

Giuliano Armenante & Julia Braun

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Fake Past in Conditionals and Attitude Reports – a Crosslinguistic Correlation

Giuliano Armenante & Julia Braun

University of Tübingen

giuliano.armenante@uni-tuebingen.de, julia.braun@uni-tuebingen.de

1 Introduction

This paper explores the interplay between *fake past* – i.e. a morphological past tense that does not contribute an ordinary past semantics – in subjunctive conditionals (SCs) and attitude reports (AttRs). Based on existing data on English, as well as on novel data from Italian, Hungarian and Japanese, we show that there is a correlation with regard to the availability of *fake past*. We propose a two-way typology of the morphological make-up of attitude reports and subjunctive conditionals, as well as a semantic analysis that captures these data well and which is superior to previous approaches in that it unifies the semantics of *fake past* in two different syntactic environments as well as in four different, typologically unrelated languages.

1.1 The Puzzle

Past tense morphology generally anchors an eventuality to a time preceding the local evaluation time (usually the utterance time). In sentences such as (1a) - (1d), however, the past tense in bold does not denote any past reference and is thus referred to as *fake past* (FP)¹ (cf. Iatridou, 2000).

- (1) a. *Harry thought that Sally **had** blue eyes.*
- b. *If Sally **had** a million pounds, she would buy a villa.*
- c. *I wish I **had** a garden.*
- d. *Di Donna hoped Wang **missed** the target.*

Attitude reports as in (1a), subjunctive conditionals as in (1b), counterfactual wishes as illustrated in (1c) and expressions of desire as shown in (1d) all contain a *fake past*. However, there is still no consensus as to whether these data may all be justifiably grouped under the same umbrella term and thus receive a unifying treatment in the formal semantics realm.

The goal of this paper is to explore subjunctive conditionals and attitude reports, paying close attention to the respective morphological ingredients and to find out whether *fake past* in these two syntactic environments can be classified as a parameter of crosslinguistic variation. The following research questions will thus be answered in this paper:

1. How can *fake past* in subjunctive conditionals and attitude reports receive a uniform analysis?
2. What is the crosslinguistic distribution of instances of *fake past*?

¹ What is referred to as *fake past* here has also been called *vacuous past* (Khomitsevich, 2007), *zero tense* (Kratzer, 1998) and *null past* (Ogihara, 1994).

The plot of this paper

In the remainder of this section, a set of diagnostics will be introduced that can be used to elicit instances of *fake past*. Section 2 provides an overview of previous approaches to *fake past* and how these fail to provide a uniform analysis for the varying instances of said phenomenon. Previous approaches are additionally shown to not make predictions on the crosslinguistic distribution of *fake past* in a systematic way. Section 3 discusses in depth the novel data for Italian, Hungarian and English attitude reports and subjunctive conditionals. Section 4 is the heart of the crosslinguistic discussion, and explores how the data provided in Section 3 can be given a uniform analysis that also makes predictions about the crosslinguistic distribution of *fake past* instances. Section 5 frames the proposal within the larger debate on UG and parametric variation in natural language, discussing the viability of alternative analyses. Section 6 concludes and points to future lines of research.

1.2 What Constitutes a Fake Tense?

In this section, we provide a possible semantic diagnostic for deciding whether a language has indeed a *fake past*. These diagnostics were also used for our elicitations and will be put to use in Section 3. Zooming in on our two domains of inquiry, FP uses are encountered in complement clauses of past-tensed attitude verbs – the so-called Sequence of Tense phenomenon (SoT) – and in conditionals expressing hypothetical or counterfactual meaning. The former refers to the availability of a temporally simultaneous interpretation (SIM) in English between the embedded predicate and the embedding verb. SIM-interpretations usually obtain of past-under-past embeddings in English with a progressive or a stative predicate in the complement clause (see also (1a)).

(2) SoT (past contexts)

- a. Astrid believed that Clemens **was** upset. (✓ SIM/ ✓ BACK)
- b. Possible SIM-interpretation: Astrid to herself (before now): ‘Clemens is upset!’

The sentence in (2a) is ambiguous between a backward-shifted (BACK) reading (for which Clemens’ upset state precedes Astrid’s belief) and a simultaneous one. Following a relative past interpretation, e.g. the one given in (3a), only the former is accounted for.

- (3) a. $\llbracket \text{PAST} \rrbracket_{relative}^g = \lambda p_{(i,t)} . \lambda t . \exists t_{ref} [t_{ref} < t \ \& \ p(t_{ref})]$
- b. $\llbracket \text{past}_k \rrbracket_{absolute}^g$ is defined $\Leftrightarrow g(k) < t_u$ (with t_u = speech time)
When defined, $\llbracket \text{past}_k \rrbracket^g = g(k)$

Note that if past is treated as an absolute tense (that is, always relative to the speech time as in (3b)), nothing prevents the reference times of the two clausal events from co-referring, yielding a SIM-interpretation.² Moreover, on a referential analysis, a tense embedded under an attitude verb can receive a *de Re* interpretation, restituting again simultaneity. For these reasons, in order to pin down an accurate diagnostics for FP which doesn’t suffer from being theory-internal, we present two more testing environments: statements holding generically/universally true (or false)³ and SoT effects in future contexts.

(4) Generic/universal statements

- a. Harry thought that Sally **had** blue eyes. (✓ SIM/ × BACK)
- b. Only "sane" interpretation: Harry to himself (before now): ‘Sally has blue eyes.’

² On this formalization, an upper limit constraint (Abusch, 1997) must be stipulated in order to avoid forward-shifted interpretations.

³ The observation that past-tensed universal statements’ inferences are neutralized in attitude contexts in English is originally due to Comrie (1986).

(5) SoT (future contexts)

- a. Context: Last week John decided to confess his true feelings to Maria next time he's back to Italy. He plans to visit her in one month and he'll finally tell her: 'I love you.'
- b. John decided he would tell Maria he **loved** her. (✓ SIM)

The bold-faced embedded past tenses in (4a) and (5b) do not introduce any temporal location prior to the speech time. Under a SIM-oriented context, John's love in (5b) does not necessarily need to have started before the utterance time⁴, while statements such as (4a) constitute a generic or universal truth (or falsehood) and therefore they cannot be anchored to any time in the past.⁵

When it comes to conditionals, FP instances only occur in so-called subjunctive conditionals (SC) (Ippolito 2013; Schulz 2014) as opposed to indicative conditionals (IC).

- (6) a. If Susan **missed** the last train (yesterday), she must have slept in the station. (IC)
- b. If Sigrid **brought** quinces (tomorrow), we would make some jam. (SC)

While the bold-faced tense in (6a) can refer to a past event, the one in (6b) can only describe a hypothetical future situation. SCs can be further subgrouped into *future-less-vivid* conditionals (FLV), which like (6b) express a future unlikely scenario, and counterfactual conditionals (CFs), which exhibit contrary-to-fact antecedents.⁶ While a real past interpretation is ruled out for FLVs, CFs are compatible with any temporal reference, as long as the antecedent is false in the given scenario.

- (7) If Nadine **had** played (yesterday/tomorrow), the team would have won. (CF)
- (‘but she didn't/she won't...’).

Under a future interpretation, the bold-faced past in (7) is *fake*, in that no suitable time referent preceding the utterance time can be found. To sum up, if we were to adopt either of the lexical entries in (3) for tense in conditionals, we would fail to capture the future-oriented interpretation of FLVs and future CFs.

If the observed facts point to a common pattern across different syntactic domains, this poses the question of whether the alleged correlation is supported by crosslinguistic data and, therefore, what a typology-informed theory of FP phenomena should look like.

2 Previous Approaches

This section provides an overview of previous analyses of *fake past*. It will be illustrated that none of these can explain the parametric variation of FP and that none of these approaches provides a unifying analysis to FP in attitude reports (namely SoT) and conditionals (namely SCs).

