'FAKE TENSE' IN COUNTERFACTUALS: A TEMPORAL REMOTENESS APPROACH*

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Abstract

Cross-linguistically, counterfactual conditionals are often built by inserting an additional layer of tense morphology, known as 'fake' tense. The present paper combines and further develops two intuitive ideas from the literature in the analysis of these conditionals: 'fake' tense signals a temporal back shift scoping over the entire conditional (Dudman 1983, 1984) and the remaining tense morphology locates the hypothetical event with respect to the speech index i_0. Implementing these ideas gives rise to two challenges: a mismatch between the surface location and the interpretation site of 'fake tense' and the lack of linearization between the index i' quantified by the conditional and the speech index i_0. We propose to solve these problems by applying interpretive mechanisms independently motivated in sequence of tense and double access readings. Finally, the new proposal is compared with previous accounts within the temporal remoteness line.

1 Introduction

A typologically wide-spread strategy to build counterfactual conditionals is to use an additional layer of tense morphology (sometimes blended with subjunctive mood and/or imperfective aspect) on top of the regular tense morphology locating the event in time (Palmer 1986, Iatridou 2000). This is illustrated for English by comparing the epistemic conditionals in (1) with their counterfactual counterparts in (2): to describe the hypothetical event of John coming yesterday, Simple Past is used in the epistemic conditional (1a) but Past Perfect must be used in the

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counterfactual version (2a); to talk about a hypothetical present event, Present is used in the epistemic conditional (1b) but Simple Past must be used in the counterfactual version (2b). This additional layer of past tense found in counterfactual conditionals has been dubbed 'fake' tense.[1]

(1) a. If John came yesterday, it was fun.
b. If John is there now, it is fun.

(2) a. If John had come yesterday, it would have been fun.
b. If John was/(were) there now, it would be fun.

Two main approaches to fake tense in conditionals have been pursued in the literature: the modal remoteness line and the temporal remoteness line. According to the modal remoteness approach, past tense morphology expresses distance from the actual index i_0: distance in the temporal dimension –in its regular temporal use– or in the modal dimension –it is used as 'fake' tense (Palmer 1986, Iatridou 2000, Schlenker 2005, Schulz 2014, a.o.). According to the temporal remoteness line, past tense morphology uniformly expresses temporal precedence, but this morphology may be interpreted outside the syntactic structure where it is found, i.e., outside the *if*-clause in our case; it is this mismatch between surface position and interpretation site that deceivingly gives the impression that the additional tense layer is fake (Dudman 1983, 1984, Arregui 2009, Grønn and von Stechow 2009; see also Ippolito 2003).

The present paper elaborates on the temporal remoteness approach, leaving the modal remoteness approach untouched.[2] It combines and further developes two ideas from the literature. On the one hand, it takes Dudman's key idea that a counterfactual with 'fake' tense involves a back shift in time with a future indicative (metaphysical) conditional interpreted under that back shift. This gives us the Logical Form (LF) skeleton for counterfactual conditionals in (3).

(3) LF skeleton for counterfactual conditionals:
PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT p] [then FUT q][3]

[1]Counterfactuality is not an entailment or presupposition in the English examples (2), but a cancellable implicature (Anderson 1951): (i). We will use the term 'counterfactual conditionals' loosely to refer to examples which, like (2), typically but not necessarily imply antecedent falsity. Cases where counterfactuality is uncancellable, such as English conditionals like (ii) with two layers of fake tense (Ippolito 2003) or conditionals like (iii) in languages with dedicated counterfactual morphology (Nevins 2002), are outside the scope of this paper. See Leahy (2011) for a treatment of cancellable counterfactuality as a presuppositional implicature.

(i) If Jones had taken arsenic, he would be showing the symptoms that he is in fact showing.

(ii) If Charlie had sold his stocks tomorrow, he would have made a lot of money.

(iii) Da imam bi ti posodil. [Slovenian]
$\text{If}_{\text{COUNTERFACTUAL}}$ have-1.sg.pres would to-you lend-sg.mas.
'If I had it, I would lend it to you'. (uncancellably counterfactual) (Nevins 2002)

[2]We leave a comparison between the two approaches for future research.

[3]Indicative metaphysical conditionals have a future orientation even in the absence of *will*, as in (i). Kaufmann (2005) builds this future orientation into the meaning of a metaphysical complementizer *IF* (Kaufmann 2005, (45)). We will spell it out as FUT in ours LFs.

(i) If Mary submits the paper by tomorrow, we accept her paper.

On the other hand, the present paper follows the intuition described for (1)-(2) above that, leaving aside one layer of 'fake' past tense, the remaining tense morphology expresses precedence or simultaneity of the hypothetical event with respect to the utterance time (Iatridou 2000, cf. Arregui 2009). Adding this 'real', deictically interpreted tense layer to the antecedent clause and replicating it for the consequent clause, we obtain the LFs in (4a)-(5a), with the additions underlined.

(4) a. LF for past counterfactual conditionals:
PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT <u>PAST</u> p] [then FUT <u>PAST</u> q]

b. $\lambda i_0.\exists i_1 < i_0[\forall i'_1 \in \text{Metaphy}^{L}(i_1) :$
$\exists i_2[i'_1 < i_2 \wedge \exists i_3[i_3 < i_0 \wedge p(i_3) = 1]] \rightarrow$
$\exists i_2[i'_1 < i_2 \wedge \exists i_3[i_3 < i_0 \wedge q(i_3) = 1]]$

(5) a. LF for present counterfactual conditionals:
PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT (<u>PRES</u>) p] [then FUT (<u>PRES</u>) q]

b. $\lambda i_0.\exists i_1 < i_0[\forall i'_1 \in \text{Metaphy}^{L}(i_1) :$
$\exists i_2[i'_1 < i_2 \wedge \exists i_3[i_3 \circ i_0 \wedge p(i_3) = 1]] \rightarrow$
$\exists i_2[i'_1 < i_2 \wedge \exists i_3[i_3 \circ i_0 \wedge q(i_3) = 1]]$

