Counterfactual Hypothetical vs. Biscuit Conditionals: A Semantic/Pragmatic Analysis of Their Morphological Differences

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1 Introduction

Hypothetical and biscuit conditionals differ intuitively in their meaning. While intuitively *hypothetical* conditionals convey that the truth of the consequent depends on the truth of the antecedent, as exemplified in (1),

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biscuit conditionals are taken to convey the truth of the consequent in the actual world w_0, regardless of the truth or falsity of the antecedent, as in (2):

(1) If Peter went shopping, there are biscuits on the sideboard. HYP

(2) There are biscuits on the sideboard if you want them. BISCUIT (Austin, 1956)

The above examples illustrate that indicative conditionals appear with the same verbal morphology no matter whether they are interpreted as hypothetical or as biscuit conditionals.[1] More explicitly, in the case of indicative conditionals, English and Spanish have 'normal', non-fake tense morphology in both antecedent and consequent clause, and Spanish additionally has indicative mood morphology, independently of interpretation. This can be seen in (3)–(6): Both (3), a hypothetical conditional, and (4), a biscuit conditional, show simple present tense morphology; the Spanish versions (5) and (6) additionally have indicative morphology.

(3) (On whatsapp: I know you well...)
If you are hungry right now, your stomach **is** growling. HYPIND

(4) If you are hungry right now, there **is** pizza in the fridge. BIIND

(5) Si (tú) tienes hambre, tu estómago está gruñendo. HYPIND
If (you) have.Ind hunger, your stomach **is.Ind** growling.

(6) Si (tú) tienes hambre, hay pizza en el frigorífico. BIIND
If (you) have.Ind hunger, **have.Ind** pizza in the fridge

This parallel in appearance has led many authors to propose a unified syntactic and semantic analysis for hypothetical and biscuit conditionals (Franke 2009; Francez 2015; Lauer 2015; Csipak 2018; Biezma and Goebel 2018; Goebel 2017, a.o.). In a nutshell, they propose that the syntactic and semantic modal template is the same for hypothetical and biscuit conditionals (contra e.g. Ebert et al. 2014). For this line of

[1] This is also independent of whether they appear with overt or covert epistemic or metaphysical modals.

approach, the difference between hypothetical and biscuit conditionals lies purely in the pragmatics: the 'biscuit' interpretation comes about as a pragmatic inference arising from the notion of *conditional independence*. This gives rise to the speaker intuition that the consequent is being asserted of the actual world w_0.

To see how this works in one such analysis, consider Franke (2009). He assumes a standard semantics for an indicative conditional *If A then C*: A ⊆ C. For a hypothetical conditional, A and C are *conditionally dependent*, i.e., upon learning that one of them is true, we may change our belief about the other. For example, learning that Peter in fact went shopping in (1) may cause us to believe that there are biscuits on the sideboard. For a biscuit conditional, A and C are *conditionally independent*, i.e., learning that one of them is true will not change our belief about the other. Consider Franke's example (7).

(7) If you are hungry, there is pizza in the fridge.

Intuitively, learning whether the addressee is hungry or not will not change our beliefs about whether or not there is pizza in the fridge (and vice versa).

The following pragmatic reasoning then ensues for biscuit conditionals, which by definition have conditionally independent antecedents A and consequents C: A cannot possibly affect the truth of C (given conditional independence), yet the speaker uttered both. Therefore the speaker must wish to commit to C in the actual world w_0 regardless of the truth of falsity of A. This gives rise to the 'biscuit' interpretation.[2]

[2] The more formal derivation of the pragmatic inference, following Franke (2009), proceeds as follows:

(i) a. The Speaker's epistemic state allows her to utter *If A, C*.

b. But A and C are conditionally independent from each other according to the Speaker's epistemic state.

c. The Speaker must either believe the falsity of A or the truth of C. Otherwise $\Diamond(A \cap \overline{C})$, which contradicts the Speaker's belief that *If A, C* because $[\![\text{if A, C}]\!] = A \subseteq C$.

d. Non-triviality: The Speaker believing the falsity of A would make the statement *If A, C* trivial ($\emptyset \subseteq C$). Since non-triviality is assumed, the Speaker must believe C.

