Past-as-Past in counterfactual desire reports:
A view from Japanese*

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Abstract The semantic contribution of Fake Past in counterfactual expressions has been actively debated in recent semantic literature. This study deepens our current understanding of this natural language phenomenon by digging into the behavior of Past tense in Japanese counterfactual desire reports. We show that the Past-as-Past approach to Fake Past makes correct predictions about its semantic behavior.

Keywords: Fake Past, counterfactual desire reports, Past-as-Past, hindsight, Japanese

1 Introduction

Counterfactual (CF) expressions concern what is believed to be false or impossible at the actual world. From a morpho-syntactic point of view, CF expressions often involve Past morphology that apparently lacks its ordinary temporal meaning, as illustrated by English CF conditionals in (1). The antecedents of (1a) and (1b) involve Past or Past Perfect forms of verbs, which are *prima facie* at odds with the presence of the future adverb *'tomorrow'* in the same clause.

(1)   a.   If John *came* tomorrow, the party would be fun.

        b.   If John *had come* tomorrow, the party would have been fun.

Such seemingly extraneous occurrences of Past morphology can also be found in *CF desire reports*. CF desire reports, expressed for instance by English *'wish'*, describe one's desires that are deemed unattainable at the actual world. Like the antecedents of CF conditionals, the complement clause of *wish* involves Past tense which does not appear to have its usual temporal meaning (2a). Similarly interesting is the fact that many languages encode the meaning of *wish* through the combination of *want* and Past (Iatridou 2000; von Fintel & Iatridou 2022), as illustrated by Greek (2b). The Past on the desire predicate again seems to lack its expected past reference, as the desire expressed is what the agent *has* at the present moment.

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(2) a. I wish John *were* coming tomorrow.

  b. ϑa   iϑela   [na itan   psilos].
   MOD want.PAST.IMPF NA be.PAST tall
   'I wish he were tall.'

The occurrences of Past morphology thus frequently attested in CF expressions are now generally called *Fake Past* (Iatridou 2000).[1] The semantic contribution of Fake Past has been hotly debated both in linguistics and in philosophy. Although concrete analyses and implementations vary from researcher to researcher, previous works can be largely classified into two major camps. One is called *Past-as-Modal* (Iatridou 2000; Schulz 2014; Mackay 2015, 2019; a.o.), which assumes that Past encodes an abstract concept of 'remoteness' and Fake Past is an instantiation of this concept in the modal domain. The other is called *Past-as-Past* (Ippolito 2003, 2006, 2013; Arregui 2007, 2009; Romero 2014; Khoo 2015; a.o.), which assumes that Fake Past retains its temporal meaning but contributes it in a special way, re-winding history and simulating alternative futures.

While the debate between Past-as-Modal and Past-as-Past has contributed to our understanding of the nature of Fake Past and counterfactuality, we believe it is hobbled by the small data sample it relies on. Specifically, we see limitations in at least two areas. The first concerns Fake Past in non-Indo-European languages. Although data from non-Indo-European languages have received increasing attention in recent decades, the amount of work on these languages is still insufficient compared to the amount of work on Indo-European languages including English.[2] The second is the very limited work on CF desire reports. While the debate between Past-as-Modal and Past-as-Past has been active in the domain of CF conditionals, there has been much less work on the same issue in the domain of CF desire reports.

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[1] It should be noted that Fake Past is not the only strategy that a language may exploit to form CF expressions. See Iatridou 2000; Nevins 2002; Bittner 2011; von Fintel & Iatridou 2022 for languages that signal counterfactuality by using other strategies. In the recent literature, the term 'X-marking' has been proposed as a comprehensive label for CF morphology (von Fintel & Iatridou 2022), under which Fake Past is subsumed as just one possible instantiation. In this paper we stick to the label 'Fake Past', as our focus is primarily on languages that have Fake Past.

[2] See e.g., Legate 2003 for Warlpiri, Han 2006 for Korean, Halpert 2012 for Zulu, Ogihara 2014 and Mizuno & Kaufmann 2019 for Japanese, and Zimmermann 2020 for Hausa. It is not true, of course, that the amount of work on Indo-European languages is already sufficient. What we would like to highlight is that deeper insights into cross-linguistic variation and generality are often derived from comparison between typologically distant languages, and in this sense the scarcity of work on non-Indo-European languages is a hindrance to our further understanding of Fake Past phenomena.

This study contributes towards rectifying these imbalances by offering novel data and analyses of CF desire reports in Japanese, a language still underrepresented in the literature on Fake Past phenomena. While there have been several semantic studies on Japanese CF conditionals (see Ogihara 2014; Mizuno & Kaufmann 2019), there has been no semantic work, to the best of our knowledge, that focuses on Japanese CF desire reports. This study therefore fills both of the gaps in the study of Fake Past just described above.

Our main claim is that the interpretation of Fake Past in Japanese CF desire reports calls for a Past-as-Past analysis. We adduce empirical arguments for this claim, as well as offering a formal implementation that correctly captures the contribution of Fake Past and its interaction with the semantics of desire predicates.

This paper is structured as follows. In Section 2, we discuss Iatridou's (2000) observation about Fake Past in Greek CF desire reports. In Section 3, we introduce the basics about Japanese desire predicates and show that Japanese CF desire reports do involve an occurrence of Fake Past. In Section 4, we provide empirical evidence for a Past-as-Past analysis of Japanese CF desire reports. In Section 5, we offer a formal implementation of a Past-as-Past analysis. In Section 6, we conclude.

2   Previous work on Fake Past in CF desire reports: the case of Greek

This section briefly discusses previous work on Fake Past in CF desire reports, with special focus on Iatridou's (2000) observation about Greek. The purpose here is to establish a reference point against which the behavior of Fake Past in Japanese CF desire reports is effectively contrasted. Some speculations about Greek Fake Past, however, will be made in Section 6.