Now, these LF structures raise two challenges. The first one concerns the mapping from surface form to LF representation. How can Dudman's idea be implemented so that the 'fake' tense *inside* the antecedent clause is interpreted *outside* its clause? Certainly, neither the verb nor its temporal affixes can move out of a syntactic island, in our case the *if*-clause. The second challenge concerns the mapping from LF to semantic interpretation. When we try to interpret the structures (4a)-(5a), we obtain (4b)-(5b).[4] The following puzzle arises: What is the temporal relation between the future metaphysical conditional under a temporal back shift (Dudman's idea) and the past-/present-of-i_0 hypothetical events (deictic treatment of the remaining tense morphology)? That is, in the formulas (4b)-(5b), how are the index variables i_2 and i_3 to be temporally linearized? And how is the appropriate linearization compositionally derived?

The goal of the present paper is double. First, it will derive the desired LFs and the proper temporal linearization among indices, and it will do so by using independently motivated mechanisms that have been argued to apply to tense morphology in other constructions. Second, it will show that current implementations of the temporal remoteness line that fail to combine the two intuitive ideas above —i.e., Dudman's back shift and the deictic treatment of the remaining tense— resort to devices that lack independent motivation in the grammar.

[4] In the formulas, the variables i_0 ... i_n range over indices, i.e., over world-time pairs, with i_0 as the designated variable picking up the speech index. For any index <w,t>, Metaphy^{L}(<w,t>) is the set of law-like metaphysical alternatives to <w,t>, that is, the set of indices <w',t> that share with <w,t> the same history up to t and follow a salient set of laws (cf. Lewis 1973 and Arregui 2009 on similarity). The classical notions of temporal precedence/overlap among time intervals are extended to indices as in (i) (Kaufmann 2005).

(i) For any two indices $<w_1,t_1>$ and $<w_2,t_2>$:

a. $<w_1,t_1>$ overlaps ($\circ$) with $<w_2,t_2>$ iff
the temporal intervals t_1 and t_2 share a common subinterval and $w_1=w_2$.

b. $<w_1,t_1>$ precedes ($<$) $<w_2,t_2>$ iff
the temporal interval t_1 ends before the temporal t_2 interval starts and $w_1=w_2$.

The rest of the paper is organized as follows. Section 2 provides the necessary background on the interpretation of tense morphology, including basic notions (§2.1), sequence of tense (§2.2) and so-called double access readings (§2.3). Section 3 applies these tools to present and past counterfactual conditionals, motivating the LFs in (4a)-(5a) and deriving compositionally the appropriate temporal relation among the index variables. Section 4 examines previous implementations in the literature, including those by Dudman (1983, 1984), Arregui (2009) and Grønn and von Stechow (2009). Though each of them provides valuable insights that we have adopted in our proposal, they leave parts of the analysis unjustified. Section 5 concludes.

2 Background on tense

2.1 Basics

Gender and number information in pronouns is treated not as part of the asserted content but as part of the presupposed content of the pronoun, as shown in (6) (Cooper 1983, Heim 1994). To make the separation between assertive and presuppositional content more apparent, we will write $pro_1{}^{FEM,SING}$ instead of she_1 in the relevant cases.

(6) $[\![she_1]\!]^g = [\![pro_1{}^{FEM,SING}]\!]^g =$ defined only if g(1) is a female atomic individual;
if defined, $[\![she_1]\!]^g = [\![pro_1{}^{FEM,SING}]\!]^g = g(1)$.

Tense morphology has been argued to behave like pronouns, as introducing a free variable and contributing some temporal information about that variable to the presuppositional tier (Partee 1973, Heim 1994, Kratzer 1998, Kusumoto 2005). This is illustrated for the past tense in (7) and applied to an example in (8).

(7) $[\![PAST_1]\!]^g = [\![pro_1{}^{PAST}]\!]^g =$ defined only if $g(1) < i_0$; [To be revised]
if defined, $[\![PAST_1]\!]^g = [\![pro_1{}^{PAST}]\!]^g = g(1)$.

(8) I didn't turn off the stove. (Partee 1973)
a. LF: [$pro_1{}^{PAST}$ not [I turned off the stove]]
b. $\lambda i_0 : g(1) < i_0 . \neg$(I turn off the stove at $g(1)$)

Tenses have absolute/deictic uses and relative uses (von Stechow 1995a, Abusch 1997, Kusumoto 2005). In the absolute use, the presuppositional content of tense morphology is computed with respect to the speech index i_0, as in (8) above. In the relative use, the presupposed temporal relation is computed with respect to the index introduced by some other tense in the structure, as in (9).[5] To allow for both absolute and relative uses, the lexical entry for past tense

[5]The English Past Perfect is ambiguous between a past result state reading, illustrated in (ib), and a past-of-past reading, illustrated in (iic) (Jespersen 1931, Palmer 1974). In this paper, we are concerned only with the latter reading.

(i) a. Tom has just / already arrived.
b. Tom had just / already arrived when Mary woke up. [Past of (ia), i.e., past result state]

(ii) a. * Tom has arrived five minutes ago.
b. Tom arrived five minutes ago.
c. Tom had arrived five minutes before. [Past of (iib), i.e., past-of-past]

needs to allow for different temporal anchorings. This is done is (10) and extended to present and future tense in (11)-(12).

