsi in simultaneously expressing counterfactuality and past oriented antecedent with one instance of past.
- This challenges past-as-modal theories, because an X-marker past whose function is supposed to be modal is not expected to contribute to temporal orientation of the antecedent.



Strength of counterfactuality



- Why do Farsi and English X-marked conditionals differ in the strength of counterfactuality?
- The tense inside the antecedent of Farsi X-marked conditionals comes with a settledness presupposition.



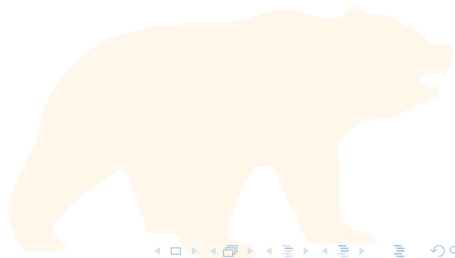
Context: The result of DV-lottery will be announced tomorrow.

- (29) #agar latary ro **mi-bor-∅-d-am**, green card
if lottery RA IMPF-win-PRES-PST-1SG green card
mi-gereft-am
IMPF-get.PST-1sg
'If I won the lottery, I would get a green card.'



- The truth of the antecedent is not settled in the projected context set.

⇒ The X-marked conditional is predicted to be infelicitous

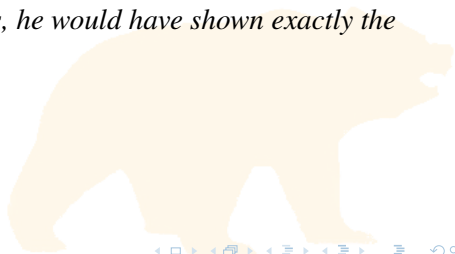


Anderson-type examples (Farsi)

- (30) #agar bimar sorxak **gerefte bud**, daghighan in
if patient measles catch-PP AUX.PRES.PST.3SG exactly this
alayem-i ke alan neshan mi-dah- \emptyset -ad ra neshan
symptoms-INDF that now show IMPF-give-PRES-3.SG RA show
mi-daad.

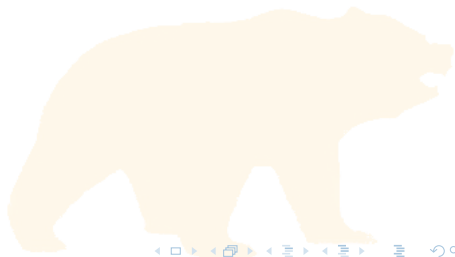
IMPF-give-PST-3.SG

'If the patient had the measles, he would have shown exactly the symptoms he shows now.'



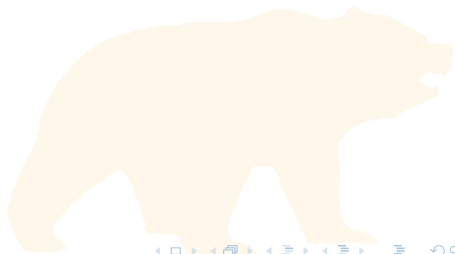
- The truth of the antecedent is not settled in the projected context set.

⇒ The X-marked conditional is predicted to be infelicitous



Farsi X-marked conditionals without counterfactuality

- I have claimed that the strong counterfactuality of Farsi X-marked conditionals comes from the settledness presupposition of the deictic present tense in the antecedent.
- If this analysis is on the right track, we expect the counterfactuality of X-marked conditionals whose antecedent has a shifted present tense to be cancelable.
- This prediction is borne out.



Aria who has borrowed Farshid's car calls Farshid: It's foggy everywhere. There was a turn where...