Greek CF desire reports, as touched upon in Section 1, involve matrix desire predicates which are inflected with Past (and Imperfective). Iatridou (2000) observes that this Past is what she calls Fake Past, as it does not contribute past reference, as Past normally does, but it instead signals that the desire expressed is unattainable. According to Iatridou, the verb in the complement in CF desire reports likewise carries a layer of Fake Past (and Imperfective if the verb is eventive). More specifically, if the complement concerns non-past events, the verb involves one layer of Past, which is fake. If the complement concerns past events, the verb involves two layers of Past, one being fake and one being real (i.e., contributing past reference). (3) illustrates the basic schemata for Greek CF desire

reports.[3] (4a) and (4b) are sentences that respectively instantiate (3a) and (3b) (Iatridou 2000: 32, 24).

(3)   a. MODAL want.PAST.IMPF [CP ... PAST(.IMPF) ...] (Non-past events) b. MODAL

want.PAST.IMPF [CP ... PLUPERFECT ...] (Past events)

(4)   a. ϑa iϑela [na itan   psilos].
        MOD want.PAST.IMPF NA be.PAST tall
        'I wish he were tall.'

    b.   O Kostas ϑa   iϑele   [na iχ$_1$e   pai stin Olanδia
        Kostas MOD want.PAST.IMPF NA have.PAST gone to Holland prin apo
        δeka χronia]. before from ten years
        'Kostas wishes he had gone to Holland ten years ago.'

As Iatridou notes, the presence of a layer of Fake Past in the complement is indispensable to express CF desire reports in Greek. For instance, if the desire predicate inflected with Past Imperfective takes a nominal complement, the sentence only expresses a polite, indirect request (5). Even when the complement is clausal, if the verb is inflected with Non-Past, the sentence only expresses an indirectly expressed desire which is considered still fulfillable (6).

(5)   ϑa iϑela [ena kokino aftokinito]. MOD want.PAST.IMPF one red car

    'I would like a red car.'   (Iatridou 2000: 31)

(6)   ϑa iϑela [na ine psilos].
        MOD want.PAST.IMPF NA be.NPST tall

    'I would like him to be tall.'   (Iatridou 2000: 33)

In other words, in Greek, even if the desire predicate has Fake Past, the sentence does not express CF desire reports unless the complement likewise has Fake Past. This generalization of Greek CF desire reports in fact shows a sharp contrast to the situation in Japanese CF desire reports, to which we will now turn.

3   Fake Past in Japanese CF desire reports

3.1   Basics about Japanese desire predicates

Japanese has two desire predicates corresponding to *want*, *'hosi-'* and *'-ta-'*. The two predicates are in complementary distribution; *hosi-* may take nominal

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[3] Iatridou notes that Imperfective here is similarly fake and is another ingredient necessary to convey counterfactuality. This paper abstracts away from aspectual distinctions, as the same generalization does not seem to apply to Japanese CF desire reports.

complements (e.g., *'I want a car'*) or non-control-type sentential complements (e.g., *'I want him to leave'*), whereas *-ta-* may only take control-type complements (e.g., *'I want to leave'*). In this paper we mainly focus on *hosi-*, but the arguments we make about CF desire reports apply equally to *-ta-* (see footnote 6).

The basic schemata for sentences involving *hosi-* are illustrated in (7). The Japanese tense system distinguishes between Non-Past and Past. When *hosi-* takes a nominal complement as its object, the complement is nominative-marked (7a). When *hosi-* takes a sentential complement, the complement is headed by the suffix

'-te' (7b), which is often treated as a gerundive suffix.[4] The sentential complement is thus non-finite, precluding the possibility of Non-Past or Past appearing in the complement. (8a) and (8b) are sentences that instantiate (7a) and (7b) respectively.

(7)   a.   Subj Obj-NOM *hosi-*{NPST / PAST}

   b.   Subj [vP Subj-{NOM / DAT} (Obj) V]-*te hosi-*{NPST / PAST}

(8)   a.   Watasi-wa okane-ga   hosi-{i／katta}.
             I-TOP   money-NOM want-NPST   PAST
             'I want money.' / 'I wanted money.'

   b.   Watasi-wa [John-{ga   / ni} kore-o   tabe]-te   hosi-{i／katta}.
             I-TOP   John-NOM   DAT this-ACC eat-GRND want-NPST   PAST
             'I want John to eat this.' / 'I wanted John to eat this.'

The choice of case-marking on the subject of the sentential complement correlates with several factors. First of all, the dative can be used only when the subject is animate. When the subject is inanimate, the nominative must be used (9).

(9)   [Tenki-{ga   / *ni} yoku nat]-te   hosi-i.
          weather-NOM   DAT good become-GRND want-NPST
          'I want the weather to be good.'

The choice of case-marking also correlates with focus. When the subject is animate, the use of the nominative triggers an exhaustive focus interpretation (e.g., in (8b), the sentence would roughly mean *'I want John, not anybody else, to eat this'*). For more discussion on the mechanism behind such case alternation, see Kuno 1973 and Nakatani 2016. These concerns are not important to the present paper.

4 See Nakatani 2016 for more details about the syntactic properties of *-te*. Although Nakatani glosses *-te* as a gerundive suffix, he notes that its distribution is 'wider than that of what is usually termed "gerundive" in European languages', and suggests that 'it is best described as a suffixal clause linker that makes a VP or a clause an adjunct to another VP or a clause' (Nakatani 2016: 401). In fact, the environments in which this suffix appears are quite diverse. Here are several examples of how it figures in sentences other than desire reports.

(i) a. Asita-wa   John-ga   ki-te   koogi-o   si-te   kure-ru.
         tomorrow-TOP John-NOM come-GRND lecture-ACC do-GRND BNFC-NPST

         'Tomorrow John will come and give a lecture for us.'

     b. John-wa   nanimo tabe-nai-de   ie-o   de-ta.
         John-TOP anything eat-NEG-GRND house-ACC leave-PAST

         'John left home without eating anything.'