(9) John had arrived.
   a. LF: $\lambda 0[\text{pro}_1{}^{[\text{PAST}\text{pro}_0]}\lambda 3[\text{pro}_2{}^{[\text{PAST}\text{pro}_3]}\lambda 4[\text{John arrive at pro}_4]]]$
   b. $\lambda i_0 : g(1) < i_0 \wedge g(2) < g(1)$. John arrive at g(2)

(10) $[\![pro_1{}^{[PAST\ pro_2]}]\!]^g =$ defined only if $g(1) < g(2)$;
if defined, $[\![pro_1{}^{[PAST\ pro_2]}]\!]^g = g(1)$ [Revised version]

(11) $[\![pro_1{}^{[PRES\ pro_2]}]\!]^g =$ defined only if $g(1) \circ g(2)$;
if defined, $[\![pro_1{}^{[PRES\ pro_2]}]\!]^g = g(1)$

(12) $[\![pro_1{}^{[FUT\ pro_2]}]\!]^g =$ defined only if $g(2) < g(1)$;
if defined, $[\![pro_1{}^{[FUT\ pro_2]}]\!]^g = g(1)$

Like the pronoun *she* in (13), morphological tenses can be bound by quantifiers, as in (14) (Heim 1997, Sauerland 2002). We will assume that tenses can also be bound by silent existential operators and that, in that case, the presuppositional content is locally accommodated under the existential quantifier. This possibility is illustrated in (15).

(13) Everybody$_1$ in this group thinks she$_1$ is smart.
   a. Presupposition: For every x in this group: x is female.
   b. Assertion: For every x in this group: x thinks x is smart.

(14) Every Friday in this month (pointing at a month on the calendar) John ate fish.
   a. Presupposition: For every i' that is a Friday in this month: $i' < i_0$.
   b. Assertion: For every i' that is Friday in this month: John ate fish at i'.

(15) John had arrived.
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST}\text{pro}_0]}\lambda 3[\exists_2[\text{pro}_2{}^{[\text{PAST}\text{pro}_3]}\lambda 4[\text{John arrive at pro}_4]]]]]$
   b. $\lambda i_0.\exists i_1[i_1 < i_0 \wedge \exists i_2[i_2 < i_1 \wedge$ John arrive at $i_2]]$

2.2 Sequence of tense

In clauses embedded under attitude verbs like *say* or *think*, morphological tenses are sometimes uninterpretable morphological reflexes of a higher interpretable tense (Abusch 1988, 1994, Ogihara 1989, 1996, Heim 1994, von Stechow 1995b, 2009, Kratzer 1998). This phenomenon, known as sequence of tense, is illustrated in (16), where the (planned) event of having lunch together is posterior to i_0 but nevertheless is marked with past tense, due to the influence of the higher past tense on *decided*.

(16) John decided a week ago that in ten days he would say to his mother that they were having their last meal together. (Abusch 1988, based on Kamp and Rohrer 1984)

Since uninterpretable morphological tense will play an important role in the analysis of counterfactuals, it is worth spelling out the LFs and truth conditions of some examples. We will

follow von Stechow's (2009) implementation of interpretable and uninterpretable tenses. Consider example (17), with a past tense in the matrix clause. (17) has a reading according to which Mary's (purported) being sick is simultaneous to John's thinking. This reading is derived by treating the past morphology on the verb *was* as uninterpretable tense licensed by the higher interpretable past tense on *thought*. This gives us the LF and truth conditions in (17a,b), where the uninterpretable tense is crossed out (~~*past*~~).

(17) John thought [that Mary was sick]
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}$ John think $[\lambda 2$ that ~~past~~ pro_2 $\lambda 4[$ Mary be sick at $\text{pro}_4]]]]$
   b. $\lambda i_0.\exists_1[i_1 < i_0 \wedge \forall i_2 \in \text{Dox}_j(i_1)$: Mary be sick at $i_2]$

Similarly, (18) has a reading according to which the content of John's thought was "Mary was sick" rather than "Mary had been sick". This reading follows from treating one layer of past tense in the verbal complex *had been* as uninterpretable, licensed by the matrix past tense, and treating the other past layer in *had been* as interpretable. This is shown in the LF (18a), which leads to the desired truth conditions in (18b).

(18) John thought [that Mary had been sick]
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}$ John think $[\lambda 2$ that ~~past~~ $\exists_3[\text{pro}_3{}^{[\text{PAST pro}_2]}\lambda 4[$ Mary be sick at $\text{pro}_4]]]]]$
   b. $\lambda i_0.\exists_1[i_1 < i_0 \wedge \forall i_2 \in \text{Dox}_j(i_1)$: $\exists i_3 < i_2 \wedge$ Mary be sick at $i_3]$

Note that uninterpretable tense has to be licensed via a chain of semantic binding (Heim 1994, von Stechow 2009). The licensing is done by applying the principle in (19) transitively. In (18a), for example, the quantifier $\exists_1$ binds the index variable of *thought*, which in turn, via $\lambda 2$, binds the index *pro*$_2$ in the verbal complex *had been*. This allows for the top past layer of *had been* to remain uninterpretable.

(19) A quantifier introducing a past index licenses an uninterpretable feature ~~*past*~~ in the variable it semantically binds.

2.3 Double access readings of tense

Consider example (20). Contrary to the examples (17)-(18) above, where the embedded tense morphology was interpreted relative to the higher tense or left uninterpreted, the embedded Present tense in (20) is understood as absolute, that is, as indicating that the (purported) pregnancy overlaps with the speech index i_0. This is paraphrased in (20a). However, this paraphrase does not exhaust speakers' intuitions. The alleged pregnancy must overlap, furthermore, with the time of John's saying event, as paraphrased in (20b)[6]. That this second requirement is in place is shown by the infelicity of (21), which implies that the alleged pregnancy overlaps at the same time with an index i_1 located two years ago and with the speech index i_0, contradicting our world knowledge about human pregnancies (Abusch 1994, von Stechow 1995b, Ogihara 1999, a.o.). Given this double requirement, the reading at issue has been dubbed 'double access' reading.

[6]More accurately, the alleged pregnancy must overlap with John's subjective 'now' index at the world-time of the saying event (see Lewis (1979) on de se).