However, the case is different for counterfactual conditionals. Here we observe a difference in the consequent clause verbal morphology between hypothetical and biscuit conditionals. In both English and Spanish, they differ with respect to tense: For hypothetical counterfactuals, we must use an 'extra' layer of past morphology (*fake tense*), giving rise to the form *would* in (8a)/(10a), and crucially we cannot use 'real' tense, as illustrated in (8b)/(10b). But for biscuit counterfactuals, this is (typically) reversed: we have to use non-fake tense, as in (9b)/(11b), and cannot use fake tense, witness (9a)/(11a) (Csipak 2015; pace Franke 2009).[3] Moreover, Spanish biscuit counterfactuals must additionally have indicative mood in the consequent clause, as in (11b).

(8) a. If you were hungry right now, your stomach **would be** growling. HypCF

b. # If you were hungry right now, your stomach is growling.

(9) a. # If you were hungry right now, there would be pizza in the fridge.

b. If you were hungry right now, there **is** pizza in the fridge. BiCF

(10) a. Si (tú) tuvieses hambre, tu estómago estaría gruñendo. HypCF
If (you) had.Subj hunger, your stomach **would.be** growling.

b. # Si (tú) tuvieses hambre, tu estómago está haciendo ruidos.
If (you) had.Subj hunger, your stomach is.Ind growling.

(11) a. # Si (tú) tuvieses hambre, habría pizza en el frigorífico.
If (you) had.Subj hunger, would.have pizza in the fridge.

b. Si (tú) tuvieses hambre, hay pizza en el frigorífico. BiCF
If (you) had.Subj hunger, **have.Ind** pizza in the fridge.

Thus, the puzzle is as follows. We observe an interpretive difference between hypothetical and biscuit conditionals that occurs in both indicatives and counterfactuals. If this difference is purely pragmatic (i.e., due to the posited independence-based inferencing mechanism), why must the two conditional types be expressed with different morphology—i.e.,

[3] We note that the judgments reported here come from native speakers of English. Note that languages like German and Italian allow the form parallel to (9a) to receive a biscuit interpretation for independent reasons.

with different tense and mood in the consequent—when they occur in counterfactual form?

The goal of the present paper is to present a first comprehensive analysis of tense and mood morphology in HypCFs and BiCFs that derives the morphological pattern in (8)–(11) while maintaining the general uniform approach to hypotheticals and biscuits.

To this end, we will follow the temporal remoteness analysis of counterfactual morphology (Dudman 1983, 1984; Ippolito 2003; Grønn and von Stechow 2009; Romero 2017) and extend mechanisms independently needed for breaking Sequence of Tense in attitude reports (Ogihara 1999), as in Romero and Csipak (2019). The main contribution of the present paper is to present pragmatic arguments for why we see the forms that we do, and only those. In particular, we will focus on why the unattested forms are ruled out by pragmatic mechanisms.

The remainder of the paper is organized as follows. Section 2 lays out some necessary background, including treatments of Sequence of Tense, Subjunctive mood and so-called double-access readings where Sequence of Tense is broken. The proposal, partially building on previous work by the authors, follows in Sect. 3, in four parts. In Sect. 3.1, we summarize the implementation of the temporal remoteness analysis of grammatical hypothetical counterfactuals in Romero (2017). Section 3.2 presents Romero and Csipak (2019)'s analysis for breaking Sequence of Tense and 'Sequence of Mood' in conditionals to account for the grammatical biscuit counterfactuals we observe. In Sect. 3.3, we rule out unattested biscuit counterfactuals by appealing to competition between forms. Finally, in Sect. 3.4 we rule out unattested hypothetical counterfactuals by appealing to the Maxim of Manner. Section 4 concludes.

2 Background on Tense and Mood

In order to account for counterfactual hypothetical and biscuit conditionals that we observe, we need some formal background on the interpretation of their constitutive morphological ingredients.

First, let us consider the counterfactual hypothetical conditionals below: (12)–(13) are present counterfactuals and (14)–(15) are past counterfactuals.[4]

(12) If you **were** hungry right now, your stomach **would be** growling.