Finally, the subject of *hosi-* (i.e., the holder of desires) is in principle restricted to the first person in declarative sentences (10).[5] This is a characteristic property of Japanese experiencer predicates (Kuroda 1973), and *hosi-* is as such generally categorized into this class Tenny 2006. See Tenny 2006 and Hashimoto 2015 for more discussion about the properties of Japanese experiencer predicates.

(10) {Watasi / *Anata / *John}-wa okane-ga   hosi-i.
      I   you   John-TOP money-NOM want-NPST

      'I want money.' / 'You want money.' / 'John wants money.'

3.2   Evidence for Fake Past

This section shows that Japanese CF desire reports do involve an occurrence of Past that counts as fake. Consider (11). Crucially, the sentences (11a) and (11b) are both judged to be felicitous and truthful in the given scenario.[6]

(11) Army Stew: Yo and Bo get interested in Korean Army Stew and plan to cook it for today's dinner. Looking at the recipe in the evening, they notice that kimchi is one of its main ingredients. Opening the fridge, they realize that they have no kimchi. In fact, they could have bought some when they went to the supermarket last week, but they didn't because they just didn't want it

      then. The supermarkets in the town are now all closed. Their desire to make Army Stew thus ends up unfulfilled and unattainable. Yo says to Bo:

      a. Kimuti-ga   hosi-katta   ne. kimchi-NOM
          want-PAST SFP

           (lit.) 'I wanted kimchi.' / (trans.) 'I wish we had kimchi.'

    b.   Kimuti-ga   at-te   hosi-katta ne. kimchi-

          NOM be-GRND want-PAST SFP

        (lit.) 'I wanted there to be kimchi.' / (trans.) 'I wish there were kimchi.'

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5 The second or third person can be used for instance if the sentence is embedded under an evidential or it involves the morpheme '-gar-' between the desire predicate and tense.

6 Note that the same applies to sentences involving '-ta-' as the desire predicate. The following sentence is likewise felicitous and truthful in the same context as in (11).

(i)   (Uttered in the same context as in (11))

      Pudetige   tabe-ta-katta   ne.
      army.stew eat-want-PAST SFP

      (lit.) 'I wanted to eat army stew.' (trans.) 'I wish we could eat army stew.'

Notice that the Past on the desire predicate in (11a) and (11b) must be *fake*. As is evident from the context, there was no salient past moment at which they desired to have kimchi; if the Past here were real (i.e., if the sentences were interpreted as in the literal translations), the sentences would simply be false.[4] The actual interpretation of (11a) and (11b) is more in line with those in (trans.). Note also that the use of Past is necessary for the sentences to be felicitous in the given context. For instance, if Past in (11a) is replaced by Non-Past, the sentence becomes infelicitous (12).

(12)   (Uttered in the same context as in (11))

      # Kimuti-ga hosi-i ne. kimchi-NOM want-

        NPST SFP

      (lit.) 'I want kimchi.' / (intended) 'I wish we had kimchi.'

In fact, the use of Non-Past triggers the implication that it is still possible to come by kimchi, which conflicts with the information of the context that such possibilities are already foreclosed (as no supermarkets are open at the utterance time). The use of Past on the desire predicate is thus indispensable to convey counterfactuality.

    However, unlike in Greek, the presence or absence of Past in the complement clause is *irrelevant* for licensing CF desire reports. (11a) shows that the meaning of CF desire reports can be expressed even when the complement is nominal (recall that corresponding sentences in Greek express a polite, indirect request). (11b) shows that Japanese can express the meaning of CF desire reports with non-finite sentential complements (recall that corresponding sentences in Greek express an indirect, still fulfillable desire; recall also that Japanese desire predicates can only

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4 The sentence *'I wanted kimchi'* is in fact judged by English speakers to be false in the present context.

take non-finite sentential complements). In other words, the presence of Past on the desire predicate is sufficient to license CF desire reports in Japanese.

We finally note how CF desire reports are distinguished from desire reports that involve real Past (i.e., those that concern one's past desires). In principle, whether the Past on the desire predicate is fake or real cannot be discerned through the verbal form, though the two uses can be differentiated through other clues, which may be non-linguistic or linguistic. Contexts are often reliable clues for disambiguation. If the present question under discussion concerned the speaker's regret about his past actions (like in Army Stew), the hearer would infer that the Past is fake. If the question under discussion concerned the agent's past state of mind, the hearer would infer that the Past is real. One can signal that the Past is real even more forcefully by adding a framing adverbial that fixes the topic time to a certain past interval, just like in (13). (13) is judged false in the context of Army Stew, which, recall, stipulates that the speaker did not want to buy kimchi while at the supermarket. The falsity of (13) suggests that the Past on the desire predicate here is real rather than fake.

(13)   (Uttered in the same context as in (11):)

>   # Sensyuu   suupaa-ni   i-ta   toki-wa   kimchi-ga   hosi-katta.   last.week supermarket-LOC be-PAST when-TOP kimchi-NOM want-PAST
>
>   'When we were at the supermarket last week, we wanted kimchi.'

A likely linguistic clue to the fake use are sentence final particles like *'ne'* or *'yo'*, which add an expressive flavor to the utterance.[5] Though not a categorical clue, they often help signal that the Past is not real, as the real use of Past (i.e., reporting a past state of mind) would more easily be associated with a descriptive flavor.