So far, SCs and SoT have been treated separately in the literature. Publications on SCs can be divided into two conceptually distinct groups: in Schulz (2014), Iatridou (2000) and Palmer (2001), *fake past* in SCs is not interpreted temporally but instead receives a modal meaning

⁴ An anonymous reviewer contends that past-marked states in future SoT constructions need to have started before the utterance time. This might be true for (5b), given the presupposition triggered by the predicate *decide* and the metaphysical status of its world-alternatives. However, one can easily construct a context where a love-state does not hold at present, but is expected to arise at a future time. Consider a session with a fortune-teller, who foresees that you will fall in love with your friend Susy, whom you don't love at the moment: *Last week, a clairvoyant said that one year from now I would tell Susy that I loved her.*

⁵ They sound indeed bizarre in matrix contexts, usually yielding very strong lifetime inferences (*Sally had blue eyes* suggests that Sally no longer lives).

⁶ It is hard to pin down the contrast in meaning between the three forms. In broad terms, they seem to yield different entailments: while CFs entail the falsity of the antecedent, ICs, compared to FLVs, remain neutral as to the truth of the antecedent.

which marks distance from reality. In Ippolito (2008, 2013) and Arregui (2009), on the other hand, past morphology in SCs receives a temporal interpretation, with the consequence that the compositional make-up needs to be changed. **SoT** theories have explained the availability of simultaneous readings for past statives under past attitude verbs assuming that the embedded past might either be semantically vacuous and licensed by an embedding semantic past via tense agreement (Ogihara 1995; Stowell 2007) or denote an anterior time interval whose end point may extend until the attitude time due to the aspectual properties of the verb (Gennari 2003; Altshuler & Schwarzschild 2013).

2.1 More on SoT Approaches

Structural theories usually assume that the locus of interpretation of past tense morphology is higher than its surface position, thus treating tense morphemes as variables requiring a licensing antecedent. They all share the view that a SIM-interpretation is derived from an LF with one semantic Past setting the reference time for both clausal eventualities. They differ as to the type of syntactic restructuring underlying the semantic representation. More specifically, Ogihara (1995) introduces a so-called SoT rule, which optionally deletes the embedded tense at LF.

(8) Deletion rule (after Ogihara, 1995: 673)

A tense morpheme α can be deleted at LF if and only if (i) it is c-commanded by a matching tense morpheme β , (ii) there is no tense morpheme intervening between the two, (iii) α and β are occurrences of the past tense morpheme.

Since the rule makes no reference to locality constraints, it easily generates LFs for past-under-past embeddings compatible with SIM-interpretations. Note that the outcome of the deletion is nothing other than a zero tense (i.e. a bound variable ranging over times).⁷

(9) SoT (past contexts)

- a. [... [_{TP} PAST Astrid believe [_{TP} PAST Clemens be-upset]]] (BACK)
- b. Deletion: [... [_{TP} PAST Astrid believe [_{TP} that PAST Clemens be-upset]]] (SIM)

Under the assumption that *would* denotes a past-tensed future modal (i.e. quantifying over future times), the rule in (8) can as well account for SoT phenomena in future contexts.⁸

(10) SoT (future contexts)

- a. [... [_{TP} PAST J decide [_{TP} PAST WOLL he tell-M [_{TP} PAST he love-her]]]] (BACK)
- b. Deletion: [... [_{TP} PAST J decide [_{TP} PAST WOLL he tell-M [_{TP} PAST he love-her]]]] (SIM)

Alternative structural approaches maintain that SIM-triggering LFs only project one top-most PAST operator without resorting to actual deletion of an embedded copy. Among these, some (Kusumoto 1999; Stowell 2007) assume a global licensing relation between PAST and tense morphology (as opposed to a local licensing relation deriving BACK), while others (Kratzer, 1998) argue that an in-born zero tense is spelled out as past following phonological agreement. Within those lines, Kauf & Zeijlstra (2018) defend an underspecification-based analysis of SoT constructions, adopting a non-future semantics for past tense morphology: on this view, the two interpretations are truth-conditionally equivalent and only pragmatically strengthened.

By analogy, non-structural approaches within the lines of Gennari (2003) and Altshuler & Schwarzschild (2013) argue for a similar underspecification-based resolution of the SoT puzzle.

⁷ The fact that a zero tense must be bound comes from the semantics of attitude verbs, requiring a property of times as their first argument. As a consequence, $\langle i \rangle$ -denoting variables must be abstracted over.

⁸ This would also explain the contrast with *...he will tell Maria he loved her*, which does not exhibit a SIM-reading. If *will* denotes a present-tensed future modal, the intermediate T-node will constitute an intervener between the matrix and the bottom-most past tense, hence blocking deletion.

However, the derived flexible meaning is not due to a weakened denotation of past tense, but to aspectual properties of the verbs. These approaches show that there is a correlation between verb's aspect and temporal relations in AttRs, in that only statives or progressive eventives give rise to SIM-readings in the scope of co-tensed attitudes (see Kusumoto, 1999). In more concrete terms, according to these approaches, past-under-past embeddings systematically yield only a BACK-interpretation: while in Gennari (2003) the embedded verb's eventuality might extend until the attitude time, due to the open right boundary of stative/progressive time intervals, Altshuler & Schwarzschild (2013) argue that SIM-readings are an illusion resulting from the lack of cessation implicature in languages with an indexical present tense.⁹

Despite the theoretical appeal, the predictions made by aspectual-pragmatic approaches are not crosslinguistically viable. We will see in the next section that simultaneous temporal relations in AttRs are not conditioned to stative/progressive predicates (see Japanese).¹⁰ The take-home message from this overview is that, in line with what is predicted by structural approaches, FP uses in AttRs call for a feature-sharing mechanism after all (Grønn & von Stechow 2010; Ogihara & Sharvit 2012). On this view, the availability of this mechanism determines the observed language variation.

2.2 More on SCs

Schulz (2014) provides a compositional analysis for *fake tense* in subjunctive conditionals in English. Basing her analysis on Iatridou (2000), she claims that the English simple past has a modal meaning in addition to the temporal one. Schulz (2014) derives this modal meaning by assuming that the uninterpretable feature on the past-tensed verb can be checked by a covert modal operator \square .¹¹ The temporal past meaning is derived whenever an uninterpretable past feature is interpreted by a vanilla PAST operator.

The difference between an indicative and a subjunctive conditional is reflected in the presupposition of the covert modal operator \square , as illustrated below:

- (11) Interpretation schemes for the operators selecting for mood (Schulz, 2014: 132)
- a. the unmarked case $\rightsquigarrow \lambda w \lambda \dots . X \geq E^* . OP(X)$
 - b. the feature [*ipast*] $\rightsquigarrow \lambda w \lambda \dots . X < E^* . OP(X)$

OP is a modal operator that binds the set of worlds that the antecedent refers to – X. In an indicative conditional (and the corresponding presupposition in (11a)), the antecedent worlds X are part of the epistemic center E^* . The antecedent thus contains a set of worlds that are expected by the speaker. In a subjunctive conditional, on the other hand, where simple past receives a modal interpretation, the covert operator also binds the antecedent worlds but adds the presupposition that the antecedent worlds are not part of the epistemic center of the speaker and are thus unexpected.¹² However, these unexpected worlds need not be counter to fact.

Schulz (2014: 135) illustrates this by providing a compositional analysis for the sentences below. (12a) is an indicative conditional, whereas (12b) is a subjunctive conditional:

⁹ We are here glossing over the formal details of the analysis. In a nutshell, Gricean reasoning applies when it comes to tense competition between present- and past-tensed statives, yielding a cessation implicature when the speaker adopts the weaker past option. In the scope of past-tensed attitude verbs this competition does not occur in English-like languages, since embedded present must overlap the utterance time. We refer the reader to Altshuler & Schwarzschild (2013) for a more thorough analysis.

¹⁰ Moreover, assuming that in Japanese a strict BACK interpretation does not obtain pragmatically, a pragmatic theory would fail to explain why SIM-readings are sometimes available in past-under-past embeddings in Russian and Hebrew, although these languages do not exhibit an indexical present in AttRs.

¹¹ This covert modal is restricted by the antecedent of the conditional (Kratzer, 1986).

¹² Fake past in this framework also encodes anteriority but the domain is not temporal but modal (Schulz, 2014: 132).