(13) Si (tú) tuvieses hambre ahora, tu estómago estaría gruñendo.
If (you) **had.**SUBJ hunger now, your stomach **would.be** growling

(14) If you **had been** hungry yesterday, your stomach **would have been** growling.

(15) Si (tú) hubieses tenido hambre ayer, tu estómago habría estado gruñendo.
If (you) **had.**SUBJ **had** hunger yesterday, your stomach **would.have been** growling

(At least) two pieces of verbal morphology are involved in these forms[5]: (a) there is a layer of so-called **'fake' past tense** in the antecedent and consequent in English and Spanish; and (b) the antecedent clause appears in the **subjunctive mood** in Spanish.

The layer of 'fake' tense has received two analyses in the literature: It is interpreted modally in the modal remoteness approach (Iatridou 2000; Schulz 2014) and temporally in the temporal remoteness approach (Dudman 1983; Grønn and von Stechow 2009; Romero 2017, a.o.). We follow the temporal approach. The central idea, stemming from Dudman (1983), is that a counterfactual with 'fake' tense involves a back shift in time with a future (metaphysical) conditional interpreted under that back shift, as schematized in (16). 'Fake' tense morphology then follows from Sequence of Tense, independently needed for complement clauses in English and Romance, as we will see in Sect. 2.1.

(16) PAST [$\text{MODAL}_{\text{METAPHY}}$ [if (FUT) A] [then FUT C]]

[4] Counterfactuality is a defeasible inference in the Spanish (13) and (15), just as in the English (12) and (14) (Lewis 1973; Anderson 1951). We leave aside Severe Tense Mismatch cases (Ippolito 2003).

[5] See Anand and Hacquard (2009) and Ferreira (2016) on the role of aspectual morphology.

For the subjunctive mood in the Spanish antecedent clauses, we follow Schlenker (2005) and interpret mood as imposing a restriction on the world pronoun, as independently argued for Romance complement clauses. We will briefly introduce the formalism in Sect. 2.2.

Second, let us consider the counterfactual biscuit conditionals in (17)–(18):

(17) If you **were** hungry right now, there **is** pizza in the fridge.

(18) Si (tú) tuvieses hambre, hay pizza en el frigorífico.
If (you) **had.Subj** hunger, **have.Ind** pizza in the fridge.

The most striking morphological features of these examples are the following: (a) while there is a layer of 'fake' past tense in the antecedent clause, there is no 'fake' past tense in the consequent clause; and (b), in Spanish, while the antecedent clause is in the Subjunctive, Indicative mood is found in the consequent clause. In other words, there appears to be a disconnect in the time line and the modal sphere between the antecedent clause and the consequent clause in counterfactual biscuit conditionals. To properly analyse this disconnect, Sect. 2.3 will examine so-called "double-access" readings in complement clauses, where a similar temporal disconnect between the matrix and the complement clause has been previously observed.

2.1 Tense and Sequence of Tense

Consider the attitude report in (19). This sentence is ambiguous between a reading corresponding to the past-over-past direct report in (20a) and a reading corresponding to the past-over-present direct report in (20b). Under the latter reading, the past tense morphology on the embedded verb *was* goes seemingly uninterpreted, a phenomenon known as 'Sequence of Tense' (Abusch 1997; Kusumoto 2005; von Stechow 2009).

(19) Annalea said (last week) that Lucía **was** sick.

(20) a. Annalea said (last week): "Lucía was sick". Past-over-Past
b. Annalea said (last week): "Lucía is sick". Past-over-Present

Let us see how these two readings are derived. Syntactically, the following ingredients have been proposed in the literature. First, (interpretable) tense morphology is treated as a pronoun pro_i (Partee 1973, a.o.) with a temporal feature relative to an anchor time pronoun pro_j (von Stechow 1995; Abusch 1997; Kusumoto 2005, a.o.). In our LFs, the temporal feature and its anchor will appear superscripted after pro_i, e.g. $\text{pro}_i^{[\text{PAST pro}_j]}$. Second, one layer of past temporal morphology may optionally be left uninterpreted when licensed in a chain headed by a temporal pronoun with an interpretable past feature (Ogihara 1995; Kusumoto 1999; Grønn and von Stechow 2009). In our LFs, uninterpreted morphology will appear crossed out, e.g. ~~past~~, and replaced with the default temporal feature [PRES pro_j]. This optionality in dealing with embedded past morphology leads to the two potential LFs in (21):