4   Past-as-Past in Japanese CF desire reports

4.1   Past-as-Modal vs. Past-as-Past

The last section showed that Japanese CF desire reports involve an occurrence of Fake Past. A question that would then arise is what contribution this Fake Past makes in CF desire reports. As touched upon in Section 1, there are two major approaches to the semantics of Fake Past, namely *Past-as-Modal* and *Past-as-Past*. Roughly speaking, Past-as-Modal and Past-as-Past differ as to whether they assume that Fake Past retains the temporal meaning of Past some way or another; Past-as-Modal assumes that it doesn't, whereas Past-as-Past assumes that it does. Although Pastas-Modal and Past-as-Past differ in this way, they share the fundamental intuition that the semantic contribution of Fake Past is to expand the

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[5] See McCready & Davis 2020 for an overview of Japanese sentence final particles.

quantification domain to access counterfactual worlds.[6] We illustrate how they conceptualize this role of Fake Past using Thomason's (1984) $T \times W$-frames, which model the interplay between modal and temporal dimensions in a systematic fashion.

The most important notion in $T \times W$-frames is *historical alternatives*. Intuitively, historical alternatives are worlds that share the same history up to some point. At each moment they may depart from each other by recording different truth values, and once they do, they can never become historical alternatives again. The idea is visually illustrated in Figure 1, which instantiates the so-called 'filter-funnel' model of historical necessity (Thomason 1984; Kaufmann 2005a). Here worlds and times are represented respectively by horizontal lines and vertical lines. The rotated '≈' between world lines indicates that the two worlds are historical alternatives up to the next temporal point. For instance, the historical alternatives of w_3 at t_3 (i.e., the white dot) are w_2 and w_4 (i.e., the gray dots) as well as w_3 itself.[7] Whether the three
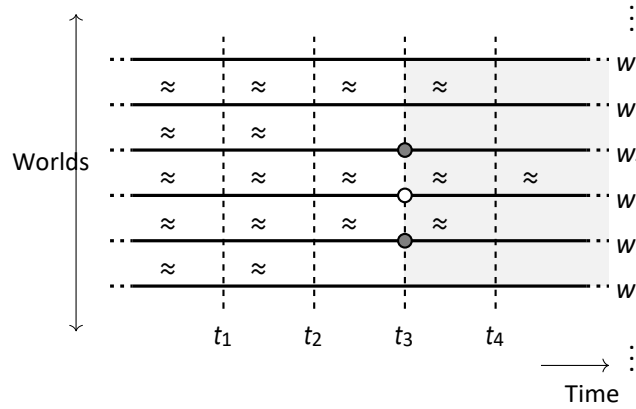

Figure 1   The departing of worlds through time in $T \times W$-frames.

worlds will remain historical alternatives cannot be foreseen at t_3, as depicted by the light gray shadow covering moments later than t_3. The historical alternative relation

'≈' is defined as a tertiary relation between two worlds w, w' and a time t: '$w \approx_t w'$' means that w and w' are historical alternatives at t.

Adopting $T \times W$-frames as a framework, the quantification domain for modal expressions is assumed to be a set of *world-time pairs* rather than a set of worlds.

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[6] As far as Past-as-Modal is concerned, not all previous accounts share this view. See Iatridou 2000 and Schulz 2014 for analyses that do not assume the idea of domain expansion. See Mackay 2015, 2019 and von Fintel & Iatridou 2022 for criticism of Iatridou's and Schulz's approach.

[7] A world is always a historical alternative to itself as historical alternatives form an equivalence class.

In this paper we assume that the domain at a particular pair $\langle w,t \rangle$ is determined by the historical alternatives of w at t. For convenience we extend $\approx$ into a relation between world-time pairs: ▮▮▮▮▮▮▮▮ iff $w \approx_t w'$. Quantification over a set of historical alternatives represents *metaphysical modality*, which concerns objective facts of the world. Relations for epistemic modality can be defined upon $\approx$ (see Kaufmann 2005b), but epistemic modality is not the main concern of this paper.

Now notice that w_1, w_5 and w_6 are counterfactual worlds from the perspective of $\langle w_3,t_3 \rangle$. Suppose that the present quantification domain is the set of the historical alternatives of $\langle w_3,t_3 \rangle$ (i.e., $\{\langle w_2,t_3 \rangle, \langle w_3,t_3 \rangle, \langle w_4,t_3 \rangle\}$), and we need to access those counterfactual worlds to evaluate our CF expression. How would Past-as-Modal and Past-as-Past achieve this? Or, to put it differently, how would Fake Past in each approach expand the domain to incorporate counterfactual worlds? Past-as-Modal assumes that Fake Past is a result of repurposing the meaning of Past in the modal domain, which would express remoteness from actuality in some sense. Through the process of repurposing, Fake Past is assumed to lose the temporal meaning of real Past. Thus, in the setting of $T \times W$-frames, Fake Past would be assumed to expand the domain *vertically* at $\langle w_3,t_3 \rangle$, incorporating world-time pairs co-temporal to it (see Figure 2, Left). On the other hand, Past-as-Past assumes that Fake Past retains the temporal meaning of Past, encoding re-running of history from an earlier
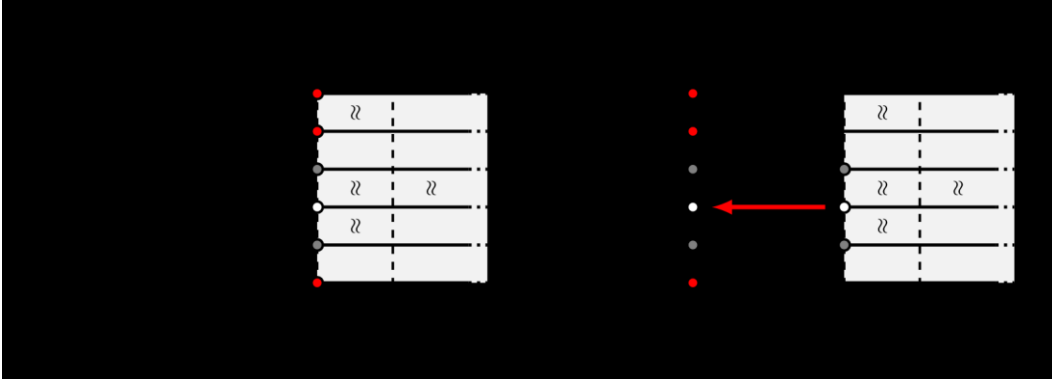

Figure 2 Two ways to expand the quantification domain: vertical expansion (Left, Past-as-Modal) and backshift expansion (Right, Past-as-Past).

moment at which the truth value of a sentence was still contingent. Since the number of worlds accessible via '$\approx$' keeps decreasing monotonically through the passage of time, shifting one's perspective into the past results directly in an expansion of the domain, incorporating worlds that were once historical alternatives (see Figure 2, Right). Let us call this operation *backshift expansion*, as opposed to the vertical expansion assumed in Past-as-Modal.