- (12) a. *If Peter left in time, he will be in Frankfurt this evening.*
 b. *If Peter left in time, he would be in Frankfurt this evening.*

In (12a), *left* is interpreted by a temporal PAST operator. In (12b), both instances of past morphology are interpreted as mood markers.

However, Schulz does not propose a unified analysis of all occurrences of FP, nor does she make predictions about the crosslinguistic distribution of instances of FP. As pointed out by Schulz (2014: 119) herself, “Given the complexity of the problem and the substantial crosslinguistic variation, it would be too bold to expect that the approach to Fake Tense proposed here extends easily to all occurrences of Fake Tense in English, let alone that it can immediately be applied to other languages. This is left for future research.”

In fact, she provides a list of reasons to think that the embedded past in SoT environments and the modal past in conditionals are not the same (Schulz, 2014: 121). Firstly, SoT involves a past embedded under another past. This does not apply to modal past in conditionals, as it does not need to be preceded by a higher PAST operator. Secondly, according to Schulz, SoT and FP should be thought of as different phenomena because there are languages that have FP but not SoT (i.e. Russian). Thirdly, she points out that the semantic contribution of the embedded past in AttRs and that of FP is different: while the former is semantically vacuous under popular SoT approaches, FP does make a semantic contribution.

We acknowledge the fact that FP in AttRs and SoT may make a different semantic contribution but claim that FP in those environments may still be given a uniform analysis (see Section 4). Russian does indeed pose a puzzle for a two-way typology of the morphological make-up of AttRs and SCs and we will comment on it in Section 5.1.

2.3 Defending the Analogy: A Reply to Bjorkman (2015)

Reasoning within the lines of Schulz (2014), Bjorkman (2015) provides arguments against a unified treatment of FP phenomena in attitude reports and counterfactuals. Bjorkman claims that varying aspect and tense in the embedded verb does not lead to the same temporal interpretation in both constructions.¹³

In past-under-past embeddings, a SIM-interpretation is obligatory for CFs, but only optional for AttRs, when the subordinate verb is a stative or progressive eventive. By contrast, non-progressive eventives force shifted interpretations in both environments, but the temporal direction is reversed (forward-shifted for CFs, back-shifted for AttRs). The contrast extends to embedded present: while a so-called double access reading (DAR)¹⁴ arises for present-tensed verbs in complement clauses, the same interpretation is not attested in CFs, where a present tense can simply not occur.

Based on this evidence, the claim that a correlation holds between AttRs and CFs seems tenuous. We will argue, however, that a clear pattern emerges once we take the broader class of conditionals into account.¹⁵ As already pointed out, ICs, as opposed to SCs, exhibit an ordinary past-oriented interpretation in the if-clause, compatible with a BACK-reading:¹⁶

¹³ Note that Bjorkman acknowledges that temporal interpretations in the two domains converge in case of past perfect-under-past embeddings. We will take this for granted.

¹⁴ A DAR obtains when the embedded eventuality holds true both at the time of speaking and at the (past) attitude time. See also Abusch (1994); Heim (1994).

¹⁵ This is not a convenient but a necessary step in order to fully understand the crosslinguistic picture and thus our proposal. Restricting a comparative analysis to one class of conditionals, as opposed to all sorts of embeddings under attitude verbs, comes short of explaining the range of interpretations available for both domains and the distinctive morphological manifestation across typologically different languages.

¹⁶ Note that comparing the full range of temporal interpretations between the two environments is a tricky endeavor: following standard theories, tense in if-clauses should not be c-commanded by the matrix tense. In other words,

- (13) a. If Lilian missed the bus, then she walked home. (IC: BACK/×SIM)
 b. Alex said that Lilian missed the bus. (AttR: BACK/×SIM)

The same ambiguity holds for stative or progressive eventives, as shown below:

- (14) a. If the students knew the answer, the teacher was/would be proud. (BACK^{IC}/SIM^{SC})
 b. The teacher said that the students knew the correct answer. (BACK/SIM)

The conditional in (14a), just like the AttR in (14b), allows for both a SIM- (for which the students know the answer at the time of speaking) and a BACK-interpretation (for which the students knew the answer at some point in the past). Since a SC requires a modal in the consequent, the sentence is only locally ambiguous, as opposed to languages waiving this requirement. In Japanese, for example, the opposite is true: past-under-past conditionals are genuinely ambiguous, while temporal relations in AttRs are subject to the embedded tense.

- (15) a. (*Moshi*) *Taro-ga soko-ni i-ta-ra, John-ni soodanshi-ta daroo.*
 (If) Taro-NOM there-DAT be-PAST-RA John-DAT discuss-PAST probably
 ‘If Taro was there, he probably talked to John.’ (BACK^{IC})
 ‘If Taro had been there, he would have probably talked to John.’ (possible SIM^{SC})
 b. *John-wa Mary-ga odot-tei-ta to it-ta.*
 John-TOP Mary-NOM dance-PROG-PAST that say-PAST
 ‘John said that Mary was (previously) dancing.’ (BACK)
 c. *John-wa Mary-ga odot-tei-ru to it-ta.*
 John-TOP Mary-NOM dance-PROG-NONPAST that say-PAST
 ‘John said that Mary was (currently) dancing.’ (SIM)

The fact that past tense morphology in past-oriented AttRs does not allow for forward-shifted interpretations is not surprising either, given the constraints imposed by propositional attitude verbs (see footnote 2). As we have seen in (5b) repeated below, past tense morphology can be felicitously used in *would*-AttRs to talk about future events, on a par with the *later-than-now* meaning of perfective SCs.

- (16) John decided he would tell Maria he **loved** her. (✓SIM)

The same reasoning applies to present-under-past embeddings, as DARs usually stem from the semantic properties of attitude verbs and the indexical nature of present in English. It follows that when the consequent of an IC carries an attitude verb, we should expect a DAR. This expectation is borne out:

- (17) If Mary is pregnant, then John figured it out for sure.
 (‘Mary’s pregnancy extends from the figuring-out time until the speech time.’)

temporal dependencies in conditionals cannot be established the same way they are in AttRs. For the former, a subordinate tense can only have the speech time as its local evaluation time. Therefore, keeping with Bjorkman (2015), in the case of conditionals BACK and SIM will denote here temporal interpretations respectively preceding and overlapping the utterance time.

Table 1. Range of interpretations for conditionals vs attitude reports

Verb in if-clause	Conditionals	Attitude Reports
Stative/progressive	SIM (present CF)	SIM
	BACK (past IC)	BACK
Pfv eventive under Past	BACK (IC)	BACK
Pfv eventive under future modal	Later-than-now	Later-than-now
Past Perfect	BACK (CF)	BACK
Present	DAR (IC)	DAR

To sum up, a contrastive analysis of tense uses in conditionals and attitude reports shows that the same temporal interpretations can be brought about in the two domains with similar morpho-syntactic ingredients. Even when past tense does not induce a canonical temporal interpretation, matching conditions must hold for FP to occur. Thus, the observed variation in meaning is mostly attributed to the distinctive semantic and syntactic features of the two constructions and the role played by verbal categories such as mood, viewpoint and lexical aspect. We will see in the next section that a crosslinguistic investigation provides further support for a unified treatment of these phenomena.

3 Data

3.1 Methodology

The languages from which the fieldwork data in this paper are drawn are typologically unrelated and thus form a good testing ground for parametric variation.

The methodology of data collection consists of one-on-one intensive elicitation with native speaker informants of Japanese and Hungarian.¹⁷ For the Italian data, we relied on the first author's introspective judgements.¹⁸ We followed Matthewson (2004) when eliciting the data in mainly using judgement tasks where informants had to judge the acceptability of a target sentence provided in their mother tongue with regard to a preceding context. In order to construct these target sentences, we additionally used translation tasks, that were also accompanied by a context.

In order to compare the data from English, Italian, Hungarian and Japanese, we made sure to use parallel contexts and target sentences. For a diagnostics on how to test for *fake past*, we refer the reader to Section 1.2.

