From Perfectivity to Performativity in conditionals[1]

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Abstract. This paper documents a novel pattern in the expression of conditional statements about future in Farsi. When both p and ¬p are equally plausible future events, the antecedent of conditional statements about future can either be marked with imperfective or perfective. Conditionals whose antecedent is marked with *perfective* necessarily give rise to '*performative*' interpretations in the consequent. I propose an analysis that derives the differences between the two conditionals from their sole linguistics difference, i.e. the semantics of aspectual heads, and general principles of pragmatic reasoning.

Keywords: Aspect, conditionals, performative utterances

1. Zero tense Antecedent and Future-oriented conditionals

This research documents a novel pattern in the expression of conditional statements about future in Farsi. When the antecedent proposition p is not settled, i.e. p and ¬p are equally plausible future events, there are two possible ways of marking the verb in the antecedent of Farsi conditionals: the imperfective zero tense (1), and perfective zero tense (2).[2]

(1) **Imperfective zero tense**

Agar jarime **be-š**-i,   bayad pool-esh ro be-d-i
If   fine   **IMPF**-become.∅-2SG should money-its RA IMPF-give.∅-2SG

If you get a ticket, you must pay it. [3]

(2) **Perfective zero tense**

Agar jarime **šod**-i,   bayad pool-esh ro be-d-i
If   fine   become.**PERF**.∅-2SG should money-its RA IMPF-give.∅-2SG

If you get a ticket, you must pay it.   →*warning*

Conditionals whose antecedent is marked with *perfective* aspect give rise to a wide variety of '*performative*' interpretations in their consequent. What I mean by *performative interpretation* is the use of ordinary sentences not to describe the world, but rather to change it. Let me illustrate what I have in mind with an example by Mandelkern (2020). Suppose Mark tells John: "*This afternoon, you will be cleaning the rabbit cage.*" Assume that Mark has the right

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[2] In Farsi, antecedents marked with diectic tenses come with the presupposition that the truth or falsity of the antecedent proposition to presuppositions is settled in the context set relative to which the antecedent is uttered and they yield factual or counterfactual interpretations. When the antecedent proposition is not settled in the context, it is necessarily marked with zero tense, which is traditionally called subjunctive (Mirrazi 2022). Conditionals with zero tense antecedents are hypotheticals.

[3] Imperfective marker in Farsi has two morphological realizations depending on the deictic property of tense. *be-* is the variant that appears with zero tense.

kind of authority over John to tell him what to do. In such a scenario, this sentence does not just inform John about the future, but also obligates John to bring about that future, i.e. the cleaning of the rabbit cage. By uttering this sentence, Mark communicates his belief that John will clean the rabbit cage later in the day. If John had no prior intention to do so but acknowledges Mark's authority, he will reason that Mark would only believe that John will clean the rabbit cage if Mark is imposing that he do so. Consequently, John is likely to adjust his plans to comply with Mark's beliefs, assuming he recognizes Mark's authority to impose requirements on him.

Now compare this to a descriptive use of the sentence, when Mark reports to Mary, *"This afternoon, John will be cleaning the rabbit cage."* There is no obvious reason to think that Mark's sentence to Mary is semantically different from his first sentence. As Mandelkern (2020) argues, it is natural to think that these sentences have the same content in the two contexts. The only difference is that Mark's assertion in the first context serves not just to describe the world, but also to impose an obligation for the hearer to bring about the state of affairs described. By describing what the future will be like in the right normative setting, Mark's assertion functions to change the future. As Mandelkern (2020) argues, it is natural to assume that these two utterances have the same semantic content. In both cases, they are statements with ordinary truth conditions. Their difference is a matter of pragmatics: in their performative uses, utterances function to change the world. Truth conditional approaches to performative utterances have also been taken by Condoravdi and Lauer (2011); Eckardt (2009, 2012), among others. In this chapter, I take a similar approach. I take performative utterances to have the same semantic content as other utterances. They denote propositions, which in situations talks are properties of situations. The performative interpretation is treated as a matter of pragmatics.

My aim in this paper is to derive the pragmatic differences between the two conditionals from their sole linguistic difference, i.e. the semantic properties of aspectual heads, and general principles of pragmatic reasoning.

2. Performative interpretations of consequents

In this section, I will provide data that illustrate the semantic and pragmatic differences between perfective and imperfective zero tense conditionals.

2.1. Imperatives

Conditional imperatives provide a clear case of contrast between perfective and imperfective zero tense conditionals. As shown in (3), conditional imperatives in Farsi are ungrammatical with imperfective zero tense antecedents.

(3) Agar farda   {***be-bin-i-sh/**   **did-i**-sh},   az-ash   be-pors
     If   tomorrow **IMPF**-see.∅-2SG-him/ see.**PERF**.∅-2SG-him from-him IMPER-ask
     If you see him tomorrow, ask him.

2.2. Declaratives

A declarative in the consequent of a zero tense conditional whose antecedent carries a perfective aspect necessarily get a performative interpretation. That is, perfective zero tense conditionals cannot be used to just describe the world. Consider the contrast in (4), where it is shown that a

perfective conditional cannot be used by a human right activist to describe the horrible situation Afghan women experience.

(4) *A human right activist describing the terror Afghan women experience:*

agar zan-an-e   afghan eteraz {**be-kon-and/   #kar-d-and**}, koš-te
if   woman-PL Afghan protest **IMPF**-do-∅-3PL/ do.**PERF**.∅-3PL kill-PP
mi-šav-and
IMPF-become-3PL.

If Afghan women protest, they will get killed.

When the consequent can be interpreted performatively—to change the world so as to include the future situation that it is describing, the perfective antecedent is felicitous. For instance, the perfective conditional is acceptable when uttered by a Talib threatening Afghan women.

(5) *A speaker of Taliban threatening Afghan women:*

agar zan-an-e   afghan eteraz {**be-kon-and/   kar-d-and**}, koš-te
if   woman-PL Afghan protest **IMPF**-do-∅-3PL/ do.**PERF**.∅-3PL kill-PP
mi-šav-and
IMPF-become-3PL.