We have thus demonstrated the way Past-as-Modal and Past-as-Past each conceptualize the contribution of Fake Past, illustrating different ways of domain expansion associated with each approach. Exploiting the discussion established here, the next section will show that Past-as-Past, but not Past-as-Modal, makes empirically correct predictions about the behavior of Fake Past in Japanese CF desire reports.

4.2 An argument for Past-as-Past

There are at least two pieces of evidence in favor of Past-as-Past and against Pastas-Modal. The first comes from the fact that Japanese CF desire reports can make reference to past events with Fake Past *alone*. Although vertical expansion and backshift expansion can make the same set of *worlds* accessible (e.g., in Figure 2, they both make w_1, w_5 and w_6 newly accessible), the two operations differ crucially as to which *world-time pairs* would be incorporated into the domain. In particular, as is evident from the illustrations in Figure 2, only backshift expansion can include world-time pairs that lie in the past of the evaluation index; vertical expansion cannot do this, as it allows only co-temporal world-time pairs to be newly included into the domain. Thus, if the Fake Past on the desire predicate instantiates backshift expansion (i.e., the analysis of Past-as-Past), the complement of the desire predicate *can* make past reference, even without the presence of elements that allow past reference in the complement.[11] If the Fake past instantiates vertical expansion (i.e., the analysis of Past-as-Modal), the complement *cannot* make past reference, unless it involves elements that allow past reference.

The felicity and truthfulness of (14) below confirms that the prediction by Pastas-Past is correct. Notice that the Past on the desire predicate is fake; the sentence would be false if the Past were real, as there was no moment at which Bo had the desire that is expressed by the complement (in fact, he had never even dreamed that he would have to ponder the desirability of the complement until Jo confessed to him). Notice also that the complement refers to past moments, because the interval expressed by the adverbial within the complement (i.e., *'before we got married'*) would be located before the interval of 'last year'. Furthermore, there is no element within the complement that could account for past reference. This past reference in (14) is surprising under Past-as-Modal; it would need an ad hoc mechanism to explain why the complement can refer to past moments.[12]

(14) Partner's Secret: Jo and Bo got married last year. One day Jo confesses to Bo that she was married to someone before Bo. Bo is upset because he didn't know about it. Bo says to Jo:

[[Kekkonsu-ru mae-ni] osie]-te hosi-katta yo. get.married-NPST before-DAT
tell-GRND want-PAST SFP

(lit.) 'I wanted you to tell me before we got married.'

(trans.) 'I wish you had told me before we got married.'

The second piece of evidence for Past-as-Past comes from the fact that the use of Fake Past is infelicitous if no 'branching point' is assumed to have existed in the past. Recall that backshift expansion expands the domain by rewinding the history to a moment at which the truth value of the relevant sentence was still contingent.

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11 Recall that the complement of the desire predicate *'hosi-'* cannot take a finite clause, precluding the possibility of Past tense appearing in the complement to allow past reference. Despite such syntactic limitations, there is still a way to make past reference within the complement of the desire predicate, for instance through the use of the aspectual marker *'-tei-'*. The presence of *-tei-*, which appears between the verb and the gerundive marker, allows the complement to involve an adverbial that refers to past times (ib). Note also that the sentence is odd without such an aspectual marker (ia).

(i)   Kinoo-no   uti-ni   {a. # owat-te   / b. owat-tei-te}   hosi-i.
        yesterday-GEN within-at   be.finished-GRND   be.finished-ASP-GRND want-NPST
        'I want it to have been finished yesterday.'

12 It is worth noting that the corresponding English sentence needs to involve two layers of Past in the complement to refer to past moments, as shown in (trans.) in (14). These two layers consist of one layer of Fake Past and one layer of real Past, the latter of which accounts for past reference in (14).

However, if no such moment is assumed to have existed in history, the operation of backshift expansion makes no sense, because however far one went back in time, one could not reach a point at which the truth value of the sentence was open.

Now consider (15). Crucially, the sentence is judged to be weird.[13] As Japanese speakers report, the use of Past implicates the existence of a past moment at which it was objectively open whether the weekend would last forever; this implication contradicts our common knowledge that the calendar is fixed for the whole history and is never subject to change.[14] The weirdness of (15) is exactly what Past-as-Past predicts. Past-as-Modal, however, would face a challenge. After all, if the Past here expressed remoteness from actuality, the weirdness of (15) would not arise; worlds at which the weekend lasts forever are obviously remote from the actual world, and nothing would prevent vertical expansion from reaching those worlds.

(15)   ? [Kono syuumatu-ga   eien'ni tudui]-te   hosi-katta ne.
          this   weekend-NOM forever last-GRND want-PAST SFP

(lit.) 'I wanted this weekend to last forever.'

Intended: 'I wish this weekend would last forever.

We thus conclude, based on these pieces of evidence, that Past-as-Past is better suited as an analysis of Fake Past in Japanese CF desire reports. Building upon a well-accepted analysis of desire predicates and tense, the next section will formally work out a Past-as-Past analysis of CF desire reports.