3.2 Attitude Reports Across Different Languages

In English and Italian, an embedded past verb form can derive a simultaneous reading, which is forced by our context. This is illustrated in (18a) and (18b). The same simultaneous reading cannot be achieved by using a past form in both Hungarian and Japanese as shown in (18d) and (18f). Instead, this clearly results in a backshifted reading which is only acceptable in a context where John said: 'I loved you in the past.', i.e. where the state of loving Mary precedes John's time of speaking. In order to derive a simultaneous reading, speakers of Hungarian and Japanese use an embedded non-past/present form (see (18c) and (18e)).

¹⁷ We elicited the data with two Japanese and four Hungarian informants.

¹⁸ These judgements were double checked with other Italian native speakers.

(18) **Past under past, SIM reading:**

John finally confessed his feelings to Mary. He said to her: “I love you.”

- a. *John said to Mary that he loved her.* (English)
 b. *Mattia disse a Maria che la amava.* (Italian)
 Mattia say.PAST to Maria that her love.PAST.IPFV
 c. *Mattis elmondta Hanna-nak, hogy szereti őt.* (Hungarian)
 Mattis told Hanna-DAT that love.PRES her
 d. *#Mattis elmondta Hanna-nak, hogy szerette őt.*
 Mattis told Hanna-DAT that love.PAST her
 Intended: SIM, available: only BACK
 e. *John-wa Mary-ni aishi-tei-ru to it-ta.* (Japanese)
 John-TOP Mary-DAT love-PROG-NONPAST that say-PAST
 f. *#John-wa Mary-ni aishi-tei-ta to it-ta.*
 John-TOP Mary-DAT love-PROG-PAST that say-PAST
 Intended: SIM, available: only BACK

In a parallel way to (18), (false) generic statements can be reported in a past under past environment in English (19a) and Italian (19b). Again, Hungarian (19d) and Japanese (19f) behave differently in that an embedded past verb form clearly results in a backshifted reading as indicated by informants: “If you use a past tense here, it means that Paris does not exist anymore. Like the city of Troy.” Instead, a non-past/present tense is used in Hungarian and Japanese, as illustrated in (19c) and (19e).

(19) **Past under past, generic statements:**

John sometimes believes strange things. Last night, during a conversation with his friends, he said: “Paris is in Spain.”

- a. *John said that Paris was in Spain.* (English)
 b. *Gianni disse che Parigi si trovava in Spagna.* (Italian)
 Gianni say.PAST that Paris SI find.PAST.IPFV in Spain
 c. *John azt mondta, hogy Párizs Spanyolország-ban van.* (Hungarian)
 John DEM say.PAST that Paris Spain-in be.PRES
 d. *#John azt mondta, hogy Párizs Spanyolország-ban volt.*
 John DEM say.PAST that Paris Spain-in be.PAST
 Intended: SIM, available: only BACK
 e. *John-wa, Pari-wa Supein-ni a-ru to it-ta.* (Japanese)
 John-TOP Paris-TOP Spain-DAT be-NONPAST that say-PAST
 f. *#John-wa, Pari-wa Supein-ni at-ta to it-ta.*
 John-TOP Paris-TOP Spain-DAT be-PAST that say-PAST
 Intended: SIM, available: only BACK

In a future context, English and Italian are reported to allow an embedded past tense verb. Its event time is simultaneous to the event time of the verb *tell*, it is thus a SIM reading in the future. This is not possible in Hungarian and Japanese.

(20) **Past under past, future context**

Last week, John decided to confess his true feelings to Maria next time he’s back to Italy. He plans to visit her in one month and he’ll finally tell her: “I love you.”

- a. *John decided to tell Maria he loved her.* (English)

- b. *Gianni decise di dire a Maria che la amava.* (Italian)
Gianni decide.PAST to say to Maria that her love.PAST.IPFV
- c. *John elhatározta, hogy elmondja Francescá-nak, hogy szereti.* (Hungarian)
John decide.PAST that tell.PRES Francesca-DAT that love.PRES
- d. #*John elhatározta, hogy elmondja Francescá-nak, hogy szerette.*
John decide.PAST that tell.PRES Francesca-DAT that love.PAST
- e. *John-wa Maria-ni aishi-tei-ru to i-u to kime-ta.* (Jap)
John-TOP Maria-DAT love-PROG-NONPAST that say-NONPAST that decide-PAST
- f. #*John-wa Maria-ni aishi-tei-ta to i-u to kime-ta.*
John-TOP Maria-DAT love-PROG-PAST that say-NONPAST that decide-PAST
Intended: SIM, available: only BACK

Table 2. Summary: Attitude reports across languages

	Non-temporal past in past context	Non-temporal past with generics	Non-temporal past in future context
Real Past languages (Hungarian, Japanese)	x	x	x
Fake Past languages (English, Italian)	✓	✓	✓

3.3 Conditionals Across Different Languages

Based on the results from Section 3.2, it is reasonable to expect that Hungarian and Japanese only employ a real past in conditionals (which results in ICs) but that in order to form SCs, another tense or mood needs to be used. This is born out for Hungarian but not for Japanese.

(21) Indicative Conditionals

Following the rumours, someone living in Phil’s neighbourhood won the lottery last week. Nobody knows who exactly though. You say:

- a. *If Phil won the lottery, he must be happy now.* (English)
- b. *Se Luca ha vinto alla lotteria, deve essere felice adesso.* (Italian)
If Luca has won at+the lottery must be happy now
- c. *Ha Phil nyerte meg a lottó főnyereményét, most boldog.* (Hungarian)
If Phil win.PAST MEG the lottery jackpot now happy
'If Phil won the lottery, he’s happy now.'
- d. *Moshi kare-ga kuji-ni atat-tei-reba, kare-wa ima shiawase-daroo.* (Jap)
If he-NOM lottery-DAT win-PROG-REBA he-TOP now happy-probably

(22) Subjunctive Conditionals

Phil has always been dreaming of buying a big house with a swimming pool but he is very poor and cannot afford one. You wonder:

- a. *If Phil won the lottery, he would buy a villa.* (English)
- b. *Se Luca vincessesse alla lotteria, comprerebbe una villa.* (Italian)
If Luca win.SUBJ.PAST at+the lottery buy.COND a villa

- c. *Ha Daniel nyerne a lottón, venne magá-nak egy villa-t.* (Hungarian)
if Daniel win.SUBJ the lottery buy.SUBJ him-for one villa-ACC
- d. *Moshi Phil-ga kuji-ni ata-reba, kare-wa ookina ie-o* (Japanese)
If Phil-NOM lottery-DAT win-REBA he-TOP big house-ACC
kau-daroo.
buy-NONPAST-probably

Given that Hungarian and Japanese behave the same in AttRs (see Table 2), the question is whether they belong to the same class of languages for which past tense morphology receives a temporal interpretation across the board, or whether Japanese should be classified under a different category instead.¹⁹ Further contributing to the crosslinguistic picture, Baltic languages behave on a par with Hungarian, in that they do not admit past tense morphology in future-oriented SCs and in SIM-biased AttRs.

- (23) *Ja man būtu Ferrari, es būtu laimīgs.* (Latvian, SC)
If I.DAT be.COND.PRES Ferrari I.NOM be.COND.PRES happy
'If I had a Ferrari (but I don't), I would be happy.'
- (24) *Jānis apgalvoja, ka viņam bija Ferrari.* (Latvian, AttR)
Janis claim.PAST that he.DAT be.PAST Ferrari (BACK/×SIM)
'Janis claimed that he used to have a Ferrari.'

On the other side of the spectrum, West-Germanic and Romance languages resort to past tense morphology in intensional contexts, even when reference to a past time is excluded. The fact that past tense must systematically convey *pastness* for some languages, but may not for others, is suggestive of a correlation between conditionals and attitude reports. Our findings are summarised in the table below.