(20) John said that Mary is pregnant.
   a. John said at a past index i_1 that Mary is pregnant at i_0.
   b. John said at a past index i_1 that Mary is pregnant at i_1.

(21) # John said two years ago that Mary is pregnant.

Examples (22) and (23), with embedded Future and Simple Past respectively, can be described in similar terms. In (22), the time of Mary's (allegedly) buying a car has to follow both the speech index i_0 and the index at which John's saying event took place. In (23), the time of the purported buying event has to precede those two indices (Ogihara 1999).

(22) John said Mary will buy a car.

(23) John said Mary bought a car.

Building on previous accounts, Ogihara (1999) develops an analysis of double access readings where the key ingredient is the duplication of the temporal property corresponding to the embedded tense.[7] Here we will start with (a simplified version of) Ogihara's original analysis[8], which focuses on temporal relations and where the variables $t_0 ... t_n$ range over times (construed as time intervals). Then, since we want to apply his idea to counterfactual conditionals and modality is crucial in conditionals, we use the index variables $i_0 ... i_n$ and adapt his idea to our W×T framework.

Ogihara (1999) proposes that, in double access readings, the temporal property of the embedded tense is interpreted twice: once relatively with respect to a higher tense and once absolutely with respect to the speech time t_0. This is shown in the LF (24a). Taking the variables to range over time intervals, as in Ogihara's original analysis, this leads to the truth conditions in (24b).[9]

(24) John said that Mary is pregnant. [To be revised]
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}$ John say $[\lambda 2\ \exists_3[\text{pro}_3{}^{[\text{PRES pro}_2],[\text{PRES pro}_0]}\lambda 4[$ Mary be pregnant at $\text{pro}_4]]]]]$
   b. $\lambda t_0.\exists t_1[t_1 < t_0 \wedge \forall t_2 \in \text{Say}_j(t_1) : \exists t_3[t_3 \circ t_2 \wedge t_3 \circ t_0 \wedge$ Mary be pregnant at $t_3]]$

To achieve the same effect using world-time pairs instead of times, we need to allow for indices to be temporally compared regardless of the world they contain. To put it differently, besides allowing for comparison between temporal intervals 'anchored' to the same world (see (i.a,b) in footnote 4), we need to allow for comparison between temporal intervals 'anchored' to different worlds as well, as if we were temporally ordering the time interval t_1 in world w with the counterpart t'_1 of t_1 in w'. To obtain this result in our framework, we define the notions of m(odal)-overlap $\circ_m$ and m(odal)-precedence $<_m$ in (25) (cf. Arregui 2009 on the modal part-of relation $\leq_m$):

[7] See also Altschuler and Schwarzschild (2013) for a similar idea on double access readings.

[8] Besides the duplication of the temporal property, Ogihara (1999) treats the embedded tense as *de re* and extracts it out of the embedded clause. Since this part of the analysis is not needed for conditionals, we leave the *de re* part out of the presentation here. See also footnote 9.

[9] The truth conditions in (24b) are not quite accurate. The contribution of *[PRES pro$_2$]* and *[PRES pro$_0$]* should not be asserted but presupposed, since both (24) and the negative version (i) have the corresponding implications. We leave this detail for future elaboration.

(i) John didn't say / denied that Mary is pregnant.

(25) For any two indices $<w_1,t_1>$ and $<w_2,t_2>$:
   a. $<w_1,t_1>$ m(odally)-overlaps ($\circ_m$) with $<w_2,t_2>$ iff
   the temporal intervals t_1 and t_2 share a common subinterval.
   b. $<w_1,t_1>$ m(odally)-precedes ($<_m$) $<w_2,t_2>$ iff
   the temporal interval t_1 ends before the temporal t_2 interval starts.

Furthermore, just as the predicates *PRES* and *PAST* denote the relations $\circ$ and $<$ respectively, we will use the predicates *mPRES* and *mPAST* to denote the relations $\circ_m$ and $<_m$ just defined.

Now we are ready to transfer Ogihara's duplication of the temporal property to our W×T framework. Example (26) has the LF representation in (26a): since *pro*$_3$ and *pro*$_2$ share the same world, the predicate *PRES* is used; since *pro*$_3$ and *pro*$_0$ need not share the same world, the predicate *mPRES* is employed. The resulting truth conditions are given in (26b).

(26) John said that Mary <u>is</u> pregnant.
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}$ John say $[\lambda 2\ \exists_3[\text{pro}_3{}^{[\text{PRES pro}_2],[\text{mPRES pro}_0]}\lambda 4[$ Mary be pregnant at $\text{pro}_4]]]]]$
   b. $\lambda i_0.\exists i_1[i_1 < i_0 \wedge \forall i_2 \in \text{Say}_j(i_1) : \exists i_3[i_3 \circ i_2 \wedge\ \ i_3 \circ_m i_0\ \ \wedge$ Mary is pregnant at $i_3]]$

Example (27) receives a parallel analysis, except that this time the duplication concerns the predicates *PAST* and *mPAST*:

(27) John said that Mary <u>bought</u> a car.
   a. LF: $\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}$ John say $[\lambda 2\ \exists_3[\text{pro}_3{}^{[\text{PAST pro}_2],[\text{mPAST pro}_0]}\lambda 4[$ Mary buys a car at $\text{pro}_4]]]]]$
   b. $\lambda i_0.\exists i_1[i_1 < i_0 \wedge \forall i_2 \in \text{Say}_j(i_1) : \exists i_3[i_3 < i_2 \wedge\ \ i_3 <_m i_0\ \ \wedge$ Mary buys a car at $i_3]$

To sum up section 2, tense morphology is treated as introducing a variable ranging over indices—which contributes to the asserted content—and a temporal feature or predicate—which contributes to the presuppositional content. When embedded under operators like attitude verbs, the behavior of tense morphology is interesting in two respects. First, a layer of past tense on an embedded verb α may be left uninterpreted provided that a semantic binding chain exists between the index of α and a higher operator with interpretable past tense features (sequence of tense). Second, tense on the verb of the complement clause may be analyzed by duplicating its temporal property and interpreting it relatively in one instance and absolutely in the other (double access reading).