(21) LFs of (19):
a. $\lambda 0\ \exists_1$ [Annalea think at $\text{pro}_1^{[\text{PAST pro}_0]}$
$\lambda 2\ \exists_3$ [Lucia be sick at $\text{pro}_3^{[\text{PAST pro}_2]}$]] Past-over-Past
b. $\lambda 0\ \exists_1$ [Annalea think at $\text{pro}_1^{[\text{PAST pro}_0]}$
$\lambda 2\ \exists_3$ [Lucia be sick at $\text{pro}_3^{[\sout{\text{past}}][\text{PRES pro}_2]}$]] Past-over-Present

Semantically, temporal features are interpreted as imposing presuppositions on the value of the pronoun (Heim 1994; Kratzer 1998), as defined in (22)–(24). Furthermore, we treat the value of a temporal/mood pro_i as a world-time pair, i.e., as an index, with temporal and accessibility constraints understood as in (25):

(22) $[\![pro_i^{[\text{PAST } pro_j]}]\!]^g$ is defined only if g(i) $<$ g(j); if defined, $[\![pro_i^{[\text{PAST } pro_j]}]\!]$ = g(i)

(23) $[\![pro_i^{[\text{PRES } pro_j]}]\!]^g$ is defined only if g(i) $\circ$ g(j); if defined, $[\![pro_i^{[\text{PRES } pro_j]}]\!]$ = g(i)

(24) $[\![pro_i^{[\text{FUT } pro_j]}]\!]^g$ is defined only if g(j) $<$ g(i); if defined, $[\![pro_i^{[\text{FUT } pro_j]}]\!]$ = g(i)

(25) a. For any two indices $\langle w,t\rangle$ and $\langle w',t'\rangle$:
$\langle w,t\rangle < \langle w',t'\rangle$ iff w=w′ and t is prior to t′.
$\langle w,t\rangle \circ \langle w',t'\rangle$ iff w=w′ and t and t′ overlap.

b. For any two indices $\langle w,t\rangle$ and $\langle w',t'\rangle$:
$\langle w,t\rangle \in \text{MOD}(\langle w',t'\rangle)$ iff t=t′ and w′ is accessible from w via MOD.

The two LFs above then lead to the two sets of truth conditions in (26). In both formulas, $\exists i_3$ ranges over indices i_3 which share the world-coordinate with i_2 and whose time-coordinate is in a particular relation to the temporal coordinate of i_2: it precedes it in (26a), leading to the past-over-past reading, and it overlaps with it in (26b), resulting in the past-over-present reading.

(26) Truth conditions of (19) :

a. $\lambda i_0.\ \exists i_1[\ i_1 < i_0 \wedge \forall i_2 \in \text{Dox}_{\text{Annalea}}(i_1)$
$\exists i_3\ [i_3 < i_2 \wedge \text{Lucía be sick at } i_3]\ ]$ Past-over-Past

b. $\lambda i_0.\ \exists i_1[\ i_1 < i_0 \wedge \forall i_2 \in \text{Dox}_{\text{Annalea}}(i_1)$
$\exists i_3\ [i_3 \circ i_2 \wedge \text{Lucía be sick at } i_3]\ ]$ Past-over-Present

2.2 Subjunctive Mood

Spanish and other Romance languages present a mood divide in the complement clauses of attitude verbs: representational verbs like *pensar* 'think' select Indicative, as in (27), while non-representational verbs like *lamentar* 'regret' select Subjunctive, as in (28):

(27) Bea piensa [que Juan enseña / *enseñe semántica]
Bea thinks [that Juan teaches.IND / *teaches.SUBJ semantics]
'Bea thinks that Juan teaches semantics.'

(28) Bea lamenta [que Juan *enseña / enseñe semántica]
Bea regrets [that Juan *teaches.IND / teaches.SUBJ semantics]
'Bea regrets that Juan teaches semantics.'