Table 3. Correlation between SCs and AttRs in the use of non-temporal past tense morphology

	Non-temporal past in SCs	Non-temporal past in AttR
Real Past languages (Hungarian, Baltic, Japanese)	x	x
Fake Past languages (West-Germanic, Romance)	✓	✓
Hybrid Past languages (Russian)	✓	x
Hybrid Past languages (not attested)	x	✓

4 Proposal

We have shown that once FP is taken as a parameter of crosslinguistic variation, a clear divide emerges between two classes of languages:

¹⁹ For a more thorough discussion of the Japanese data and of the temporal meaning associated to the tense morpheme *ta* in if-clauses, we refer the reader to Section 5.2.

(25) Past tense typology:

- Real Past (RP) languages, in which past tense morphology must always introduce an anteriority relation to a local evaluation time.
- Fake Past (FP) languages, in which past tense morphology may not introduce an anteriority relation to a local evaluation time.

Table 3 allows for an additional class of hybrid languages, in which past tense morphology retains its ordinary temporal meaning only in one of the two environments discussed here.

4.1 Towards an Analysis

In keeping with standard analyses in the literature, we suggest that tense morphology is not the semantic locus of intensional meaning, but covert operators induce quantification over times/worlds. It follows that a proper binding theory will be responsible for the typological split noted in (25).

(26) Tense Binding Generalization:

- a. In real past languages, past tense morphemes must be **locally** licensed by a proper licensor.
- b. In fake past languages, past tense morphemes can be **globally** licensed by a proper licensor.

Identifying the right proper licensors for each language type is key to the understanding of the make-up of conditionals and AttRs. We argue that past tense morphology in RP languages can only be in the scope of a local temporal operator PAST. This results in backshifted readings of AttRs (see (27)) and in ICs (see (28)). By contrast, past tense morphology in FP languages can be licensed by modal or temporal operators, which generates backshifted and simultaneous AttRs, as well as ICs and SCs. So in addition to the same compositional mechanism as in RP languages in (27) and (28), FP languages can also use a past tense to generate simultaneous AttRs (see (29)) and SCs (see (30)).

The latter claim might sound contentious, but we assume nothing other than a flexible meaning associated to past tense in FP languages, namely a modal one in SCs and a temporal one in AttRs. As stated, this analysis will not significantly differ from the ones we have discussed thus far. However, in its implementation it ascribes no interpretable semantic features to tense morphology, in that temporal or hypothetical meaning is entirely stemming from a c-commanding quantifier.

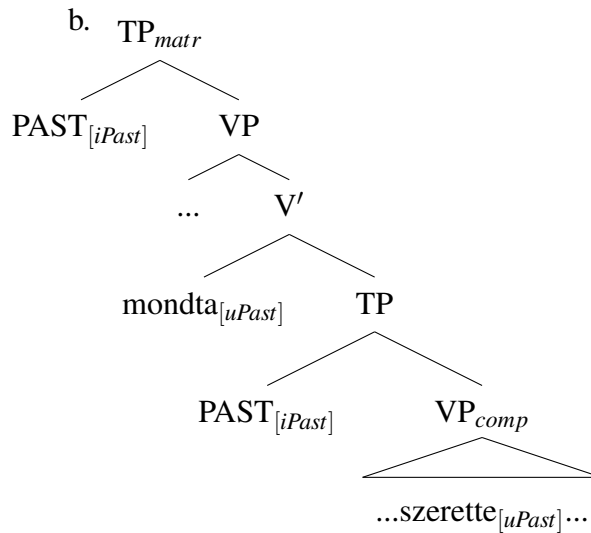
It follows that, against standard modal interpretations of past tense in conditionals, we assume that no re-analysis of tense features is involved here. On this view, FP in conditionals and AttRs receives the exact same *vacuous* interpretation. The only difference lies in the morphosyntactic status of these features, which is subject to the grammatical make-up of the language. In more concrete terms, for moodless languages like English, we expect past tense to carry a [uPast] feature in AttRs, but a [uSubj] in conditionals.²⁰

(27) **Backshifted AttR in Hungarian**

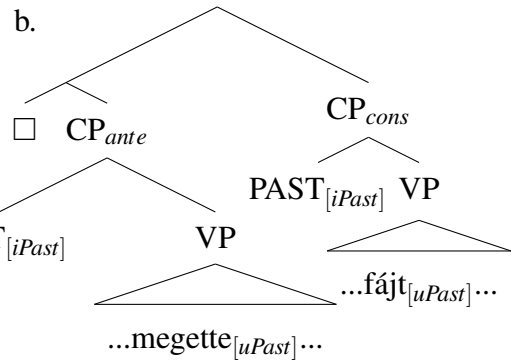
‘Mattis said that he loved Hanna.’

- a. *Mattis azt mondta, hogy*
 Mattis DEM say.PAST that
szerebbe Hanna-t.
 love.PAST Hanna-ACC

²⁰ We leave aside for the moment a proper discussion of hybrid languages. In a nutshell, these would have to exhibit a FP in conditionals but not in AttRs. Therefore, past tense morphology would obligatorily require a local temporal antecedent in AttRs, but not in conditionals.

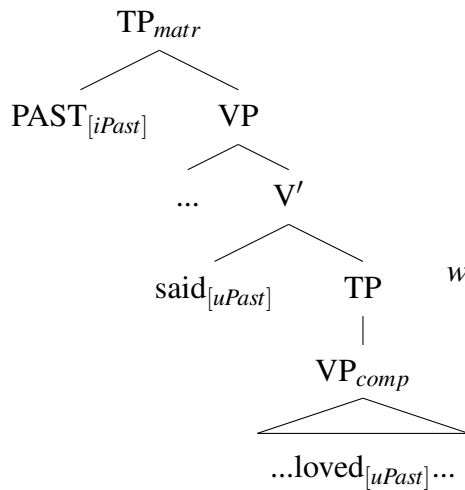


a. *Ha Paula megette a sütit,*
 If Paula eat.PAST the cake
biztos fájt a has-a.
 certainly hurt.PAST the belly-her
 ‘If Paula ate the cake, she surely had
 a bellyache.’

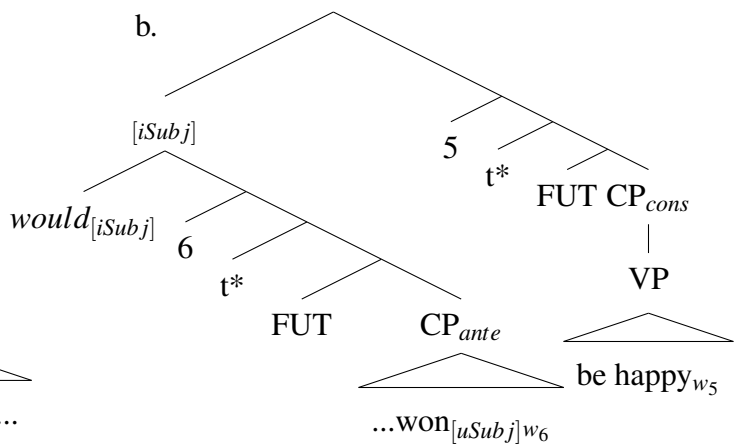


(28) **Indicative Conditional in Hungarian**

(29) **Simultaneous AttR in English**
 a. *John said that he loved Mary.*
 b.



(30) **Subjunctive Conditional in English**
 a. *If John won the lottery, he would be happy.*
 b.



As is clear from the above sentence structures, we adopt a reverse agree relation within the lines of Zeijlstra (2012), in that an uninterpretable feature can only be checked by a c-commanding matching interpretable feature. The latter might percolate up the head’s projection line (Grønn & von Stechow, 2010).