3 Proposal

Let us get back to our counterfactual conditionals (2a,b), repeated below as (28) and (31). As presented in the introduction, we want to combine two intuitive ideas found in the literature. On the one hand, we pursue Dudman's (1983, 1984) idea that a counterfactual built with 'fake' tense involves a back shift in time with a future metaphysical conditional embedded under it. On the other hand, we follow the intuition that, while one layer of tense is 'fake', the remaining tense morphology is interpreted in situ and absolutely with respect to the speech index i_0. As we saw, the combination of these two ideas results in the (rough) LFs (29) and (32). These are adapted in (30) and (33) to the framework assumed here and to the examples at hand.

(28) If John had come (yesterday), it would have been fun.

(29) Rough LF for past counterfactual conditionals: (=(4))
PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT PAST p] [then FUT PAST q]

(30) LF for the past counterfactual conditional (28): [To be revised]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_0]}\lambda 7[\text{John come at i}_7]]]]]$
$[\lambda 3\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_0]}\lambda 7[\text{it be fun at i}_7]]]]]]]$

(31) If John was there (now), it would be fun.

(32) Rough LF for present counterfactual conditionals: (=(5))
PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT (PRES) p] [then FUT (PRES) q]

(33) LF for the present counterfactual conditional (31): [To be revised]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_0]}\lambda 7[\text{John be there at i}_7]]]]]$
$[\lambda 3\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_0]}\lambda 7[\text{it be fun at i}_7]]]]]]]$

Before we can proceed to semantic interpretation, two issues need to be addressed, as announced in the introduction. The first issue is how to relate the surface syntax of counterfactual conditional sentences to Dudman's idea of having a back shift outside the conditional. How can the 'fake' tense appearing inside the antecedent clause be interpreted as scoping over the entire conditional? Following Grønn and von Stechow (2009), we argue that the mismatch between surface form and interpretation site is due to sequence of tense: one layer of past tense in the embedded verb complex is just the uninterpretable morphological reflex of a silent interpretable past tense scoping over the entire conditional. This gives us the LFs in (34)-(35), where uninterpretable past is licensed by the appropriate semantic binding chains ($\exists_1$ binds, via $\lambda 2$, the index pro_2 of the modal, and the modal in turn binds, via $\lambda 3$, the index pro_3 of the verbal complexes of the antecedent and consequent clauses).

(34) LF for the past counterfactual conditional (28): [To be revised]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \cancel{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_0]}\lambda 7[\text{John come at i}_7]]]]]$
$[\lambda 3\ \cancel{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_0]}\lambda 7[\text{it be fun at i}_7]]]]]]]$

(35) LF for the present counterfactual conditional (31): [To be revised]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \cancel{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_0]}\lambda 7[\text{John be there at i}_7]]]]]$
$[\lambda 3\ \cancel{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_0]}\lambda 7[\text{it be fun at i}_7]]]]]]]$

The second issue is the linearization puzzle described above. What is the temporal relation between the future metaphysical conditional under a temporal back shift and the past-/present-of-i_0 hypothetical events? We propose that, just like in double access readings under attitude verbs, the remaining interpretable tenses inside the antecedent and consequent clauses of a counterfactual conditional are interpreted by duplicating their temporal property. In one instance, the temporal property is interpreted absolutely with respect to the speech index i_0, capturing the intuition that part of the morphological make-up on the verb complex is 'real' tense used deictically. In the

second instance, the property is interpreted relative to the local index *pro*$_4$ introduced by the future under the metaphysical modal (via λ5). This gives us the final LFs in (36)-(37):

(36) LF for the past counterfactual conditional (28): [Final Version]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{John come at } i_7]]]]]$
$[\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{it be fun at } i_7]]]]]]]$

(37) LF for the present counterfactual conditional (31): [Final Version]
$\lambda 0[\exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}[\lambda 2\ \text{MODAL}_{\text{METAPHY}}\ \text{pro}_2$
$[\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_5],[\text{mPRES pro}_0]}\lambda 7[\text{John be there at } i_7]]]]]$
$[\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}[\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_5],[\text{mPRES pro}_0]}\lambda 7[\text{it be fun at } i_7]]]]]]]$

With this last addition, we are ready to proceed to semantic interpretation. For the past counterfactual conditional (28), the main steps in the compositional derivation are as follows:

(38) Antecedent clause of the past counterfactual conditional (28):
a. $[\![\lambda 7\ \text{John come at pro}_7]\!]^g = \lambda i_7.\text{John come at } i_7$
b. $[\![\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{ John come at pro}_7]]]\!]^g =$
$\lambda i_5.\exists i_6[i_6 < i_5 \wedge i_6 <_m g(0) \wedge \text{John come at } i_6]$
c. $[\![\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{ John come at pro}_7]]]\!]^g =$
$\lambda i_3.\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m g(0) \wedge \text{ John come at } i_6]]$

(39) Consequent clause of the past counterfactual conditional (28):
a. $[\![\lambda 7\ \text{it be fun at pro}_7]\!]^g = \lambda i_7.\text{it be fun at } i_7$
b. $[\![\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{ it be fun at pro}_7]]]\!]^g =$
$\lambda i_5.\exists i_6[i_6 < i_5 \wedge i_6 <_m g(0) \wedge \text{it be fun at } i_6]$
c. $[\![\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PAST pro}_5],[\text{mPAST pro}_0]}\lambda 7[\text{ it be fun at pro}_7]]]\!]^g =$
$\lambda i_3.\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m g(0) \wedge \text{ it be fun } i_6]]$