We follow Schlenker (2005)'s analysis of mood morphology, featuring the following ingredients. First, mood morphology introduces a mood feature on the world pronoun, again represented as a superscript on the pronoun in our LFs, e.g. $\text{pro}_i^{[\text{IND } pro_k]}$. Second, the features IND(icative) and SUBJ(unctive) are relative to a pronoun pro_k that picks up the so-called "local context" (in the sense of Stalnaker 1975): For root clauses, $[\![pro_k]\!]$ equals the Common Ground (CG); for embedded complement clauses, $[\![pro_k]\!]$ (roughly) equals $\text{Dox}_x(w_0)$ of the attitude holder x. Finally, the feature IND imposes a presupposition on the value of the world pronoun whereas the feature SUBJ imposes no presupposition, as defined in (29)–(30):

(29) $[\![pro_i^{[\text{IND } pro_k]}]\!]$ is defined only if g(i) $\in$ g(k);
if defined, $[\![pro_i^{[\text{IND } pro_k]}]\!] = g(pro_i)$

(30) $[\![pro_i^{[\text{SUBJ } pro_k]}]\!] = g(pro_i)$

When we combine these lexical entries with the rest of the complement clause in (27)–(28), we obtain the partial function (31) for the Indicative clause and the total function (32) for its Subjunctive counterpart (where x is the attitude holder):

(31) $[\![\textit{Juan teach semantics at } pro^{[\text{IND}\, pro_k]}]\!] =$
$\lambda w'$: $w' \in \text{Dox}_x(w_0)$. J teaches sem in w' IND-proposition

(32) $[\![\textit{Juan teach semantics at } pro_i^{[\text{SUBJ } pro_k]}]\!] =$
$\lambda w'$: ~~$w' \in \text{Dox}_x(w_0)$~~. J teaches sem in w' SUBJ-proposition

Let us briefly see how the inherent semantics of the relevant attitude verbs leads to the observed selection pattern in (27)–(28).

In the case of *think*, the (standard) lexical entry in (33) simply asks us to check the value of our proposition at the worlds $w \in Dox_x(w_0)$. For that, the partial IND-proposition (31) suffices. To that, we add Heim (1991)'s principle *Maximize Presupposition!* in (34)[6]:

(33) $[\![think]\!](p)(x) = \lambda w_0.\ \forall w \in Dox_x(w_0)\colon p(w)$

(34) *Maximize Presupposition!*: Make your contribution presuppose as much as possible! (Heim 1991)

Given this principle, the maximally presuppositional IND-proposition not only *can* be used, but it also *must* be used. Hence, *think* can take the IND-proposition and cannot take the SUBJ-proposition, as we saw in (27).

In the case of *regret* we have the lexical entry (35) (adapted from Heim 1992's *be glad*). The idea is that, for each world $w \in Dox_x(w_0)$, we compare in terms of desirability the world w^p most similar to w where p is true—which is w itself—and the world $w^{\neg p}$ most similar to w where $\neg p$ is true—namely, $Sim_w(rev_p(Dox_x(w_0)) + \neg p)$.

(35) $[\![regret]\!](p)(x) = \lambda w_0\colon \forall w \in Dox_x(w_0)\ [p(w)].\ \forall w \in Dox_x(w_0)\ [Sim_w(rev_p(Dox_x(w_0)) + \neg p) >_{Bou_x(w_0)} w]$

[6] To see a simple example illustrating Heim (1991)'s *Maximize Presupposition!* at work, consider the choice between the indefinite article *a* in (i) and the definite article *the* in (ii). The indefinite article expresses existence in the truth conditional content and carries no preposition, whereas the definite article expresses existence truth-conditionally but, in addition, carries the uniqueness presupposition that the set denoted by its syntactic sister is a singleton. Since, given world knowledge, the uniqueness presupposition in (ii) is satisfied—there is only one (relevant) sun—, the presuppositionally heavier *the* has to be used, the choice of the non-presuppositional *a* in (i) leading to infelicity.

(i) # A sun is shining.

(ii) The sun is shining.