4.2 Compositional Analysis

We will assume a relative, quantificational analysis of past, whose domain of quantification is restricted by a free variable C_k , whose value is contextually given.²¹

$$(31) \llbracket \text{PAST} \rrbracket = \lambda C_{(i,t)}. \lambda p_{(i,t)}. \lambda t_i. \exists t' [t' < t \ \& \ C(t') \ \& \ p(t')]$$

As for propositional attitude verbs, we follow Hintikka’s (1969) idea (revised in subsequent work) that attitude verbs filter out those worlds (and times) which are not compatible with the attitude holder’s mental state at the evaluation time in the evaluation world:

²¹ We will adopt Heim & Kratzer’s (1998) framework and assume that C_k is interpreted via an assignment function g , which picks out the set of relevant times that the reference time introduced by PAST is part of.

$$(32) \quad \llbracket \text{believe} \rrbracket = \lambda w_s. \lambda p_{\langle s, \langle i, t \rangle \rangle}. \lambda x_e. \lambda t_i. \forall \langle w', t' \rangle \in \text{Dox}(x, w, t) \rightarrow p(w')(t') = 1^{22}$$

$$(33) \quad \llbracket \text{say} \rrbracket = \lambda w_s. \lambda p_{\langle s, \langle i, t \rangle \rangle}. \lambda x_e. \lambda t_i. \forall \langle w', t' \rangle \in \text{Say}(x, w, t) \rightarrow p(w')(t') = 1^{23}$$

Note that, on this formalization, complement clauses will have to denote properties of worlds and times, thus their local evaluation time is dependent on the attitude time. By contrast, conditional clauses will simply denote properties of worlds, being the local evaluation time supplied as the indexical t^* (always denoting the speech time). It is easy to see that in AttRs complement and matrix clauses are temporally dependent, while in conditionals antecedent and consequent are temporally independent. This will be instrumental in deriving the desired truth-conditions for the two constructions.

Attitude reports With these ingredients in place, we will now apply the sketched analysis to AttRs in both language groups. Since RP languages like Hungarian and Japanese require a local licenser for past tense morphology, a PAST operator must project at LF within its clausal boundaries. Sentence (27) will have the LF in (27b) and the truth-conditions derived in (34).

- (34) a. $\llbracket \text{CP}_{\text{complement}} \rrbracket = \lambda w_s. \lambda t_i. \exists t''' [t''' < t \ \& \ C(t''')] \ \& \ \text{M loves H at } t''' \text{ in } w]$
 b. $\llbracket \text{mondta} \rrbracket(w)(\llbracket \text{CP}_{\text{complement}} \rrbracket)(\text{MATTIS}) = \lambda t_i. \forall \langle w', t' \rangle \in \text{Say}(M, w, t) \rightarrow \exists t''' [t''' < t' \ \& \ C(t''')] \ \& \ \text{M loves H at } t''' \text{ in } w']$
 c. $\llbracket (27b) \rrbracket^{\textcircled{a}} = 1$ iff $\llbracket \text{PAST}_{\text{matrix}} \rrbracket(C')(\llbracket (34b) \rrbracket)(t^*) = \exists t'' [t'' < t^* \ \& \ C'(t'')] \ \& \ \forall \langle w', t' \rangle \in \text{Say}(M, @, t'') \rightarrow \exists t''' [t''' < t' \ \& \ C(t''')] \ \& \ \text{M loves H at } t''' \text{ in } w']]$
 d. ‘Mattis locates himself at t'' before now at a time t' at which in all worlds compatible with his statements Mattis loves Hannah at a time t''' preceding t' .’ (BACK)

Since past tense does not require a local licenser in FP languages, two possible LFs can be generated for (29). When both TPs in (29b) are dominated by PAST, we trivially derive BACK through the same compositional steps. By contrast, when only the matrix PAST occurs, we compositionally derive an interpretation compatible with a SIM-reading:

- (35) a. $\llbracket \text{CP}_{\text{complement}} \rrbracket = \lambda w_s. \lambda t_i. [J \text{ loves M at } t \text{ in } w]$
 b. $\llbracket \text{say} \rrbracket(w)(\llbracket \text{CP}_{\text{complement}} \rrbracket)(\text{JOHN}) = \lambda t_i. \forall \langle w', t' \rangle \in \text{Say}(M, w, t) \rightarrow J \text{ loves M at } t' \text{ in } w']$
 c. $\llbracket (29b) \rrbracket^{\textcircled{a}} = 1$ iff $\llbracket \text{PAST}_{\text{matrix}} \rrbracket(C')(\llbracket (35b) \rrbracket)(t^*) = \exists t'' [t'' < t^* \ \& \ C'(t'')] \ \& \ \forall \langle w', t' \rangle \in \text{Say}(M, @, t'') \rightarrow J \text{ loves M at } t' \text{ in } w']]$
 d. ‘John locates himself at t'' before now at a time t' at which in all worlds compatible with his statements John loves Mary.’ (SIM)

Conditionals For the composition of conditional sentences, we will follow Kratzer (1986) and the so-called restrictor approach, according to which the if-clause in a conditional functions as a restrictor to the quantificational domain of a necessity modal. This modal can be either overt or covert and is responsible for checking off uninterpretable features in SCs in FP languages. Crucially, whatever induces quantification over possible worlds in RP languages cannot license past tense morphology. Therefore, we expect past tense morphology to convey exclusively *pastness* in RP conditionals.

Based on our data, a successful analysis of SCs needs to capture two key elements of their meaning: the disbelief of the speaker towards the truth of the antecedent and the future-orientation. We argue that in FP languages an overt modal is endowed with a [iSubj] feature,

²² Reads: ‘ $\langle w', t' \rangle$ is a doxastic alternative of $\langle w, t \rangle$.’ Where $\text{Dox}(x, w, t) = \{ \langle w', t' \rangle : \langle w, t \rangle \text{ is compatible with what } x \text{ believes in } w \text{ at } t. \}$.

²³ Analogously, $\text{Say}(x, w, t) = \{ \langle w', t' \rangle : \langle w, t \rangle \text{ is compatible with what } x \text{ says in } w \text{ at } t. \}$, with *Say* introducing the Say-alternatives.

which signals the speaker is not committed to the truth of the antecedent. In other words, his belief worlds are excluded from p.

$$(36) \llbracket \text{would}_{[iSubj]} \rrbracket = \lambda w_s. \lambda x_e. \lambda B_{(s,s,t)}. \lambda p_{(s,t)}. \forall w'' \in \text{Dox}(x,w) \rightarrow \neg p(w'') . \lambda q_{(s,t)}. \forall w' [B(w)(w') \& p(w') \rightarrow q(w')]$$

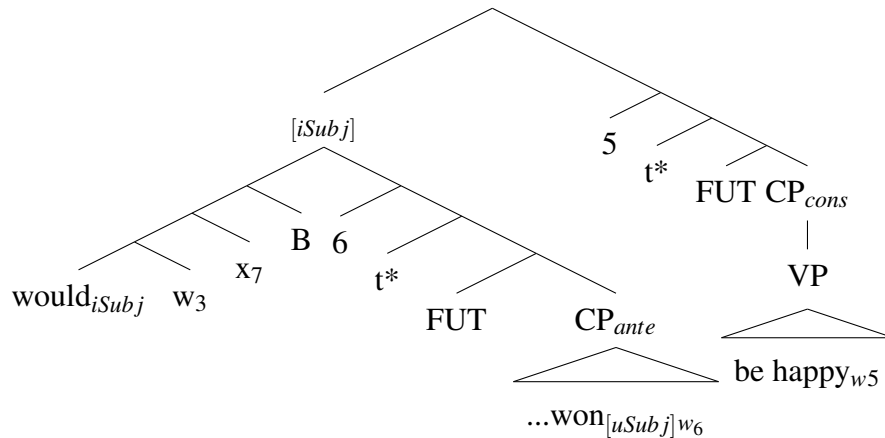
Following the lexical entry in (36), *would*_[iSubj] composes with five arguments: the world of evaluation w_3 , the context speaker $g(7)$, its modal base B^{24} , its restricting if-clause p and the consequent q . The [iSubj] feature adds the presupposition that the p -worlds do not resemble the speaker's belief-worlds, which in return should convey the speaker's disbelief earlier discussed.