(40) Combining the antecedent clause IP_A and the consequent clause IP_C of (28):
a. $[\![\lambda 2[\text{MODAL pro}_2\ \text{IP}_\text{A}\ \text{IP}_\text{C}]]\!]^g =$
$\lambda i_2.\forall i_3 \in \text{Metaph}^L(i_2):$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m g(0) \wedge \text{ John come at } i_6]] \rightarrow$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m g(0) \wedge \text{ it be fun at } i_6]]$
b. $[\![\lambda 0\ \exists_1[\text{pro}_1{}^{[\text{PAST pro}_0]}\lambda 2[\text{MODAL pro}_2\ \text{IP}_\text{A}\ \text{IP}_\text{C}]]\!]^g =$
$\lambda i_0.\exists i_1[i_1 < i_0 \wedge \forall i_3 \in \text{Metaph}^L(i_1):$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m i_0 \wedge \text{ John come at } i_6]] \rightarrow$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge i_6 <_m i_0 \wedge \text{ it be fun at } i_6]]]$

For the present counterfactual conditional (31), the steps are completely parallel, differing just in the doubling of *PRES* instead of *PAST*. The abridged derivation is as follows:

(41) Antecedent clause of the present counterfactual conditional (31):
$[\![\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUT pro}_3]}\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRES pro}_5],[\text{mPRES pro}_0]}\lambda 7[\text{ John be there at pro}_7]]]\!]^g =$
$\lambda i_3.\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 \circ i_4 \wedge \ i_6 \circ_m g(0) \ \wedge \text{ John be there at } i_6]]$

(42) Consequent clause of the present counterfactual conditional (31):
$[\![\lambda 3\ \sout{\text{past}}\ \exists_4[\text{pro}_4{}^{[\text{FUTpro}_3]}\lambda 5\ \exists_6[\text{pro}_6{}^{[\text{PRESpro}_5],[\text{mPRESpro}_0]}\lambda 7[\text{ it be fun at pro}_7]]]]\!]^g =$
$\lambda i_3.\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 \circ i_4 \wedge\ i_6 \circ_m g(0)\ \wedge \text{ it be fun } i_6]]$

(43) Combining the antecedent clause IP_A and the consequent clause IP_C of (31):
$[\![\lambda 0\ \exists_1[\text{pro}_1{}^{[\text{PASTpro}_0]}\lambda 2[\text{MODAL pro}_2\ IP_A\ IP_C]]\!]^g =$
$\lambda i_0.\exists i_1[i_1 < i_0 \wedge \forall i_3 \in \text{Metaph}^L(i_1) :$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 \circ i_4 \wedge\ i_6 \circ_m i_0\ \wedge \text{ John be there at } i_6]] \rightarrow$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 \circ i_4 \wedge\ i_6 \circ_m i_0\ \wedge \text{ it be fun at } i_6]]]$

In sum, we have successfully combined and implemented the two intuitive ideas from the literature that we started off with. To do so, we have relied solely on interpretative mechanisms that are independently needed for tense in other constructions. These mechanisms are: (i) licensing of morphological reflexes under semantic binding (sequence of tense) and (ii) duplication of the temporal property in environments where a double linearization is needed (e.g., double access readings).

4 Comparison with previous analyses in the temporal remoteness line

We turn now to previous implementations of the temporal remoteness approach to counterfactual conditionals. These include Dudman (1983, 1984), Arregui (2009), and Grønn and von Stechow (2009). While these proposals have greatly advanced the modeling of the temporal approach to 'fake' tense, we will see that they suffer certain limitations that are circumvented in the analysis developed in the present paper.

In the following, we examime each of these proposals in turn.

4.1 Dudman (1983, 1984)

Dudman embraces only one of the two ideas combined in the present paper. He proposes that counterfactual conditionals like (2) involve a back shift in time with a future metaphysical conditional interpreted under the scope of that back shift. But he does not treat any part of the tense morphology as 'real' tense ordering the hypothetical event with respect to the speech index. Rather, the entire tense morphology in the verb cluster of the antecedent clause is used to shift us back to a point in time —the change-over point c— at which the 'fantasy' embodied in the future metaphysical conditional starts (Dudman 1983, 36).

This applies as follows to our counterfactual conditionals (2), repeated below as (44) and (46). In the case of the present counterfactual (44), a future-oriented 'fantasy' about a hypothetical event overlapping with i_0 must obviously start before i_0. This means that the change-over time c must precede i_0. One layer of 'fake' tense morphology —i.e., one layer of tense interpreted outside the *if*-clause, as shown in the LF (45)— suffices to shift to c.

(44) If John was there (now), it would be fun.

(45) PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT p] [then FUT q]

In the case of the past counterfactual conditional (46), a future-oriented 'fantasy' about a hypothetical event at an index i_1 preceding i_0 must of course start before i_1. This means that

the change-over time c must precede i_1, which in turn precedes i_0. Hence, two layers of 'fake' tense are needed to shift to c in this case, as represented in the LF (47).

(46) If John had come (yesterday), it would have been fun.

(47) PAST PAST $\text{MODAL}_{\text{METAPHY}}$ [if FUT p] [then FUT q]

While Dudman's implementation and ours make the same predictions for present counterfactuals like (44), they differ substantially in the representation of past counterfactuals like (46): there are two back shifts in Dudman's LF (47) and one in our (schematic) LF (4a). The LF with two back shifts, but not the LF with one, leads to the following two problems.

First, it is not clear how the surface syntax of (46) can be mapped to the LF (47). Thanks to sequence of tense (section 2.2), one layer of past tense in an embedded clause may be left uninterpreted when licensed by the appropriate semantic binding chain. But can *two* layers of embedded past tense be licensed and left uninterpreted like that? The answer is 'no'. Even if we stack two interpretable past tenses in the matrix clause, they license only *one* layer of embedded uninterpretable tense. This is shown in (48): the embedded clause has an anterior reading arising from the (schematic) LF in (48a), where one layer of past in the verb complex *had been* is left uninterpreted; but the sentence lacks a simultaneous reading, which would result if the (schematic) LF (48b), with both layers of past tense uninterpreted, were permissible.