If Afghan women protest, they will get killed.

A similar contrast between perfective and imperfective conditionals can be seen in the interpretation of deontic modals in the consequent. Deontic modals in the consequent of perfective zero tense conditionals, necessarily have a *performative* interpretation. The perfective conditional implies that it is the speaker who imposes the obligation, and thus endorses the obligation. That is why the obligation cannot be at odds with the speaker's view of that obligation. As the contrast in (6) shows, only an imperfective conditional is felicitous with the continuation '*but I don't want you to pay*'.

(6) Agar jarime {**be-š-i/**   **#šod**-i},   bayad pool-esh ro
     If   fine **IMPF**-become.∅-2SG/ become.**PERF**.∅-2SG should money-its RA
     be-d-i
     SUBJ-give-2SG
     If you get a ticket, you must pay it. **but I don't want you to pay.**

Both perfective and imperfective conditionals in 6 are felicitous in a context where the addressee is borrowing the speaker's car, and the speaker is warning them that in the event of getting a ticket, they're obligated to pay it.

When there is an epistemic modal in the consequent, and a performative interpretation is not possible, the antecedent of a zero tense conditional has to be imperfective. For instance, the contrast in (7) shows that perfective conditionals are not felicitous in an epistemic reasoning scenario.

(7) agar harf-ha-ye shahed-e eini ra jeddi {**be-gir-im**/   #**gereft-im**},
     if   word-PL-EZ witness-EZ visual RA serious **IMPF**-take-∅-1PL/ take-**PERF**-∅-1PL
     John ne-mi-tavan-∅-ad   ghatel   baš-ad.
     John NEG-IMPF-can-PRES-3SG murderer be.∅-3SG
     If we take what the eyewitness said seriously, John cannot be the murderer.

The contrast in (8) shows that perfective zero tense conditional cannot felicitously be used to take a *wild guess*.

(8) *John is about to flip a fair coin. Mark takes a wild guess about the outcome.*

   agar sekke ra {**be-andaz**-i/   #**andaxt**-i},   šir   mi-ay-ad
   if   coin RA **IMPF**-throw-∅-2SG/ throw.**PERF**-∅-2SG heads IMPF-come-3SG

   If you flip the coin, it will come up heads.

The perfective conditional is only felicitous when it can be interpreted as an authoritative claim. An example of such a context is given in (9), where the speaker warns the addressee against flipping the coin. The authoritative nature of this claim can be further illustrated with challengeability tests. Since the speaker of the perfective conditional is understood to claim that they *know* that the coin is not fair, the truth of their statement cannot be denied with *'That's not true'*. The only way a perfective conditional claim can be challenged is to ask the speaker to justify the *source* of their knowledge, with *'how do you know?'*.

(9) *John is about to flip a fair coin. He has bet on tails. Mark knows that the game is rigged. The coin is not fair, and has heads on both side. Mark is warning John:*
   a. gar sekke ra **andaxt**-i,   šir   mi-ay-ad
      if coin RA throw.**PERF**-∅-2SG heads IMPF-come-3SG
      If you flip the coin, it will come up heads.
      ✗**John: That's not true. It may come up tails.**   →*infelicitous as a wild guess*
      ✓**John: How do you know?**
   b. gar sekke ra **be-andaz**-i,   šir   mi-ay-ad
      if coin RA **IMPF**-throw-∅-2SG heads IMPF-come-3SG
      If you flip the coin, it will come up heads.
      ✓**John: That's not true. It may come up tails.**
      ✓**John: How do you know?**

An interesting contrast between perfective and imperfective conditionals in Farsi can be seen in the interpretation of biscuit conditionals. The choice of the aspect in the antecedent depends on the inference associated with the biscuit conditional.

If the biscuit conditional involves an indirect speech act that requires the speaker's authority over the addressee, the antecedent must carry the perfective aspect. For instance, a biscuit conditional that is used by the speaker to convey an *order* for the addressee to lie has to have a perfective antecedent. The contrast between perfective and imperfective conditionals in the famous example by Siegel (2006) illustrates this point.

(10) *An adult is travelling by bus with a child. They see a ticket collector who is going around checking that children above four have paid full fare. Parent to the child: (the context is provided by Biezma and Goebel (2023))*

agar {**pors-id**-and/ #**be-pors**-and} čand sal-et-e, čahar sal-et-e
if ask-**PERF**-∅-3PL/ **IMPF**-ask-∅-3PL some year-2SG-3SG, four year-2SG-3SG

If they ask how old you are, you are four. →*offer*

Similarly, the biscuit conditional in (11), which is used by the speaker to *offer* food to the hearer, is only felicitous when the antecedent is marked with perfective morphology.

(11) *The host is leaving the house. She tells her guest that he should feel free to help himself to some food, while she's not home.*

agar gorosne {#**be-sh**-i/ **shod**-i}, ghaza tu yakhchal hast.
if hungry **IMPF**-become-∅-2SG/ become.**PERF**.∅-2SG food in fridge is

If you get hungry, there's food in the fridge. →*offer*

In contrast, in a context where the speaker lacks the required authority to offer the food to the hearer and the biscuit conditional is used to just inform the hearer of available options, the antecedent has to be marked with imperfective morphology. This is shown in (12).

(12) *Amir and Masoud are guests in an Airbnb. Amir to Masoud, who is worried about food:*

agar gorosne {**be-sh**-i/ #**shod**-i}, ghaza tu yakhchal hast.
if hungry **IMPF**-become-∅-2SG/ become.**PERF**.∅-2SG food in fridge is

If you get hungry, there's food in the fridge.
But ask for the host's permission first.

In sum, we have seen that the perfective aspect in the antecedent of future-oriented hypothetical conditionals in Farsi is only felicitous when a performative interpretation of the consequent is plausible in the context.