Also, within the lines of Romero (2017), we assume that a future *would* modal comes with an inborn overt future operator FUT, which introduces existential quantification over times following the local evaluation time.

$$(37) \llbracket \text{FUT} \rrbracket = \lambda C_{(i,t)}. \lambda p_{(i,t)}. \lambda t_i. \exists t' [t' > t \& C(t') \& p(t')]$$

Since the antecedent and the consequent in SCs of FP languages are semantically tenseless, their time variable will be quantificationally bound by FUT, yielding a temporally future interpretation. A simplified compositional analysis for FP languages is given below. We take sentence (30) as a case study. For the LF structure given in (38), we derive the truth-conditions in (39):

(38)



- (39) a. $\lambda w. \llbracket \text{FUT} \rrbracket (C)(\llbracket \text{CP}_{cons} \rrbracket)(t^*) = \lambda w. \exists t' [t' > t^* \& C(t') \& \lambda w. \text{happy}(t', J, w)]$
 b. $\lambda w. \llbracket \text{FUT} \rrbracket (C')(\llbracket \text{CP}_{ante} \rrbracket)(t^*) = \lambda w. \exists t'' [t'' > t^* \& C'(t'') \& \lambda w. \text{win-lottery}(t'', J, w)]$
 c. $\llbracket \text{would}_{[iSubj]} \rrbracket (g(3))(g(7))(\llbracket B \rrbracket)(\llbracket (39b) \rrbracket)(\llbracket (39a) \rrbracket)$ is defined iff $\forall w'' \in \text{Dox}(g(7), g(3)) \rightarrow \neg \exists t'' [t'' > t^* \& C'(t'') \& \lambda w. \text{win-lottery}(t'', J, w'')]$
 When defined, $\llbracket \text{would}_{[iSubj]} \rrbracket (g(3))(g(7))(\llbracket B \rrbracket)(\llbracket (39b) \rrbracket)(\llbracket (39a) \rrbracket) = \forall w' [B(g(3))(w') \& \exists t'' [t'' > t^* \& C'(t'') \& \text{win-lottery}(t'', J, w')]] \rightarrow \exists t' [t' > t^* \& C(t') \& \text{happy}(t', J, w')]$
 d. $\llbracket (39b) \rrbracket = 1$ iff $\lambda w. \llbracket (39c) \rrbracket (@) = \forall w' [B(@)(w') \& \exists t'' [t'' > t^* \& C'(t'') \& \text{win-lottery}(t'', J, w')]] \rightarrow \exists t' [t' > t^* \& C(t') \& \text{happy}(t', J, w')]$

Conversely, RP conditionals will receive a temporal interpretation dependent on their clausal tense.²⁵ In lack of an overt model, quantification over worlds will be supplied by a covert operator \square :

$$(40) \llbracket \square \rrbracket = \lambda w_s. \lambda B_{(s,s,t)}. \lambda p_{(s,t)}. \lambda q_{(s,t)}. \forall w' [B(w)(w') \& p(w') \rightarrow q(w')]$$

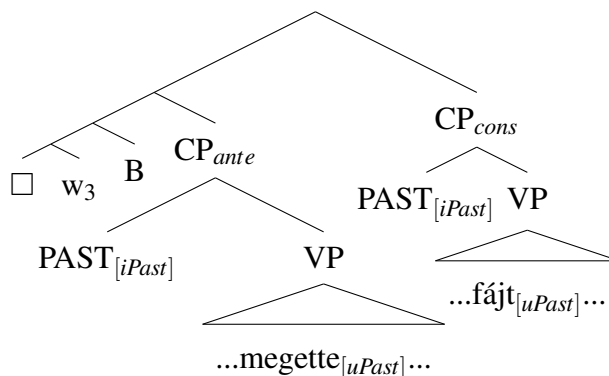
Contrary to what assumed for English *would*, \square does not carry any presupposition, hence it appears in neutral conditionals (i.e., conditionals where the speaker does not express disbelief

²⁴ With $B(@)$ restricting *would*-worlds to worlds epistemically/deontically accessible from the actual world.

²⁵ Note that present tense markers in Japanese and Hungarian express semantic non-pastness. This is compatible with a desired non-past interpretation of SCs.

towards the antecedent’s truth). We assume this is the default option for conditionals in RP languages²⁶, as shown for (28), whose LF is given in (41) and whose truth-conditions are computed in (42).

(41)



- (42) a. $\lambda w. \llbracket CP_{cons} \rrbracket = \lambda w. \llbracket PAST \rrbracket (C) (\llbracket VP_{cons} \rrbracket) (t^*) = \lambda w. \exists t' [t' < t^* \ \& \ C(t') \ \& \ hurt-belly(t', P, w)]$
 b. $\lambda w. \llbracket CP_{ante} \rrbracket = \lambda w. \llbracket PAST \rrbracket (C') (\llbracket VP_{ante} \rrbracket) (t^*) = \lambda w. \exists t'' [t'' < t^* \ \& \ C(t'') \ \& \ eat-cake(t'', P, w)]$
 c. $\llbracket \square \rrbracket (g(3)) (\llbracket B \rrbracket) (\llbracket (42b) \rrbracket) (\llbracket (42a) \rrbracket) = \forall w' [B(g(3))(w') \ \& \ \exists t'' [t'' < t^* \ \& \ C'(t'') \ \& \ hurt-belly(t'', P, w)] \rightarrow \exists t' [t' > t^* \ \& \ C(t') \ \& \ eat-cake(t', P, w')]]$
 d. $\llbracket (28b) \rrbracket = 1 \text{ iff } \lambda w. \llbracket (42c) \rrbracket (@) = \forall w' [B(@)(w') \ \& \ \exists t'' [t'' < t^* \ \& \ C'(t'') \ \& \ hurt-belly(t'', P, w)] \rightarrow \exists t' [t' > t^* \ \& \ C(t') \ \& \ eat-cake(t', P, w')]]$

Finally, akin to ICs, SCs in Hungarian should exhibit a transparent composition, where temporal orientation stems from clausal tense, modal quantification is provided once more by \square , while the dedicated conditional marker *ne* should lexically encode hypothetical meaning, thereby conveying disbelief on the speaker’s part.

5 Discussion

5.1 Universals and Parameters

As illustrated in Table 3, there are four possible combinations of non-temporal past in SCs and AttRs. However, hybrid languages exhibiting an FP in AttRs and an RP in SCs do not seem to be attested (as illustrated in the fourth row). Given the fact that Russian is reported to be a non-SoT language that still has FP (Schulz, 2014), to assume a language universal (+/- FP language) would be too strong. Instead, the data including Russian seem to suggest that an implicational universal is at play here (cf. Matthewson 2011). Based on our findings as summarised in Table 3, we propose the implicational universal below:

- (43) If a language has FP in attitude reports, it has FP in subjunctive conditionals.

More evidence for the universal provided in (43) comes from James (1982). In her crosslinguistic study on instances of hypothetical past (called FP here), she observes that all languages in her sample use a hypothetical past in conditionals but that not all of these languages have a hypothetical past in other syntactic environments. This is in line with our findings as summarised in Table 3. Languages might have FP in SCs. This is a necessary but not sufficient requirement for languages to also have FP in AttRs. The reasons for this requirement, however, will become more clear once we look at counterfactual conditionals (CFs).

²⁶ It may also occur in ICs of FP languages lacking an overt realization of the modal.

5.2 Counterfactuals and Hybrid Languages

We have remained silent on one well-investigated class of SCs: counterfactuals. This might, however, constitute a window to a better assessment of RP/hybrid languages.

In FP languages, CF-meaning is usually triggered by a double layer of past (cf. Ippolito 2013; Bjorkman 2015), namely past tense morphology plus perfect aspect. Similarly, RP languages deploy a past tense to deliver the same interpretation:

(44) Past Counterfactuals

Last Saturday, Paula's grandma baked a cake but she was a bit confused and used rotten eggs. Paula was on a business trip that weekend and luckily did not try the cake. But imagine...