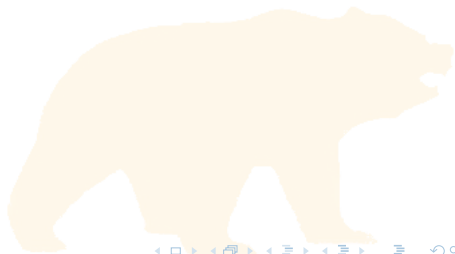
- (31) agar shans {**ne-mi-avar-∅-d-am/** #**na-yavorde**
if luck NEG-IMPF-bring-**PRES**-PST-1SG/ NEG-bring-PP
bud-am}, tah-e darre mi-oft-ad-am.
AUX-**PRES**-PST-1SG bottom-EZ valley IMPF-fall.PST-1SG
'if I wasn't/hadn't been lucky, I (with the car) would fall/have fallen
into a valley.'

- (31) *Farshid: Are you really calling so early in the morning to say this?*
Aria: well, I wasn't lucky...

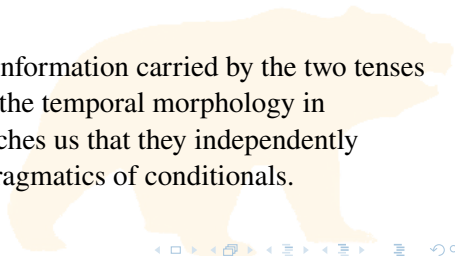
adapted from a post on *Twitter*²

²Thanks to Masoud Jasbi for showing me this example.

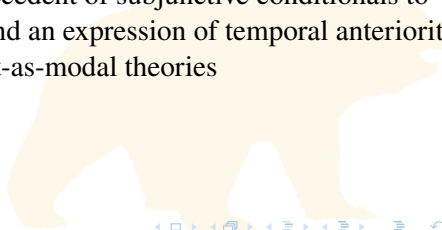
Conclusion



- The cross-linguistic variations in cancellability of antecedent falsity inference can be explained without a need to posit that the semantic contribution of past tense in X-marked conditionals varies across languages.
- There are two tenses in the structure of X-marked conditionals that independently contribute to the semantics and pragmatics of conditionals:
 - the tense **outside** the antecedent (X-marker past)
 - the tense **inside** the antecedent, which is responsible for specifying the temporal location of antecedents.
- Although in many languages the information carried by the two tenses are indistinguishably packed into the temporal morphology in conditional antecedents, Farsi teaches us that they independently contribute to the semantics and pragmatics of conditionals.



- Whether a language is SOT or non-SOT determines the temporal interpretation in the antecedents of X-marked conditionals.
- Whether or not the past tense morphology in a language L can *simultaneously* express counterfactuality and pastness of their antecedent depends on whether L's present tense can be shifted to the past under a past operator.
- The correlation between being an SOT language on the one hand, and allowing the past tense in the antecedent of subjunctive conditionals to be simultaneously an X-marker and an expression of temporal anteriority on the other hand, challenges past-as-modal theories

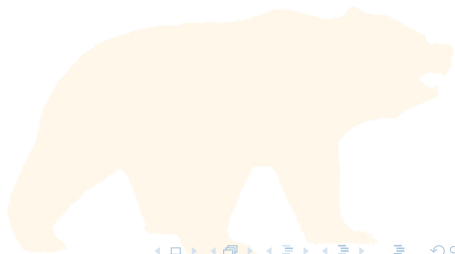


Thank You!

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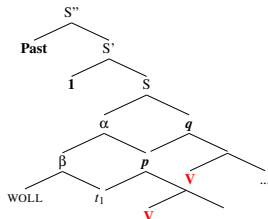


Appendix

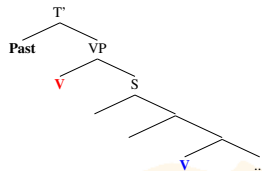


- Deictic tense features have to be morphologically realized via agreeing with the **closest verb** in their c-commanding domain.

(32) X-marked conditionals



(33) Pres-under-past



- In the X-marked conditional, neither the antecedent verb nor the consequent verb c-command each other. So they both Agree with the tense c-commanding the whole conditional without violating Relativized Minimality.

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