3. Insights from pragmatics of biscuit conditionals

While perfective and imperfective conditionals can have both biscuit and non-biscuit uses, perfective conditionals share three important properties with biscuit conditionals, even in their non-biscuit uses: (1) the independence of the antecedent and the consequent, (2) incompatibility with reverse mapping to discourse structure, and (3) unembeddability under attitude predicates.

In the remainder of this section, I first discuss these shared properties of biscuit conditionals and Farsi perfective conditionals. Then, I will give an overview of independence-based accounts of biscuit conditionals that provide a crucial insight into understanding the semantic and pragmatic behavior of perfective conditionals in Farsi.

3.1. Shared properties of perfective conditionals and biscuit conditionals

3.1.1. Independence

The main characteristics of biscuit conditionals is that the truth of consequent in a biscuit conditional holds independent of the truth of antecedent (13). Consider the famous examples by Austin (1958).

(13)   If you are hungry, there are biscuits on the sideboard.   *biscuit*

Unlike hypothetical conditionals that convey that the consequent is true in all of the worlds where the antecedent is true, biscuit conditionals convey that the consequent is true in all the worlds in the context, not just those selected by the antecedent. Explaining this observation, which is referred to as the *consequent entailment*, is the main puzzle in the study of biscuit conditionals. Many pragmatic accounts of biscuit conditionals (Franke 2009; Sano and Hara 2014; Lauer 2015; Francez 2015; Biezma and Goebel 2023) take the consequent entailment to be by-product of the assumed independence between antecedent and consequent. For instance, the consequent entailment associated with the conditional (13) is the result of our assumption that the truth of the consequent proposition '*there are biscuits on the sideboard*' does not depend on anyone's hunger.

Not all perfective conditionals in Farsi are biscuit conditionals, so the consequent entailment is clearly not a shared properties of perfective conditionals. Nevertheless, these conditional seem to presuppose a certain kind of independence between the antecedent and the consequent. This is evident in the infelicity of perfective conditionals in contexts where it is already assumed that the antecedent and the consequent are dependent.

First, consider the example in 14 where the truth of the consequent necessarily follows from the truth of the antecedent. In such contexts, the perfective conditional is not acceptable.

(14)   agar farda   došanbe {**baš-ad**/ **#bud**},   pas farda   sešanbe
       if   tomorrow Monday be.∅.3SG/ be.PERF.∅.3SG after tomorrow Tuesday
       ast.
       be.PRES.3SG
       If tomorrow is Monday, the day after is Tuesday.

Furthermore, perfective conditionals cannot be used to describe natural laws and generalizations, as shown in (15). The perfective conditional in (15) is only felicitous when it is used as a warning to the addressee against burning themselves with boiling water.

(15)   agar ab   dagh {**be-šav**-ad/   **#šod**},   mi-juš-∅-ad.
       if   water hot   **IMPF**-become.∅-3SG/ become.**PERF**.∅.3SG IMPF-boil-PRES-3SG
       if water heats up, it boils.

Finally, contexts where a conditional is used to highlight the dependency between antecedent and consequent to argue for or against the antecedent proposition, provides another environment to illustrate the independence between antecedent and consequent of perfective conditionals. That is, perfective conditionals are not felicitous in question and answer pairs like (16).

(16)   A: why (not) p?
       B: Because if p, q.

The examples in (17) show that only imperfetcive conditionals are felicitous in such contexts.

(17)   A: Why don't you tell her the truth?   B:..

agar haghighat ra   beh-esh {**be-guy**-am/   **#gof-t**-am},   narahat
if   truth   RA to-her   **IMPF**-tell-∅-1SG/ tell-**PERF**-∅-1SG upset
mi-šav-∅-ad.
IMPF-become-PRES-3SG

If I tell her the truth, she'll get upset.

3.1.2. Default discourse mapping

In the default mapping of conditionals to discourse, the antecedent is understood to set up a question under discussion (QUD), which the consequent provides an answer to (Haiman 1978; Ebert et al. 2014; Biezma and Goebel 2023). Thus, it is the consequent that presents at-issue content in a default mapping. The QUD can be characterized as *'What is true at the selected p-worlds?/ what if p?'*. Let us illustrate this default mapping with the discourse mapping of the biscuit conditional *'if you are hungry, there are biscuits on the sideboards.'*.

(18)   QUD: What if you're hungry?
       Answer: There are biscuits on the sideboard.

The reverse of this mapping is also possible. In the reverse mapping, the antecedent is understood as an answer to a question about the consequent. Thus, the at-issue content is presented by the proposition in the antecedent. The QUD for the reverse mapping can be characterized as *'What are the propositions p such that for all selected worlds in which p is true, q is true?/ When q?'*. The example (19) illustrates the reverse mapping.

(19)   If you mow the lawn, I'll give you 5 dollars.
       a. QUD: When would you give me 5?
       b. Answer: If you mow the lawn, I'll give you 5.

Biezma and Goebel (2023) show that the reverse mapping is not available to biscuit conditionals. When the QUD is a question about the consequent, and the antecedent presents 'at issue' content (provides an answer to QUD), a biscuit conditional is infelicitous.

(20)   A: When are there biscuits on the sideboard?
       B: # if you are hungry, there are biscuits on the sideboard.

Only the default mapping to discourse is available to perfective conditionals, even in their non-biscuit uses. This is demonstrated by the infelicity of perfective conditionals in contexts where the antecedent provides the answer to QUD (contains the 'at issue' content), as in (21)-(22).

(21)   *A: How can I get to the mall?   B:..*

agar az   samt-e rast {**be-r**-i/   #**raf-t**-i},   ye saxtemun-e boland
if   from side-EZ right **IMPF**-go-∅-2SG/ go-**PERF**-∅-2SG a   building-EZ tall
mi-bin-∅-i,...
IMPF-see-PRES-2SG,...

if you go right, you will see a tall building,..

(22) *A: I hate Breaking Bad. What will change my opinion?*   *B:...*

agar ghesmat-ha-ye badi-š   ro {**be-bin**-i/   #**did**-i}   ,
if   episode-PL-EZ next-its RA **IMPF**-see-∅-2SG/ see.**PERF**-∅-2SG opinion-your
nazar-et avaz   mi-šav-∅-ad.
change IMPF-become-PRES-3SG

"If you see its next episodes, your opinion will be changed."