- a. *If Paula had eaten the cake, she would have got a stomachache.* (English)
- b. *Se Paola avesse mangiato la torta, le sarebbe venuto il mal di pancia.* (It)
If Paola have.SUBJ.PAST eaten the cake her be.COND come the pain of belly
- c. *Ha Paula megette volna a sütit, fájt volna a has-a.* (Hun)
if Paula eat.PAST be.COND the cake hurt.PAST be.COND the belly-her
- d. *(Moshi) Paul-ga Kēki-o tabe-ta-ra, kare-wa fukutsū-ni nat-tei-ta-daroo.* (Japanese)
(If) Paul-NOM cake-ACC eat-PAST-RA he-TOP stomachache-DAT
become-PROG-PAST-probably

Past perfect CFs are used to talk about situations that might have happened in the past or in the future, but did or will not. Note that in Japanese, past tense in non-indicative conditionals conveys counterfactual meaning independently of their temporal orientation. By contrast, not all Hungarian speakers accept past tense morphology in future CFs (favoring the present-tensed option instead):

(45) Future Counterfactuals

Paula's grandma is baking a cake for Paula's birthday tomorrow, but she was a bit confused and used rotten eggs. Paula is however on a business trip and won't make it home before next week. But imagine...

- a. *?Ha Paula evett volna sütit, biztos fájt volna a hasa.* (Hun)
If Paula eat.PAST be.COND cake sure hurt.PAST be.COND the belly
'If Paula had eaten the cake, her stomach would have hurt.'
- b. *Moshi Paula-ga asu Kēki-o tabe-ta-ra, kare-wa fukutsū-ni nat-tei-ta-daroo.* (Jap)
If Paula-NOM tomorrow cake-ACC eat-PAST-RA he-TOP stomachache-DAT
become-PROG-PAST-probably
'If Paula had eaten the cake tomorrow, she would have had a stomachache.'

We thus conclude that in Hungarian-like languages, past tense morphology can more naturally occur in ICs and past CFs, i.e. in past-oriented conditionals. However, the fact that for Japanese and some Hungarian speakers, past tense morphology is allowed in future SCs challenges the view here entertained that past tense morphology in RP languages denotes a strict one-to-one mapping of tense form to temporal meaning. Are Japanese and Hungarian genuine RP languages then?

behaviour: more specifically, Slavic languages like Russian exhibit a FP in SCs but not in AttRs. We will discuss this point and the implications thereof in the next subsection.

5.3 Modal Past vs Feature-sharing Mechanism

Our implicational universal in (43) allows for the existence of hybrid languages in which past tense receives a modal interpretation. An obvious question tackles the direction of the implication: why should a language with FP in AttRs have FP in conditionals, but not the other way round? If the notion of FP in AttRs, as claimed in this paper, is tied to the availability of a (tense) feature-sharing mechanism, we expect an economy principle at play: *if a mechanism is already available in a language and can determine the desired interpretation, that language will not adopt an additional mechanism*. Since an agreement mechanism seems independently needed to explain SoT phenomena (see also discussion in Grønn & von Stechow 2010; Ogiwara & Sharvit 2012), FP languages will plausibly deploy the same mechanism in other intensional constructions in respect of linguistic parsimony. By contrast, there might be more than one compositional path to interpreting SCs.

If both a modal past mechanism (MP) and a feature-sharing mechanism are independently available in a language, what prevents FP languages from adopting the former and not the latter? More specifically, why should English PAST in SC's consequents not receive a modal interpretation, scoping over the if-clause? We argue that PAST-raising should be blocked in SoT languages. If matrix PAST can c-command past tense morphology in the if-clause, the feature-sharing mechanism might be activated and generate not attested SIM-readings.

(47) If John didn't catch the train at 7 pm, he missed the game at 9pm.

It is easy to see from (47) that ICs do not necessarily allow for co-temporal interpretations. In fact, they almost never do. SIM-readings are still possible, but only in case of co-reference, which is allowed being t^* the local evaluation time for both clausal tenses. To the best of our understanding, an agreement mechanism cannot be blocked in these cases, unless stipulating additional constraints. What happens to RP languages like Japanese? We have claimed that in these languages, MP might be at play in CFs, with the consequent's tense raising and scoping over the whole sentence. So how do we make sure that analogous readings do not occur? This is unproblematic: RP languages lack a tense-sharing mechanism. In other words, embedded tenses cannot be bound and semantically licensed by non-local operators in the first place. Note that this falls out from our analysis, without additional stipulations.

Additional evidence in support of this view comes from mood-based FP languages such as Italian. If distancing from the actual world is not contributed in these languages by mood opposition but by MP, one would expect that present in conditionals would signal a *future-more-vivid* conditional.³¹ This is however impossible.

- (48) a. #*Se Chiara sia a casa, le facciamo visita.*
 If Chiara be.SUBJ.PRES at home her do.SUBJ.PRES visit
 'If Chiara is at home, we pay her a visit.'
 b. *Che Chiara sia a casa?*
 That Chiara be.SUBJ.PRES at home
 'Is Chiara at home, I wonder?'

Moreover, in non-conditional sentences, MP doesn't seem to emerge when a past tense is used instead of a present tense. By contrast, disbelief on the part of the speaker is usually conveyed when subjunctive is used in lieu of indicative.

³¹ See Iatridou (2000) for *future-less-vivid*.

- (49) a. *Alex sostiene che Marta abita in centro.*
 Alex claims that Marta live.PRES.IND in center
 ‘Alex claims that Marta lives downtown.’ (SIM, -disbelief)
- b. *Alex sostiene che Marta abiti in centro.*
 Alex claims that Marta live.PRES.SUBJ in center
 ‘Alex claims that Marta lives downtown (but I wonder...).’ (SIM, +disbelief)
- (50) a. *Alex sostiene che Marta abitava in centro.*
 Alex claims that Marta live.PAST.IND in center
 ‘Alex claims that Marta lives downtown.’ (BACK, -disbelief)
- b. *Alex sostiene che Marta abitasse in centro.*
 Alex claims that Marta live.PAST.SUBJ in center
 ‘Alex claims that Marta lives downtown (but I wonder...).’ (BACK, +disbelief)

Based on (49) and (50), tense only temporally contributes to the sentence meaning, while mood alternation seems responsible for the speaker’s disbelief. If MP can surface in intensional contexts, we would expect a higher degree of disbelief for (50a) compared to (49a) and for (50b) compared to (49b). This is however not the case: indicative-marked embedded verbs simply remain neutral to the truth of the antecedent, while doubt is cast (in equal measure) in case of subjunctive marking.

6 Conclusion and Open Questions

In this paper, we have proposed a unified analysis for *fake past* in both subjunctive conditionals and simultaneous attitude reports in that it receives the same vacuous interpretation and is in both cases interpreted by a global licenser. Furthermore, we have shown that the availability of FP is subject to parametric variation and that we can thus distinguish between FP and RP languages. Based on our data and the implicational universal in (43), we predict that all languages that have FP in AttRs also have FP in SCs, while its reverse does not follow.

We have defended (43) on grounds of linguistic economy. It remains to be seen, however, whether a feature-sharing mechanism can account for the additional variation observed within the FP group. One problematic case can be represented by Romance languages, whose grammatical make-up of SCs involve both subjunctive and past tense morphology. If a temporal operator must be excluded in SCs, it is not clear what would license the past tense morphology. In this respect, we leave a more detailed mechanics of the binding relation for future work.

One additional line of future research may extend this correlation to present tense. As observed earlier, present tense in English always refers to the utterance time, but it may not in the scope of a future modal *will*.³²

- (51) Fake Present in FP languages
- a. Mary will think that Bill **is** hiding in the cake. (SIM)
 Intended: ‘Mary’s future thought: Bill is hiding in the cake.’
- b. If Sigrid **wins** the contest tomorrow, we will celebrate. (IC)
- c. *Sigrid **wins** the contest tomorrow.

In (51a), Bill’s hiding must occur at the future time of Mary’s thinking, but it does not necessarily overlap the utterance time. Similarly, a present tense can be used to describe a future event in the if-clause in (51a), but not in a matrix context. By contrast, RP languages such as Hungarian and Japanese exhibit a relative present, whose reference depends on the local evaluation time.

³² Under the assumption that *will* denotes a present-tensed future modal, present-under-will embeddings give rise to sequence of present tense phenomena (see also Heim 1994; Abusch 1997).

Therefore, if the correlation holds also for present tense, we would expect its occurrence in present-under-future AttRs and future ICs to be always real.

This paper marks a first step towards a better understanding of the crosslinguistic distribution of instances of *fake past*. The claims made here are however subject to future typological scrutiny.³³

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