(48) Sam had told us (the day before) that Mary had been sick.

a. $\lambda 0$[PAST PAST Sam tell [$\lambda 2$ that ~~past~~ $\exists_3$[$\text{pro}_3{}^{[\text{PAST}\text{pro}_2]}$ Mary be sick]]]
anterior reading

b. * $\lambda 0$[PAST PAST Sam tell [$\lambda 2$ that ~~past past~~ pro_2 Mary be sick]]
* simultaneous reading

Second, while Dudman is mostly concerned with the tense morphology in the antecedent clause, it is desirable to extend the analysis to the consequent clause as well. But, then, having two back shifts is problematic in view of temporally mixed examples like (49), where one hypothetical event precedes i_0 and the other overlaps with i_0. Given that we need two back shifts to set the start point c of the 'fantasy' before yesterday, and assuming that tenses in the antecedent and consequent clauses are –somehow– just reflexes of the higher back shifts, the closest that we can get to generate an LF for (49) is (50). But (50) does not correspond to the surface string in (49), but rather to the string *If John had been sick (yesterday), Mary would have been sick (now)*, so it is not clear how to generate the actual sentence. Furthermore, even if one could concoct the LF in (51) leading to the surface string in (49), the surface distribution of the embedded tenses would be saying nothing about the timing of the hypothetical events with respect to i_0. This is contrary to fact: (49) may describe a 'fantasy' where John's sickness occurs yesterday and Mary's sickness now, but not the other way around, witness (52).

(49) If John had been sick (yesterday), Mary would be sick (now).

(50) PAST PAST $\text{MODAL}_{\text{METAPHY}}$ [if ~~past~~ FUT ~~past~~ p] [then ~~past~~ FUT ~~past~~ q]

(51) PAST PAST $\text{MODAL}_{\text{METAPHY}}$ [if ~~past~~ FUT ~~past~~ p] [then ~~past~~ FUT q]

(52) If John had been sick (*now), Mary would be sick (*yesterday).

In contrast, in the analysis proposed in the present paper, having just one layer of 'fake' tense —i.e., having just one layer of tense over the entire conditional—, allows us to produce the LF in (53), which corresponds to the surface string in (49) and yields the truth-conditions in (54), predicting the correct temporal location of the hypothetical events with respect to i_0.

(53) LF for the temporally mixed counterfactual conditional (49):
$\lambda 0[\exists_1[pro_1{}^{[PASTpro_0]}[\lambda 2\ MODAL_{METAPHY}\ pro_2$
$[\lambda 3\ \sout{past}\ \exists_4[pro_4{}^{[FUTpro_3]}[\lambda 5\ \exists_6[pro_6{}^{[PASTpro_5],[mPASTpro_0]}\lambda 7[$John be sick at $i_7]]]]]$
$[\lambda 3\ \sout{past}\ \exists_4[pro_4{}^{[FUTpro_3]}[\lambda 5\ \exists_6[pro_6{}^{[PRESpro_5],[mPRESpro_0]}\lambda 7[$Mary be sick at $i_7]]]]]]]]$

(54) $\lambda i_0.\exists i_1[i_1 < i_0 \wedge \forall i_3 \in \text{Metaph}^L(i_1) :$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 < i_4 \wedge\ i_6 <_m i_0\ \wedge$ John be sick at $i_6]] \rightarrow$
$\exists i_4[i_3 < i_4 \wedge \exists i_6[i_6 \circ i_4 \wedge\ i_6 \circ_m i_0\ \wedge$ Mary be sick at $i_6]]]$

4.2 Arregui (2009)

Arregui (2009) is mostly concerned with explaining how, in selecting maximally similar counterfactual worlds, certain facts about the actual world are mantained while others do not matter. In tackling this problem, she provides a compositional analysis of counterfactual conditionals which, although not directly geared towards their tense make-up, makes some assumptions about how tense morphology is interpreted.

Of the two ideas combined in the present paper, Arregui's (2009) analysis makes the choice opposite to Dudman's (1983, 1984). She aligns the hypothetical events with respect to the speech time (by making the modal introduce situations that are non-past with respect to i_0) and interprets part of the morphological make-up of the verb as 'real', that is, in its surface position (as introducing a result state holding at i_0 in the case of past counterfactuals). But the way 'fake' tense is interpreted outside of the *if*-clause is completely different: instead of introducing a back shift scoping over a future metaphysical conditional, it simply refers to a salient (actual) past situation, a *res* of which the entire (counterfactual) conditional will be predicated. In (55), for example, that salient past situation could be the situation of Sara's body having a particular chemical state and the speaker having cats at home. The LF skeleton of a past counterfactual conditional is given in (55). The lexical entry for the modal and some auxiliary notions are given in (57)-(58).

(55) Context: Sara is allergic to cats and the speaker has cats at home.
If Sara had visited my house (last Monday), she would have sneezed.

(56) $pro_i{}^{PAST}$ MODAL [λj ~~past~~ pro_j RESULT p] [RESULT q]

(57) p* = λs. ∃s' [s' is part of s ∧ s' is no-past wrt speech time ∧ p(s')=1]

(58) Given two propositions p* and q* and a past situation s in w,
$[\![would_L]\!]^{w,g}$ (p*) (q*) (s) = 1 iff
$\{s_L'$: s (has a counterpart that) is part of $s_L' \wedge p^*(s_L')=1\} \subseteq$
$\{s_L'$: $\exists s_L''[\ s_L'$ is part of $s_L'' \wedge q^*(s_L'') = 1\}$,
where s_L is a situation that satisfies the set of laws L of w salient in the context.