When it is the consequent which provides the answer to QUD, the perfective conditional becomes acceptable. For instance, it is the consequent in (23) that provides a *yes* answer to the QUD. Therefore, both imperfective and perfective conditionals are felicitous.

(23) *A: Will you buy me chocolate?*   *B:..*

agar {**be-rav**-am/   **raf-t**-am}   maghaze, bara-t   šokolat
if   **IMPF**-go-∅-1SG/ go-**PERF**-∅-1SG store   for-you chocolate
mi-xar-∅-am
IMPF-buy-PRES-1SG

if I go to the store, I will buy you chocolate.

3.1.3. (Un)embaddability

It has been shown that biscuit conditionals cannot be embedded attitude verbs unless it is a speech act verb (Iatridou 1991; Bhatt and Pancheva 2006; Siegel 2006; Scheffler 2008; Rawlins 2020).

(24) John says/*believes that if you're thirsty there is beer in the fridge.

The examples in (25) show that while perfective conditionals in Farsi cannot be embedded under attitude predicates like *think*, they are embeddable under a speech act verb like *say*.

(25) a. Talib fekr mi-kon-∅-ad   ke agar zan-an-e   afghan eteraz
          Talib think IMPF-do.PRES-3SG that if   woman-PL Afghan protest
          {**be-kon-and**/   #**kar-d-and**}, koš-te mi-šav-and
          IMPF-do-∅-3PL/ do.**PERF**.∅-3PL kill-PP IMPF-become-3PL
          *Talib **thinks** if Afghan women protest, they will get killed.*
      b. Talib mi-guy-∅-ad   ke agar zan-an-e   afghan eteraz {**be-kon-and**/
          Talib IMPF-say.PRES-3SG that if   woman-PL Afghan protest **IMPF**-do-∅-3PL/
          kar-d-and},   koš-te mi-šav-and
          do.**PERF**.∅-3PL kill-PP IMPF-become-3PL
          *Talib **says** if Afghan women protest, they will get killed.*

Perfective conditionals can also be embedded under imperatives. Interestingly, as the example (26) illustrates, the imperfective conditional is infelicitous here.

(26) čatr   be-yar   ke   agar baran {**amad/**   **#be-ay-ad**},   xis
     umbrella IMPER-bring that if   rain   come.**PERF**.∅.3SG/ **IMPF**-come.∅.3SG wet
     na-šav-i
     NEG-become.∅-2SG
     Bring an umbrella so that if it rains, you don't get wet.

3.2. Independence-based accounts of biscuit conditionals

The striking similarities between properties of biscuit conditionals and Farsi perfective conditionals raise two important questions: (1) what shared feature of these conditionals is responsible for their similarities? (2) what role does the perfective aspect play in expressing this feature?

Independence-based accounts of biscuit conditionals, as discussed by Franke (2007, 2009); Van Rooij (2007); Sano and Hara (2014); Biezma and Goebel (2018, 2023), provide an insightful perspective for addressing the first question. Assuming a standard semantics for both biscuit and hypothetical conditionals, the key idea of these accounts is that the biscuit interpretation arises from pragmatic reasoning about the relevance of conditionals in face of the independence between antecedent and consequent. These accounts diverge in their characterization of the independence. I will adopt the conceptual framework introduced by Biezma and Goebel (2023), which distinguishes between the two notions of independence: (i) *informational independence* (referred to as *epistemic independence* by Franke (2009)) and (ii) factual independence.

The informational independence, which is formally defined (27), refers to the relationship between two propositions, ϕ and ψ, in a context set *Cs* whereby the context set can be updated with any logically possible conjunction of these propositions and their negations.

(27) **Informational independence**
     Let W be a set of possible worlds and $\phi, \psi \subseteq W$, i.e. ϕ , ψ are propositions, X and Y variables over propositions and σ an information state, a set of possible worlds. Propositions ϕ and ψ are *orthogonal/ informationally independent* iff $\forall X \in \{\phi, \overline{\phi}\}, \forall Y \in \{\psi, \overline{\psi}\}$: if $\Diamond_\sigma X$ and $\Diamond_\sigma Y$, then $\Diamond_\sigma(X \cap Y)$ where $\Diamond_\sigma P$ is shorthand for $P \cap \sigma \neq \emptyset$, i.e., compatibility of P and the information state σ .
                                       Biezma and Goebel (2023) adapted from Franke (2009)

The factual independence between two propositions, in contrast, is determined on the basis of law-like generalizations that hold among facts in the actual world. Such law-like dependencies among facts have been argued to play a crucial role in the interpretation of counterfactual conditionals (Kratzer 1981; Veltman 2005; Arregui 2011, among others). Biezma and Goebel (2023) formalize the notion of the factual independence in the premise semantics of Veltman (2005) and Arregui (2011). The technical details of this formal definition fall outside the scope of our current discussion. The importance of the account of Biezma and Goebel (2023) lies in explaining how the distinction between the factual independence and the information independence, together with assumptions about their interaction can account for the behavior of biscuit

conditionals. Here, I present an informal overview of their proposal and discuss how it can be extended to explain properties of perfective conditionals in Farsi.

Biezma and Goebel (2023) take the context set includes participants' assumptions about facts in the actual world and generalization that hold among these facts. They propose that our assumptions about generalizations that hold among facts govern our information state. That is, if our assumptions about law-like generalizations rule out any factual dependencies between two propositions p and q, then updating the context set with the antecedent proposition p, cannot remove all not-q worlds. Consequently, given the definition of the informational independence in (27), the two factually independent propositions will necessarily be informationally independent. They refer to this intuitive constraint that governs the relationship between the two notions of independence as the *Mirror Constraint*, defined below.

(28)   **Mirror Constraint (Biezma and Goebel 2023)**
       If two propositions are presupposed to be factually independent in *Cs*, then they cannot be informationally dependent in *Cs*.