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13 There are speakers who do not find (15) particularly weird, but we suspect that these speakers construe 'this weekend' as a metonymy to the events that happened during the weekend, taking the sentence to roughly mean *'I wish this happy experience during the weekend would last forever'*. Meanwhile, at least as far as our consultants are concerned, those who found (15) fine did find (i) below weird. The use of 'tomorrow' seems to make it harder to have such metonymic readings, since one cannot have a firsthand experience of future events unlike past or present events.

(i)   ?? [Asita-ga   eien'ni ko-nai]-de   hosi-katta ne.

    tomorrow-NOM forever come-NEG-GRND want-PAST SFP

    (lit.) 'I wanted tomorrow not to come forever.'

    Intended: 'I wish tomorrow would never come.

14 We note that the sentence is felicitous if Non-Past is instead used. This is also the case with the sentence discussed in footnote 13.

(i)   a. [Kono syuumatu-ga   eien'ni   tudui]-te

        hosi-i. this   weekend-NOM   forever   last-

    GRND want-NPST

    'I want this weekend to last forever.'

    b.   [Asita-ga   eien'ni ko-nai]-de   hosi-i.

        tomorrow-NOM forever come-NEG-GRND want-NPST

    'I want tomorrow not to come forever.'

5   A formal implementation

5.1   Basics

Our analysis builds on the classical comparative semantics of desire predicates in the tradition of Stalnaker (1984) and Heim (1992); '*α [φ hosi-]*' is true precisely when the worlds at which φ is true are more desirable to α than those at which $\neg\varphi$ is true. However, this semantics of desire predicates has to be adjusted to fit with our current setting, in which sentences are evaluated with respect to world-time pairs. We thus assume (16) as the semantics of desire report sentences. '$D_{\approx*}(w,t)$' is the set of world-time pairs that can be accessed via $\approx^*$ from w at t (the meaning of '*' on the historical alternative relation $\approx$ will be explained shortly). '$\preccurlyeq^\alpha_{w,t}$' is the desirability ranking that maps world-time pairs $\langle w,t \rangle$ and agents α to a pre-order

on sets of world-time pairs. For any two propositions (i.e., sets of world-time pairs) p and q, $p \prec^{\alpha}_{w,t} q$ just in case p is more desirable to α than q at $\langle w,t \rangle$.[8]

(16) α [*hosi-* ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

                                                                    J   K

        J K   J   K

'≈*' represents *forward-extension* of the relation ≈ (Kaufmann 2005b), which helps one access world-time pairs lying in the future of the utterance time. More concretely, ≈* allows one to reach world-time pairs 'diagonally' from the evaluation index $\langle w,t \rangle$, covering both co-temporal and subsequent moments at all worlds accessible via ≈ from $\langle w,t \rangle$ (formally, ▮▮▮▮▮▮▮ iff there is ▮▮▮ such that ▮▮▮▮▮▮▮▮▮ and $t'' \leq t'$). A mechanism to access future world-time
pairs is necessary to capture the semantics of desire predicates in the current setting. By and large, when one expresses a desire, the fulfillment of that desire is assumed to take place in the future of the utterance time.[9] In formal terms, this means that the set of world-time pairs represented by φ (i.e., the world-time pairs at which

                                    J K

the complement φ is true) consists solely of world-time pairs in the future of the utterance time. Due to this, in order to intersect with those indices, the domain needs to involve future world-time pairs as well as co-temporal ones. Forward-extension is thus one way to achieve successful intersection with future world-time pairs.

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[8] This definition deviates from the more widely used Kratzer-style practice of deriving the relative preference ranking between propositions from a more basic order on possible worlds (or, in our framework, world-time pairs). Some such derivations have been found to yield proposition rankings with undesirable logical properties, and it is unclear whether there is a general strategy for avoiding such an outcome (Yalcin 2010; Kratzer 2012; Lassiter 2015, 2017; Holliday & Icard III 2013). These issues are irrelevant to our concerns, and we sidestep them by assuming an *event-ordering semantics* in the sense of Holliday & Icard III (2013).

[9] Of course, there are cases in which the event denoted by the complement is assumed to have already been settled, e.g., when one says *'I want John to be in his office now'*, or when the complement refers to past moments, as we discussed in footnote 11. In such cases forward-extension is not necessary.
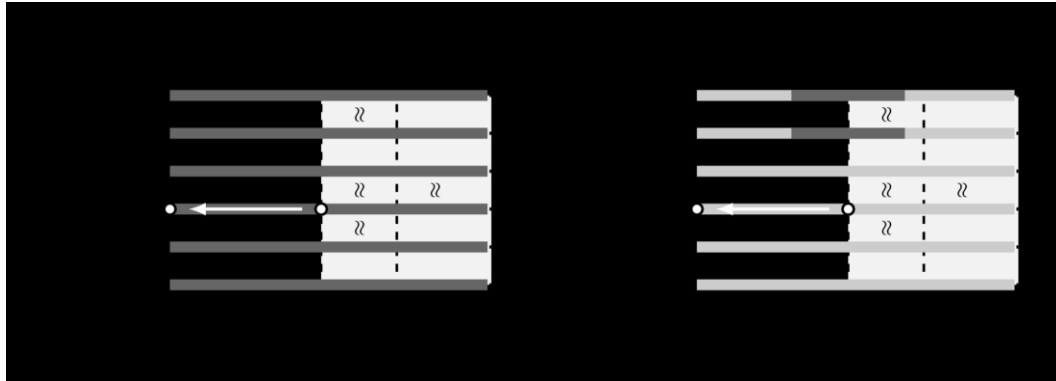
Figure 3 Backshift expansion + forward-extension (Left). The thick dark gray lines indicate that the world-time pairs on these lines are accessible. The domain is further restricted by intersecting with φ and/or propositions J K

obtained through hindsight (Right).