Although having a *res* situation s nicely captures important features of similarity, this analysis faces a problem when it comes to tense. There is, again, a mismatch between the surface position

of a layer of past tense and its interpretation site. But this time we do not have a back shift under whose semantic scope the entire conditional is interpreted. Indeed, the temporal location of the hypothetical events is "decided by the modal and is independent of the semantics of the higher past tense" (Arregui 2009, 252). This means that there is no semantic binding chain headed by an operator with past features to license the embedded uninterpretable ~~*past*~~ in (56).

Note that plain syntactic c-command without semantic binding does not license uninterpretable tense. That is, the c-commanding pro_1^{PAST} by itself cannot license ~~*past*~~ in (56). To see this, consider the relative clause in (59) and the four potential LFs in (59a-d). In principle, the tense of the relative clause can be computed relative to the matrix verb's time or to the speech time. In the first case, a semantic binding chain is established ($\exists_1$ - pro_1; $\lambda 2$ - pro_2) transmitting the past features of its head, and thus the past morphology on *was* can be interpreted —(59a)— or left uninterpreted —(59b). In the second case, the semantic binding chain ($\lambda 0$ - pro_0) has no past features to transmit. Hence, the past tense morphology on the verb *was* must be interpreted —(59c)— and cannot be left uninterpreted —(59d). If, instead, syntactic c-command by $pro_1^{[PAST\ pro_0]}$ were sufficient to license uninterpretable tense *past*, then the LF (59d) would also be permitted and the sentence would have a reading paraphrasable as "Carla bought a fish that is alive now", contrary to fact.

(59) Carla bought a fish that was alive.
   a. $\lambda 0[\exists_1[pro_1{}^{[PAST pro_0]}[\lambda 2$ Carla buy a fish that$_5$ $\exists_3[pro_3{}^{[PAST pro_2]}$ t_5 be alive]]]]
   b. $\lambda 0[\exists_1[pro_1{}^{[PAST pro_0]}[\lambda 2$ Carla buy a fish that$_5$ ~~past~~ pro_2 t_5 be alive]]]
   c. $\lambda 0[\exists_1[pro_1{}^{[PAST pro_0]}[\lambda 2$ Carla buy a fish that$_5$ $\exists_3[pro_3{}^{[PAST pro_0]}$ t_5 be alive]]]]
   d. * $\lambda 0[\exists_1[pro_1{}^{[PAST pro_0]}[\lambda 2$ Carla buy a fish that$_5$ ~~past~~ pro_0 t_5 be alive]]]

4.3 Grønn and von Stechow (2009)

Grønn and von Stechow (2009) assume that, in the counterfactual conditionals in (2), only one layer of tense is 'fake', i.e., interpreted outside its clause (like Arregui (2009) and contra Dudman (1983, 1984)). Furthermore, they assume that this single layer of 'fake' tense introduces a back shift with respect to which the entire conditional is interpreted (like Dudman (1983, 1984)) and contra Arregui (2009)). This gives us the (schematic) partial LF in (60), which we have adopted in our analysis. The higher tense builds a semantic binding chain that licenses the embedded uninterpretable ~~*past*~~, as detailed in section 3.

(60) PAST MODAL [if ~~past~~ ... p] [then ~~past~~ ... q]

However, their account and ours differ in how the rest of the tense morphology is analyzed. For a past counterfactual like (61), there is another layer of past morphology in the antecedent clause, namely *past* in (62). The authors claim that this second layer, when bundled with the subjunctive, is semantically empty.

(61) If Hubert had been here, Steffi would have been happy.

(62) PAST MODAL [if ~~past~~ ... past p] [then ~~past~~ ... q]
   subj

Two problems arise here. First, unless independent motivation is found, this part of the analysis is *ad hoc*. If the lower past layer in past counterfactual conditionals ends up being semantically

inert, why do languages consistently use it? Why is there no variation in this respect? Second, making the lower tense inert means that the hypothetical event in the antecedent clause is left unlinearized with respect to i_0. But, if the lower tense is inert and the hypothetical event is just described as future with respect to the back shift regardless of the lower tense, why do (63) and (64) not mean the same? Why can (63) be used to describe a past hypothetical event of Hubert being here but (64) cannot?

(63) If Hubert had been here, Steffi would be happy.

(64) If Hubert was here, Steffi would be happy.

5 Conclusions and further issues

The present paper set out to reach two goals.

The first goal concerned two intuitive ideas found in different works in the literature: the treatment of 'fake' tense as a back shift scoping over the entire conditional (Dudman 1983, 1984) and the interpretation of remaining tense morphology as locating the hypothetical event with respect to i_0 (Iatridou 2000, cf. Arregui 2009). The aim was to implement these two ideas in a unified analysis and to solve the puzzles that arise from such analysis. We have done so by using the following interpretive mechanisms, independently motivated for tense in other constructions. First, Dudman's treatment of 'fake' tense as a back shift outside the conditional creates a mismatch between the clause-internal surface position of 'fake' tense and its external interpretation site. Following Grønn and von Stechow (2009), we argue that this mismatch is only apparent: a phonologically null past scopes over the conditional and licenses a morphological reflex inside the antecedent and consequent clauses, as is customary in sequence of tense configurations. Second, an absolute interpretation of the remaining tense morphology leaves unlinearized the time introduced by the future indicative conditional and the past-/present-of-i_0 hypothetical event. To arrive at the correct linearization, we propose to duplicate the temporal property of the remaining tense, as argued for double access readings under attitude verbs. The duplicated property is interpreted once with respect to i_0 and once with respect to the local index introduced by the future under the metaphysical modal.

The second goal was to compare the present proposal to previous implementations of the temporal remoteness line, such as Dudman (1983, 1984), Arregui (2009), and Grønn and von Stechow (2009). In these works, only one of the two original intuitive ideas is adopted, and the adopted idea is sometimes implemented differently than in the present paper. We have shown that each of these analyses suffers important shortcomings that do not arise in the proposal developed here.

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