Now let us see how this system explains the difference between biscuit and hypothetical conditionals with the help of an example by Biezma and Goebel (2023). Consider the conditional statement *If you like blue, the wedding dress is blue*. Imagine this is uttered in a context where it is presupposed that your color preferences and the color of the wedding dress are factually independent (for instance, because the wedding dress is already bought and its color cannot be changed). Given the the Mirror Constraint, updating the context with this conditional utterance cannot cannot give rise to informational dependence between the antecedent and consequent. (Biezma and Goebel 2023) propose that the pragmatic strategy to avoid this mismatch between the Mirror Constraint and the update proposed by the if-construction is a strengthened update whereby all worlds in which the consequent is false are removed from the *Cs*. The result of this strengthened update is the consequent entailment. This accounts for the biscuit interpretation of this conditional.

Now assume the conditional '*If you like blue, the wedding dress is blue*' is uttered before the wedding dress is bought. Since the possibility of a factual dependency between your color preferences and the color of the wedding dress has remained open, the context set is compatible with learning that the antecedent and the consequent are informationally dependent. The conditional is interpreted as a hypothetical, without violating the Mirror Constraint.

Biezma and Goebel (2023) only consider cases where the factual independence between the antecedent and consequent is pragmatically presupposed, and the pragmatic strategy they propose suffices for such cases. This framework opens up two empirical questions: (1) can we find cases where the factual independence between the antecedence and consequent is semantically presupposed? (2) is there any other strategy available to resolve the mismatch between the Mirror Constraint and uttering an if-construction when the factual independence is presupposed?

I believe that perfective conditionals in Farsi provide an affirmative answer to both of these questions. In the next section, I provide denotations of perfective and imperfective aspects that together with a standard Kratzerian semantics of conditionals explains why perfective conditionals presuppose that the antecedent and consequent are *factually* independent. I then propose

that *speaker authority* is a conventional implicature that arises from the violation of the Mirror Constraint and the Cooperative Principle (Grice 1975).

4. Proposal

The overarching goal of this paper is to derive the semantic and pragmatic differences between perfective and imperfective conditionals in Farsi from the semantics of these aspectual heads. This analysis also aims to provide an explanation for the observed similarities between Farsi perfective conditionals and biscuit conditionals. This proposal unfolds in three parts. First, I will provide my assumptions about semantics of conditionals, tense and aspect within Situation Semantics. Then, by characterizing the notion of factual independence within the lumping framework of (Kratzer 1989), I argue that the factual independence is the semantic contribution of the perfective aspect in the antecedent. Lastly, building on insights from Biezma and Goebel (2023), I derive the performative flavor of perfective conditionals from pragmatic reasoning to maintain relevance in face of factual independence.

4.1. Theoretical assumptions: Situation Semantics

I assume a standard Kratzerian view of conditionals, it then follows that the consequent cannot be according *if*-clauses to restrict the quantification domain of modals. Instead of quantifiers over possible worlds, in Situation Semantics modals are quantifiers over possible situations.

(29) $[\![\text{if p, q}]\!]^{c,g} = \forall s'[s' \leq w_s.\ p(s') \rightarrow \exists s''[s' \leq s''\ \&\ q(s'')]]$

In Mirrazi (2022, 2024), I put forth denotations for tense and aspectual heads that effectively capture their distributional patterns in Farsi. This section provides an overview of the proposal, focusing on aspects relevant to the current discussion, namely the semantics of perfective and imperfective aspect, as well as zero tense.

Propositions in the framework of situation semantics (Kratzer 2021, 2012) are defined as the characteristic function of a set of situations, i.e. properties of situation. Some situations contain nothing that does not contribute to the truth of a given proposition. These are *exemplifying* situations of a proposition (Kratzer 2021). The notion of *Exemplification* is defined below.

(30)   A situation *s* **exemplifies** a proposition *p* if whenever there is a part of *s* in which *p* is not true, then *s* is a minimal situation in which *p* is true.   (Kratzer 2021: p.23)

There are two ways for a situation *s* to exemplify p: (i) Either *p* is true in all subsituations of *s*, or (ii) *s* is a *minimal* situation in which p is true.

(31)   A situation *s* is **a minimal situation** in which a proposition *p* is true ($p(s) = 1$) iff it has no proper parts in which *p* is true. This is represented with the notation $\downarrow p(s)$.
          (Kratzer 2021: p.24)

In line with the widely accepted view that that characterizes aspectual categories in terms of mereological notions like whole and part (e.g. Verkuyl 1972; Krifka 1992; Filip 1999), Mirrazi (2022, 2024) takes aspect to determine the structural properties of the situation under discussion. I follow Cipria and Roberts (2000) in adopting a situation semantic without explicit

quantification over events in the object language. Taking events to be exemplifying situations (Kratzer 2021), aspect will combine with a property of situations expressed by VP and introduces structural constraints on its exemplifying situations. Perfective aspect restricts the set of situations exemplifying the proposition expressed by its embedded VP to quantizated minimal situations. Imperfective aspect, on the other hand, specifies that the set of situations exemplifying the proposition expressed by its embedded VP is a homogeneous set. The denotations of perfective and imperfective aspect are given below.[4]

(32) $[\![\text{PERFECTIVE}]\!]^{c,g} = \lambda P_{\langle s,t \rangle}.\ \lambda s.\ P(s) = 1\ \&\ \forall s'[\ s' \leq s\ \&\ P(s') = 1 \rightarrow\ s' = s]$

(33) $[\![\text{IMPERFECTIVE}]\!]^{c,g} = \lambda P_{\langle s,t \rangle}.\ \lambda s.\ \forall s'[s' \leq s\ \&$
      <u>there exists a contextually salient relation R such that $R(s)(s')$.</u> $\rightarrow\ P(s') = 1]^{5}$

Translating the presuppositional theory of tense (Heim 1994) into the situation semantics, Mirrazi (2022, 2024) takes tense to introduce a presupposition about the value of a variable that ranges over situations. Thus, tense operates on an aspectual phrase in its scope which contains some situation variable s, and introduces a presupposition about the value of s. Zero tense does not introduce any deictic constraint on the situation they refer to (Kratzer 1998 and Arregui 2009). As (34) shows, the denotation of zero tense is simply an identity function.