With this semantics of desire predicates in place, we submit (17) as the semantics of Japanese CF desire reports. We assume that Past denotes an existential quantifier over times (Prior 1967; Ogihara 1996; a.o.).[10] This Past is assumed to scope over the entire sentence and shift the temporal argument of both the domain function and the desirability ranking into a certain past moment. The shift of the temporal argument of the domain function triggers what we have called backshift expansion (the meaning of the superscript '+' will be explicated in the next section).

(17)   PAST $[\alpha [$ *hosi-*

w,t

        J   K   J K   J   K

Thanks to this backward shift of the domain and the forward-extension of $\approx$, the domain can encompass past, present and future world-time pairs; that is, the complement φ can be about the past, the present or the future (see also Figure 3).[11]

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[10] This assumption is not crucial to the present analysis. Our analysis would also work with a pronominal analysis of tense in the tradition of Heim (1994).

[11] The example (i) below shows that the complement can refer to moments in the future of the utterance time. Notice that the Past must be fake, as there was no salient moment in the past at which Hanako wanted Taroo to come to the reunion tomorrow.

5.2   The Hindsight Constraint

'+' in (17) indicates that the domain function is subject to what we call the *Hindsight Constraint*. The Hindsight Constraint requires of the expanded domain that it entail any proposition that (i) holds at the actual world and (ii) is *causally independent* of the complement proposition φ. The notions of hindsight and causal independence

J K

have been assumed to play a role in determining the background premises for evaluating CF conditionals (Edgington 2004; Kaufmann 2005a, 2013; Khoo 2015; a.o.). Suppose that there is a coin toss, one bets on heads and the coin has landed tails. Here the CF conditional (18) is judged true. Notice that which side one bets on is causally independent of which side the coin actually lands on; the fact that one bets on heads, for instance, does not affect the result of the coin toss, nor does the fact that the coin lands on heads affect the bet one has already chosen. What hindsight does in (18) is that it includes the result of the coin toss, which is causally independent of the antecedent, as part of the background information, even though the result itself was unpredictable at the time of betting.

(18)   If I had bet on tails, I would have won.

In CF desire reports, we emphasize, the complement of the desire predicate φ is assumed to play the same role as the antecedent of CF conditionals; that is, what is obtained through hindsight in CF desire reports is those causally independent of φ. Such an association between the complement of the desire predicate and the [J]antecedent of conditionals is a consequence of adopting the comparative semantics[K] of desire predicates, whose working intuition is that desire reports involve a 'hidden conditional semantics' (Stalnaker 1984; Heim 1992).

Here we illustrate how the Army Stew case in Section 3.2 is worked out in our account. What is crucial here is the following; that is, whether they currently have

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(i)   Reunion: Taroo died yesterday. He was supposed to attend the reunion tomorrow. Initially Hanako didn't want Taroo to come since he was mean to her in school, but she has been told by others that Taroo had wanted to apologize to her at the reunion for having been unkind and wanted to start a new friendship with her. Hanako is surprised to learn all this. She now misses Taroo very much and deeply mourns his death. Hanako says:

[Asita Taroo-ni ki]-te hosi-{# i / katta} naa. tomorrow Taroo-DAT come-GRND want-NPST PAST SFP

NPST: (lit.) 'I want Taroo to come tomorrow.' / (trans.) # I wish Taroo *would* come tomorrow.
PAST: (lit.) 'I wanted T. to come tomorrow.' / (trans.) I wish Taroo *would have* come tomorrow.

Interestingly, the use of Past is necessary for the sentence to be felicitous. The use of Non-Past would trigger the wrong implication that Taroo is still alive at the utterance time (or if not, the speaker would be taken to hope that Taroo would be resurrected or he would show up as a ghost). The obligatoriness of Past in (i) naturally falls out from our Past-as-Past account. That is, Past rewinds the history to a moment at which the existential presupposition of the complement (i.e., Taroo's being alive) was still satisfied, allowing the world-time pairs denoted by the complement to be those that have the history such that Taroo did not die yesterday. This is in fact reminiscent of the discussion of Ippolito (2013), who shows that Past Perfect forms must be used in English future subjunctives if the existential presupposition of the antecedent is not satisfied at the utterance time. It is worth noting that the corresponding English sentence in (i) must use *'would have come'* rather than *'would come'* in the complement; the use of the latter, like the use of Non-Past in Japanese, would imply that Taroo is still alive, or that he could be resurrected. Thus, in English, the addition of the Perfect *'have'* is predicted to make the same contribution as Past on the desire predicate does in Japanese.

a desire to make army stew is causally independent of whether there is currently kimchi in the fridge (i.e., the complement φ). Causal independence between the two factors is a safe assumption to make in the present context; after all, the desire to make army stew has arisen in their mind independently of whether there is kimchi in the fridge, and just having a desire to make army stew does not bring about the physical presence of kimchi in the fridge.[12] The fact that they currently have a desire to make army stew thus has to be entailed by the expanded domain through hindsight, even though the fact itself could not be foreseen in the past.

Given the Hindsight Constraint, D ▮▮▮▮▮ $_* w,t$ now consists of world-time pairs at which (i) they have a desire to make army stew (= hindsight) and (ii) thereJ K is kimchi in the fridge (= the complement φ). These world-time pairs are more desirable than those in D ▮▮▮▮▮ $_* w\, t\, \neg$, at which they have a desire to make army stew but have no kimchi in the fridge. The truthfulness of the sentences inJ K Army Stew thus falls out under our Past-as-Past account.

5.3   More on hindsight: the influence of future preferences

[12] One can also make a structural parallel with the case of the CF conditional above. Whether they come to have a desire to make army stew can be seen as a random process which is more or less equivalent to a coin toss; their desire to make army stew arose randomly and was therefore not foreseeable at the time of the shopping, just like the outcome of a coin toss. The purchase of kimchi corresponds to the bet in the coin toss case; given that they only buy things that they think they will need, buying kimchi will pay off only if they develop a desire to cook something that requires kimchi, just like betting only pays off if the bet matches the outcome of the coin toss.