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More concretely, $\text{Sim}_w(\psi)$ ask us to find the most similar world w′ to w for which ψ(w′) yields TRUE, where ψ is the result of revising $\text{Dox}_x(\text{w}_0)$ with respect to p and updating it with ¬p.

Now, if we take p to be total SUBJ-proposition (32), the expression $\text{Sim}_w(\text{rev}_p(\text{Dox}_x(\text{w}_0))+ \neg\text{p})$ will be defined.[7] But, if we take p to the partial IND-proposition (31) instead, the expression will be undefined.[8] Hence, *regret* must combine with a SUBJ-proposition and cannot combine with an IND-proposition, as we saw in (28).

2.3 Breaking Sequence of Tense

When Sequence of Tense is broken in attitude reports by using an absolute tense, e.g. English present tense in (36), we obtain a so-called "double-access" temporal reading: The time of the embedded proposition must align both with the utterance time t_0, as paraphrased in (36a),

[7] The formal expression $\text{Sim}_w(\text{rev}_p(\text{Dox}_x(\text{w}_0))+\neg\text{p})$ instructs us, first, to temporarily revise $\text{Dox}_x(\text{w}_0)$ with respect to p, as defined in (i). If we take SUBJ-p, the (temporarily) revised SUBJ-$\text{p}_{\text{SUBJ-}p}(\text{Dox}_x(\text{w}_0))$ will contain worlds in which John teaches semantics and worlds in which John does not teach semantics. Then, in a second step, (...)+¬p asks us to update the result of this revision with ¬p, resulting in a set containing only worlds where John does not teach semantics. In a final step, Sim_w ask us to look at the worlds within this updated revised doxastic state and to select the world w′ most similar to w. In general, since the revised and updated doxastic state is not empty, it will be possible to find a world w′ most similar to w_0. Hence, when using SUBJ-p, the formal expression will be defined and the semantic derivation of sentence (28) can proceed.

(i) For any context c and proposition p:
$\text{rev}_p(\text{c}) = \cup\{\text{X} \subseteq \text{W}: \text{c} \subseteq \text{X} \text{ and } \text{X}+\text{p} \text{ is defined}\}$

[8] Consider again the formal expression $\text{Sim}_w(\text{rev}_p(\text{Dox}_x(\text{w}_0))+\neg\text{p})$, this time using IND-p. First, we need to temporarily revise $\text{Dox}_x(\text{w}_0)$ with respect to IND-p. The (temporarily) revised IND-$\text{p}_{\text{IND-}p}(\text{Dox}_x(\text{w}_0))$ will contain only worlds in which John teaches semantics, as the original $\text{Dox}_x(\text{w}_0)$ did. Second, we need to update the result of this revision with ¬p, which results in an empty doxastic state (contradiction). Finally, Sim_w ask us to look at the worlds w′ within this empty updated revised doxastic state and to select the world w′ most similar to w. But, since there is no world in that epistemic state, it is impossible to select one. This means that, when using IND-p, the formal expression is undefined and, thus, the semantic derivation of (28) cannot be carried out.

and with the attitude holder's subjective "now" t_1, as in (36b) (Abusch 1997; Ogihara 1999). The same facts holds for Spanish.

(36) John said Mary is pregnant.

a. John said at a past time t_1 that Mary is pregnant at t_0.

b. John said at a past time t_1 that Mary is pregnant at t_1.

However, using the lexical entry (37) for absolute present tense produces the LF (38), which only gives us temporal alignment of t_4 with t_0, as in (39a). To obtain the desired alignment with t_1, Ogihara (1999) proposes an analysis (very much simplified here!) where the temporal property is duplicated and linked to t_2 as well, as underlined in (39b):

(37) $[\![pro_i^{[\text{PRES } pro\,0]}]\!]^g$ is defined only if g(i) ∘ g(0);
if defined, $[\![pro_i^{[\text{PRES } pro\,0]}]\!]$ = g(i)

(38) LF: λ0. $\exists_1$ [John say at pro_1 [PAST pro_0] λ3 $\exists_4$
[Mary be pregn. at pro_4 [PRES pro_0]]]