(34) $[\![\emptyset]\!]^{g} = \lambda P_{\langle s,t \rangle}.\ P$

Given that the zero tense does not introduce a topic situation, the antecedent of these conditionals denote a property of *exemplifying* situations. The absence of deictic tense in the antecedent of perfective conditionals plays a crucial role in my analysis. Deictic tenses introduce a topic situation that contains the exemplifying situation denoted by VP, along with a presupposition about its temporal location with respect to the utterance time. Therefore, tensed clauses do not necessarily denote properties of exemplifying situations.

Denotations of antecedents of imperfective and perfective conditionals are given in (35).

(35) a. $[\![\,[_{\text{TP}}\ \emptyset\ [_{\text{ASPP}}\ \text{IMPERFECTIVE}\ [_{\text{VP}}\ P]\,]\,]\,]\!]^{c,g} = \lambda s. \forall s'[s' \leq s\ \&$
         <u>there exists a contextually salient relation R such that $R(s)(s')$</u> $\rightarrow P(s') = 1]$
      b. $[\![\,[_{\text{TP}}\ \emptyset\ [_{\text{ASPP}}\ \text{PERFECTIVE}\ [_{\text{VP}}\ P]\,]\,]\,]\!]^{c,g} = \lambda s.\ \downarrow P(s) = 1$ where $\downarrow$ represents minimal situations.

It is important to note that the denotation of imperfective in (33) is compatible with cases where the situation exemplifying a given proposition is a quantized one. When $s' = s$, it is true that for all situations s' that has a "part of" relation with s (where $R(s)(s')$ is an identity relation), $P(s')$ holds true. In other words, the denotation of imperfective entails that of perfective but

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[4]I will summarize the denotation of perfective aspect as given below, where $\downarrow$ represents quantized situations (i.e. $\forall s'[\ s' \leq s\ \&\ P(s') = 1 \rightarrow\ s' = s)$.

(1) $[\![\text{PERFECTIVE}]\!]^{c,g} = \lambda P_{\langle s,t \rangle}.\ \lambda s.\ \downarrow P(s) = 1$

[5]This denotation is adapted from the proposal by Cipria and Roberts (2000) and Arregui et al. (2014) who take the imperfective aspect to introduce a universal quantifier over situations.

the reverse entailment relation does not hold. Given the Gricean maxim of quantity, which requires participants to be maximally informative, the use of a weaker alternative implies that the speaker believes the stronger alternative does not hold true. In other words, there is at least some $s' \leq s$ such that $s' \neq s$ and $P(s') = 1$. This will be important in explaining the observation that imperfective conditionals are compatible with performative interpretations, and can make a biscuit conditionals.

4.2. Deriving Independence from minimality

My goal here is to argue that the minimality constraint that perfective aspect puts on the value of the situation variable denoted by the antecedent is responsible for the factual independence between antecedent and consequent of perfective conditionals.

To characterize the notion of factual independence, I adopt the lumping framework of Kratzer (1989), according to which factual dependencies can be tracked on the basis of lumping relations between propositions. A proposition lumps another proposition in a world w in virtue of certain part-whole relationships holding between situations of w.

(36) For all propositions p and $q \in \mathbf{P}(S)$ and all $w \in W$: p lumps q in w iff (a) and (b):
   a. $w \in p$
   b. For all $s \leq w$ and $s \in p$, then $s \in q$ (Kratzer 1989, 2012)[6]

The definition of factual independence within this framework is given in (37).

(37) For all propositions p and $q \in \mathbf{P}(S)$ and all $w \in W$: p is **factually independent** of q in w iff $w \in p$ and $\exists s : s \leq w$ and $s \in p$, and $s \notin q$).[7]

Against this backdrop, we can see that exemplifying minimal situations, while easily lumped by other situations, are poor lumpers themselves. This is due to two factors: (i) they do not contain any sub-situations irrelevant to the truth of a proposition they exemplify (*exemplification*); (ii) they do not contain any proper sub-situations that make the proposition they exemplify true (*minimal situation*). I have argued that the antecedent of perfective conditionals in Farsi denote a property of exemplifying minimal situations where exemplification arises from the absence of deictic tense, and minimality is contributed by the semantics of the perfective aspect. Therefore, the antecedent cannot lump the consequent. It follows, then, that the they are factually independent. This explains why perfective conditionals are infelicitous in contexts where the consequent logically follows from the truth of the antecedent (see 3.1.1).

4.3. Deriving performativity from Independence

Having established that the semantics of the antecedent of perfective conditionals results in factual independence between the antecedent and the consequent, I will now turn to pragmatically deriving the performative flavor of these conditionals. Borrowing the main insight Biezma and Goebel (2023), I argue that the speaker authority inference associated with perfective conditional is the pragmatic strategy to maintain the Cooperative Principle in face of the factual independence.

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[6]Every situation that makes p true, contains a part that makes q true.
[7]There exists at least one situation that makes p true, but does not contain any part that makes q true.

The perfective conditional semantically encodes the factual dependence between the antecedent and the consequent. After uttering the conditional, however, the antecedent and consequent propositions will not be informationally independent (learning the antecedent will lead to learning the consequent). This violates the Mirror Constraint. Biezma and Goebel (2023) argue that there are two options to overcome this violation: (i) interpreting the speaker as saying they don't indicating that they don't share the independence assumption represented in Cs, (ii) applying a strengthened update that does not lead to a problematic informational dependence in Cs. We have seen that the second option that is taken for interpreting biscuit conditionals results in consequent entailment. There are two reasons why adopting this option would fail to account for the behavior of perfective conditionals. Firstly, this strategy is not viable for (5) which is a conditional threat. Secondly, this cannot explain the difference between the perfective and imperfective biscuit conditionals (see the contrast in (11) and (12)). How about the option (i)? Note that the use of a perfective conditional, which signals the factual independence indicates that the speaker also share the independence assumption. I believe that there is a third option. We can conclude that the speaker is signaling that they have an authority to *build* a dependency between the two propositions by imposing a new law.