We assume that what is obtained from hindsight is a sort of *foreknowledge*. What hindsight does in Army Stew is thus to treat the fact that they have a desire to make army stew at the utterance time as something that would have been known or guaranteed to hold *in the future* of a past moment t'. This implies, one may notice, that the desire to make army stew would not have (yet) been possessed by the agent at the past moment t', because, as hindsight dictates, this desire should be something that would have arisen in the agent's mind in the future of t', not at t' itself.

The question is whether and how such future preferences can affect the desirability ranking at an earlier moment. We suggest that they can, as long as the desirability concerns 'decision-related' preferences. It has often been noted in the literature that there are two types of desires, those that one has as a matter of psychological fact, and those that one uses to decide which action to take (Hare 1968; Davis 1984; Condoravdi & Lauer 2016; a.o.). Following Condoravdi & Lauer (2016), we call the former 'mere desires' and the latter 'effective preferences'.

Consider the following scenario. John somehow comes to have a lust for eating sea urchin every Friday. Today is Thursday, and John is at the supermarket considering whether he wants to buy sea urchin. Since today is not Friday, he doesn't have a desire to eat sea urchin and in fact he wants to avoid buying it because sea urchin is not cheap. However, if he doesn't buy it today, he will be disappointed tomorrow, because the supermarket is closed every Friday. Now suppose John utters (19).

(19)   I want to buy sea urchin.

We think that (19) is false on the mere desire reading but can be true on the effective preference reading (insofar as John prioritizes satisfying his lust tomorrow over avoiding an unnecessary expenditure today). On the effective preference reading, John is taken to view the future in which he will eat sea urchin tomorrow as more desirable than other futures in which he will not, and crucially, the desire which he knows he will have tomorrow plays a decisive role in choosing which future course he will take. We thus think that, at least as far as effective preferences are concerned, future preferences do influence the desirability ranking at an earlier time.

We speculate that the desire predicate in Army Stew (and many other instances of Japanese CF desire reports) primarily concerns effective preferences rather than mere desires, given that future preferences (which are obtained from hindsight) may likewise play a role in determining the desirability ordering at an earlier moment. This we deem jibes well with the central intuition of Past-as-Past, which is that one simulates alternative future courses that one could have taken in the past.

5.4   (The absence of) preferential introspection

It has recently been claimed by von Fintel & Iatridou (2022) that the felicity of examples like (20) is problematic for Past-as-Past analyses of CF desire reports. Its Japanese counterpart (21) is likewise felicitous (here *'-ta-'* must be used because the subject of the complement and the desire holder are identical; see Section 3.1).

(20)   I wish I had been born in Finland.

(21)   [Finrando-ni umare]-ta-katta. Finland-LOC be.born-want-PAST

According to von Fintel and Iatridou, Past-as-Past would predict these examples to be infelicitous because there is no past moment at which the agent *believed that* it was attainable that she would be born in Finland.

While we leave detailed discussion for another occasion, what we suspect to be a factor here is the quantification over an epistemic state (i.e., the *'believed that'* part). We suspect that this sort of epistemic component may not always be necessary for CF desire reports (or maybe desire reports in general). It is true that when one wants something, it is often presumed that one has an ability to *introspect* what one wants
(van Benthem & Liu 2007; Liu 2011). But such introspection into preferences may not always be required when we say something is desirable to someone; something can be desirable to someone even when that person is not conscious, or even when that person is not yet (but destined to be) born.

Given these assumptions, our Past-as-Past account would analyze (21) as follows; going back to a past time at which the agent was not yet born, we consider whether the future in which she is born in Finland would have been more desirable to her than the future in which she isn't; hindsight for instance tells us that the agent at the utterance time has a desire for free compulsory education, which one can enjoy if born in Finland; with this future preference on the table, the future in which she would be born in Finland would have been more desirable than the future in which she wouldn't, even though the agent in the womb would not have been conscious of any of these. Although more technical clarification is needed, which we leave for future work, we think that this line of thought will clear away the concern that von Fintel and Iatridou has raised for Past-as-Past.

6   Conclusion

We conclude this paper by pointing to potential cross-linguistic variation with respect to the semantics of Fake Past. We showed in Section 4.2 that the 'weekend forever' sentence is odd with the presence of Past on the desire predicate in Japanese (see (15)). While this constituted evidence favoring Past-as-Past in Japanese, it has been observed by von Fintel & Iatridou (2022) that its

Greek counterpart is fine with the presence of Fake Past (see their example (79b)), suggesting that, unlike in Japanese, Past-as-Modal remains a good analytical possibility for the behavior of Fake Past in Greek. The full picture of cross-linguistic variation is still beyond our reach, but we suspect that there is a significant discrepancy between Japanese and Indo-European languages with respect to the internal system of Fake Past.[13]

Although we leave further research on such cross-linguistic variation for future work, we hope that this study has cast new light on the debate of Fake Past, from the perspective of underexplored constructions in a hitherto understudied language.

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[13] It is also worth noting that such variation may extend to CF conditionals. Mizuno & Kaufmann (2019) observed that countermathematicals like (i) are odd with Past, which, we argued, constitutes evidence for Past-as-Past in Japanese CF conditionals ((i) implies that there was a time at which nine could have been prime, which is wrong given that mathematical facts are timeless; the oddness here is reminiscent of the oddness we reported for the 'weekend forever' case). Notice that the English counterpart of (i) would involve Fake (Simple) Past, suggesting that Japanese and English (and probably many other Indo-European languages) differ in terms of the semantics of Fake Past.

(i) Mosi kyuu-ga sosuu dear-eba, san-de warikir-e-na-{i / ?? katta}. PRT nine-NOM

　　　prime be-COND three-by divide-able-NPST PAST

　　'If nine *were* prime, it *would* not be divisible by three.'

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