(39) a. $\lambda t_0.\exists t_1$ $[t_1 < i_0 \wedge \forall t_2 \in \text{SAY}_{john}(t_1)$: $\exists t_4[t_4 \circ t_0 \wedge$
Mary be pregnant at t_4]]

b. $\lambda t_0.$ $\exists t_1$ $[t_1 < i_0 \wedge \forall t_2 \in \text{SAY}_{john}(t_1)$: $\exists t_4[t_4 \circ t_0 \wedge$
Mary be pregnant at $t_4 \wedge \underline{t_4 \circ t_2}$]]

We would like to take the time here to point out that breaking Sequence of Tense only works when there is one continuous interval that is talked about. That is, when reporting that John said that Mary is pregnant, it must be *the same* pregnancy that John and the speaker are talking about, even if John was talking about the pregnancy a month ago and the speaker is talking about it now. (36) cannot be used in scenario where five years ago, Mary was pregnant and John talked about this, and now Mary is pregnant again, and the speaker wishes to convey both that John talked about Mary's pregnancy in the past, and that Mary is currently pregnant again. Using Sequence of Tense in this way in order to sneak in a 'by the way' observation is disallowed.

3 Proposal

We are ready to go back to the contrast between hypothetical and biscuit counterfactual conditionals. The crucial differences between the two counterfactual types can be recapitulated as follows.

In hypothetical counterfactuals, the consequent clause must contain 'fake' tense, both in English and in Spanish. This is shown in (40)–(41): While the (a)-versions with 'fake' tense are grammatical, the (b)-versions with no 'fake' tense in the consequent clause are unacceptable under the hypothetical reading:

(40) a. If you were hungry right now, your stomach **would be** growling. HypCF

b. # If you were hungry right now, your stomach **is** growling.

(41) a. Si (tú) tuvieses hambre, tu estómago estaría gruñendo.
If (you) had.Subj hunger, your stomach **would.be** growling. HypCF

b. # Si (tú) tuvieses hambre, tu estómago está(/esté) gruñendo.
If (you) had.Subj hunger, your stomach **is.Ind(/is.Subj)** growling.

In biscuit counterfactuals, by contrast, the consequent clause should contain no 'fake' tense, both in English and in Spanish. This can be seen in (42)–(43): While the (a)-versions with 'fake' tense are deviant as biscuits, the (b)-versions without it are perfect. Furthermore, the consequent clause must appear in indicative mood in Spanish, as shown in (43b):

(42) a. # If you were hungry right now, there would be pizza in the fridge.

b. If you were hungry right now, there **is** pizza in the fridge. BiCF

(43) a. # Si (tú) tuvieses hambre, habría pizza en el frigorífico.
If (you) had.Subj hunger, would.have pizza in the fridge.

b. Si (tú) tuvieses hambre, hay(/*haya) pizza en el frigo BiCF
If (you) had.Subj hunger, **have.Ind** (/***Subj**) pizza in the fridge.

To cover the entire morphological pattern, the following four points need to be accounted for.

First, why does 'fake' tense in the consequent clause make good hypothetical counterfactuals? Here we will adopt the concrete implementation of the temporal remoteness approach proposed in Romero (2017), summarized in Sect. 3.1.

Second, why does the lack of 'fake' tense and the use of indicative mood in the consequent make good biscuit counterfactuals? Following Romero and Csipak (2019), we will propose in Sect. 3.2 that, in these forms, we are breaking Sequence of Tense and, additionally for Spanish, we are breaking what could be called 'Sequence of Mood'; that is, we are doing double access readings at the same time in the temporal and modal domain. In lack of a fully worked-out analysis of double access readings over indices (i.e., <time,world>-pairs), we will extend our simplified version of Ogihara's (1999) idea as a stop-gap solution.

Third, why does 'fake' tense in the consequent clause and, additionally for Spanish, non-Indicative mood make biscuit counterfactuals deviant? In other words, why does maintaining Sequence of Tense and Sequence of Mood in (42a)/(43a) make bad biscuit counterfactuals? We will argue in Sect. 3.3 that pragmatic competition between the relevant forms rules out the unacceptable options.[9]

Fourth and finally, why does the lack of 'fake' tense and the use of indicative in the consequent make hypothetical counterfactuals unacceptable, as in (40b)/(41b)? We will sketch a potential solution in Sect. 3.4 based on the Gricean Principle of Manner. In particular, we will argue that when a speaker is in a position to break Sequence of Tense/Mood when trying to utter a hypothetical counterfactual, the Maxim *Be Brief!* demands that they not utter a conditional at all, but rather plain *q*, the consequent.