My proposal is that perfective conditionals, which semantically encoded factual independence, are conventionalized as a linguistic clue to signal that they are indirect speech acts. The pragmatic strategy used is similar to bald-face lies. Harris (2020) argues that '*some bald-face lies are actually indirect speech acts wherein the speaker makes as if to assert something in order to indirectly accomplish some other conversational goal.*' '*By uttering something that is obviously false, and that would be obviously uncooperative if taken literally, the speaker manages to flout the maxim of quality and indirectly communicate something else.*'

Similarly, a speaker who uses a perfective conditional *lets shine through* that the antecedent and the consequent are factually independent, and yet claims that they are informationally dependent. This is obviously contradictory and uncooperative if taken literally. Given the Cooperative Principle (Grice 1975), the major underlying assumption that we make in a conversation is that all discourse participants are acting in a way to accomplish conversational goals. Assuming that the speaker knows that the addressee will not drop the Cooperative Principle in interpreting what they hear, they use a *'bald-faced'* contradiction to signal that the conditional utterance is actually an indirect speech act, and to produce the pragmatic effect of *speaker authority*.

Before ending this section, let us briefly discuss how this proposal can derive the differences between the imperfective and perfective conditionals in Farsi. Recall that the denotations of aspectual heads proposed by Mirrazi (2022, 2024) characterizes the imperfective as a weaker alternative to the perfective, as the denotation of imperfective asymmetrically entails that of perfective. Therefore, we expect their distribution to be regualted by the pragmatic principle of Maximize Presupposition (Heim 1991), defined in (38).

(38)   **Maximize Presupposition**
       If ϕ and ψ are contextually equivalent alternatives, and the presuppositions of ψ are stronger than those of ϕ, and are met in the context of utterance, one must use ψ in c. (Heim 1991)

Given the Maximize Presupposition, we can explain why in cases where signaling the speaker

authority is needed to successfully perform the associated speech act, the use of the imperfective conditional is infelicitous. Examples of such cases include conditional imperatives, as in (3), and the use of biscuit conditionals as a genuine offer, as seen in (11).

5. Conclusion and future directions

In this paper, I have presented a novel pattern in which the presence of the perfective aspect in the antecedent of zero tense conditionals in Farsi results in performative interpretations. I have argued that the antecedent of perfective conditionals in Farsi denotes a property of exemplifying minimal situations, thereby establishing factual independence between the antecedent and the consequent. The performative flavor of perfective conditionals was then derived a pragmatic inference reasoning to maintain the Cooperative Principle in face of the factual independence. A strength of this proposal is that it groups Farsi perfective conditionals with other performative conditionals , i.e. biscuit conditionals, and it offers a principled and unified explanation for their shared properties. Providing evidence that the factual independence in conditionals can be linguistically encoded, this paper also highlights the central role of factual independence in performativity of conditionals.

A question that naturally arises: can we find counterparts of Farsi perfective conditionals in other languages? In exploring, it's crucial to remember that the perfective aspect alone may not be enough to convey factual independence. The absence of deictic tense is key here, as tensed clause do not necessarily denote properties of *exemplifying* situations.

As I conclude this paper, I would like to draw attentions to similarities between Farsi perfective conditionals and conditional conjunctions of the form *Imperative and Declarative (IaD)* in English. It appears that declaratives in the second conjunct of IaDs, like the consequent proposition in Farsi perfective conditionals, have performative interpretations.

Von Fintel and Iatridou (2017) distinguish between two kinds of readings of IaDs: (i) endorsing IaDs (e-Iad) which interpreted as coming with an endorsement from the speaker about the advisability of the imperative proposition in the first conjunct, as in (39a); (ii) non-endorsing IaDs (n-IaD) which do not come with such an endorsement, as (39b) and (39c).

(39)   a. Study hard and you will pass the class. (e-IaD)
        b. Ignore your homework and you will fail this class.(n-IaD)
        c. Open the paper and you will find five mistakes on every page.(n-IaD)

Accounts of IaDs diverge with respect to whether or not they take imperatives to contribute their standard directive force. I will not discuss details of different analyses of IaDs here, I will just assume what is shared among these approach, which is the view that IaDs express conditional propositions (Russell 2007; Kaufmann 2012; Von Fintel and Iatridou 2017), and only mention their similarities with Farsi perfective conditionals.

Von Fintel and Iatridou (2017) observe that IaDs cannot be embedded, which they take to pose a challenge for the view that take IaD to be conditional propositions. As we have seen, however, Farsi perferctive conditionals and biscuit conditionals similarly resist embedding.

(40)   a. *He doesn't believe that ignore your homework and you will fail.

  b. *He doesn't believe that study and you will succeed.

Moreover, a deontic modal in the second conjunct of IaDs necessarily has a performative inter-
pretation. It cannot be interpreted as a mere description of an obligation. The examples in (41)
show that IaDs are infelicitous with continuation in which the speaker conveys that they do not
endorse the obligation in the second conjunct.

(41) a. Get a ticket, and you should pay it. #But I really don't want you to pay.
      b. Get into a PhD program, and you should study hard. #But I think you'll be fine
          even without studying hard.

Finally, like Farsi perfective conditionals, IaDs can only be felicitous when it can be interpreted
as an authoritative claim. That is, the speaker is understood to claim that they *know* (as opposed
to merely believe) that the conditional holds. Thus, the truth of their statement cannot be denied
with *'That's not true'*. Instead, the IaD claims can be challenged by asking the speaker to justify
the source of their knowledge, with *How do you know?*.

(42) a. A: Throw that coin, and it will come up heads.
      b. B: #That's not true. It may come up tails.
      c. B: ✓How do you know?

While further research is needed, it seems to me that IaDs might be the counterpart of Farsi
perfective conditionals. Interestingly, as reported by Von Fintel and Iatridou (2017), Farsi lack
IaD constructions. I will leave this as a topic for future exploration.

References

Arregui, A. (2009). On similarity in counterfactuals. *Linguistics and Philosophy 32*(3).

Arregui, A. (2011). Counterfactual-style revisions in the semantics of deontic modals. *Journal of Semantics 28*(2), 171–210.

Arregui, A., M. L. Rivero, and A. Salanova (2014). Cross-linguistic variation in imperfectivity. *Natural Language & Linguistic Theory 32*(2), 307–362.

Austin, J. L. (1958). Ifs and cans. *Journal of Symbolic Logic 23*(1).

Bhatt, R. and R. Pancheva (2006). Conditionals. *The Blackwell companion to syntax*, 638–687.

Biezma, M. and A. Goebel (2018). The pragmatic ingredients to get perfect biscuits. In *Proceedings of Sinn und Bedeutung*, Volume 21, pp. 179–198.

Biezma, M. and A. Goebel (2023). Being pragmatic about biscuits. *Linguistics and Philosophy 46*(3), 567–626.

Cipria, A. and C. Roberts (2000). Spanish imperfecto and pretérito: Truth conditions and aktionsart effects in a situation semantics. *Natural language semantics 8*(4), 297–347.

Condoravdi, C. and S. Lauer (2011). Performative verbs and performative acts. In *Proceedings of Sinn und Bedeutung*, Volume 15, pp. 149–164.

Ebert, C., C. Ebert, and S. Hinterwimmer (2014). A unified analysis of conditionals as topics. *Linguistics and Philosophy 37*(5), 353–408.

Eckardt, R. (2009). Integrated speech acts. *Unpublished manuscript*.

Eckardt, R. (2012). Hereby explained: an event-based account of performative utterances. *Linguistics and philosophy 35*(1), 21–55.

Filip, H. (1999). *Aspect, eventuality types, and nominal reference*. Psychology Press.

Francez, I. (2015). Chimerical conditionals. *Semantics and Pragmatics 8*, 2–1.

Franke, M. (2007). The pragmatics of biscuit conditionals. In M. Aloni, P. Dekker, and F. Roelofsen (Eds.), *Proceedings of the 16th Amsterdam Colloquium*, pp. 91–96.

Franke, M. (2009). *Signal to act: Game theory in pragmatics*. Institute for Logic, Language and Computation Amsterdam.

Grice, H. P. (1975). Logic and conversation. In *Speech acts*, pp. 41–58. Brill.

Haiman, J. (1978). Conditionals are topics. *Language 54*(3), 564–589.

Harris, D. W. (2020). Intentionalism and bald-faced lies. *Inquiry*, 1–18.

Heim, I. (1991). Artikel und definitheit. In A. von Stechow and D. Wunderlich (Eds.), *Semantik: Ein internationales Handbuch des zeitgenossischen Forschung*, pp. 487–535. De Gruyter Mouton.

Heim, I. (1994). Comments on Abusch's theory of tense. In H. Kamp (Ed.), *Ellipsis, tense and questions*. University of Edinburgh.

Iatridou, S. (1991). *Topics in conditionals*. Ph. D. thesis, Massachusetts Institute of Technology.

Kaufmann, M. (2012). *Interpreting imperatives*, Volume 88. Springer Science & Business Media.

Kratzer, A. (1981). Partition and revision: The semantics of counterfactuals. *Journal of Philosophical Logic 10*(2), 201–216.

Kratzer, A. (1989). An investigation of the lumps of thought. *Linguistics and philosophy*.

Kratzer, A. (1998). Scope or pseudoscope? Are there wide-scope indefinites? In S. Rothstein (Ed.), *Events and Grammar*, pp. 163–196. Kluwer Academic Publishers.

Kratzer, A. (2012). *Modals and conditionals: New and revised perspectives*, Volume 36. Oxford University Press.

Kratzer, A. (2021). Situations in natural language semantics.

Krifka, M. (1992). Nominal reference and temporal. *Lexical matters* (24), 29.

Lauer, S. (2015). Biscuits and provisos: Providing unconditional information by conditional means. In *Proceedings of Sinn und Bedeutung*, Volume 19, pp. 377–394.

Mandelkern, M. (2020). How to do things with modals. *Mind & Language 35*(1), 115–138.

Mirrazi, Z. (2022). *Tense in Conditionals: Ins and Outs*. Ph. D. thesis, University of Massachusetts, Amherst.

Mirrazi, Z. (2024). Aspectual distinctions in farsi indicative and subjunctive forms. Volume 3 of *Current Issues in Linguistic Theory*. John Benjamins. under review.

Rawlins, K. (2020). Biscuit conditionals. *The Wiley Blackwell Companion to Semantics*, 1–26.

Russell, B. (2007). Imperatives in conditional conjunction. *Natural Language Semantics 15*(2), 131–166.

Sano, K. and Y. Hara (2014). Conditional independence and biscuit conditional questions in dynamic semantics. In *Semantics and Linguistic Theory*, Volume 24, pp. 84–101.

Scheffler, T. (2008). Relevance conditionals as utterance modifying adverbials. In O. Bonami and P. Cabredo Hofherr (Eds.), *Empirical Issues in Syntax and Semantics 7*, pp. 327–392.

Siegel, M. E. (2006). Biscuit conditionals: Quantification over potential literal acts. *Linguistics and Philosophy 29*(2), 167–203.

Van Rooij, R. (2007). Strengthening conditional presuppositions. *Journal of Semantics 24*(3),

289–304.

Veltman, F. (2005). Making counterfactual assumptions. *Journal of Semantics 22*(2), 159–180.

Verkuyl, H. J. (1972). On the compositional nature of the aspects, vol. 15 of flss. dordrecht: D.

Von Fintel, K. and S. Iatridou (2017). A modest proposal for the meaning of imperatives. *Modality across syntactic categories 288*, 319.