3.1 Grammatical Hypothetical Counterfactuals

We start with the grammatical hypothetical conditionals in (44) and (45), which, as we saw, carry a layer of 'fake' tense in English and Spanish and appear in Subjunctive mood in Spanish:

[9] This is true of the typical cases; we discuss exceptions in Sect. 3.3.

(44) If you **were** hungry right now, your stomach **would be** growling. (=(40a))

(45) Si (tú) tuvieses hambre ahora, tu estómago estaría gruñendo.
If (you) **had.**SUBJ hunger now, your stomach **would.be** growling
'If you were hungry now, your stomach would be growling.' (=(41a))

We have now the necessary ingredients for an analysis of the tense and mood morphology in these conditional forms. On the one hand, we have the general LF structure (46) assumed for hypothetical counterfactuals in the temporal remoteness approach (Dudman 1983; Grønn and von Stechow 2009; cf. Ippolito 2003). This includes a back shift in time—represented with PAST in (46)—with a future indicative conditional embedded under that shift. For the sake of concreteness, we assume that the future indicative conditional is headed by a silent modal with a metaphysical modal base METAPHY and a stereotypical ordering source L (cf. Kaufmann 2005), represented as $\text{MODAL}^{\text{L}}_{\text{METAPHY}}$ in (46):

(46) PAST [$\text{MODAL}^{\text{L}}_{\text{METAPHY}}$ [if (FUT) A] [then FUT C]]

On the other hand, we have the lexical entries for the relevant pieces of tense and mood morphology that we saw in Sects. 2.1 and 2.2:

(47) $[\![pro_i^{[\text{PAST } pro_j]}]\!]^g$ is defined only if g(i) $<$ g(j);
if defined, $[\![pro_i^{[\text{PAST } pro_j]}]\!]$ = g(i)

(48) $[\![pro_i^{[\text{FUT } pro_j]}]\!]^g$ is defined only if g(j) $<$ g(i);
if defined, $[\![pro_i^{[\text{FUT } pro_j]}]\!]$ = g(i)

(49) $[\![pro_i^{[\text{IND } pro_k]}]\!]$ is defined only if g(i) $\in$g(k);
if defined, $[\![pro_i^{[\text{IND } pro_k]}]\!]$ = g(pro_i)

(50) $pro_i^{[\text{SUBJ } pro_k]}$ = g(pro_i)

Extending previous analyses, Romero (2017) combines these two sets of ingredients to build the LF below for our examples. The back shift in time is represented by $pro_1^{[\text{PAST } \text{pro}_0]}$. This (covert) pronoun introduces

an index i_1 whose temporal coordinate precedes that of the utterance index i_0 and at which the future indicative conditional headed by the modal $\textsc{modal}^{\textsc{l}}_{\textsc{metaphy}}$ is evaluated. At the same time, the pronoun $pro_1^{[\textsc{past}\ \text{pro}_0]}$, having an interpretable past feature, allows for the past tense morphology in the antecedent and consequent clauses to be left uninterpreted, hence behaving as 'fake' tense morphology in standard Sequence of Tense constructions. This is represented in (51) by crossing out the uninterpreted morphological feature in pro_4, which leaves just the future temporal features of the future conditional to be interpreted in the antecedent and consequent clauses: $\text{pro}_4^{[\cancel{\text{past}}][\textsc{fut}\ \text{pro}_8]}$.Additionally for Spanish, the Subjunctive morphology in the antecedent clause is represented by the subjunctive feature on $pro_4^{[\textsc{subj}\ \text{CG}]}$.[10] Adding ∃-closure to bind pro_1 and pro_4, Romero (2017) delivers the (preliminary) LF (51) for our examples (44) and (45)[11]:

(51) LF: $\lambda 0\ \exists_1[\ \textsc{modal}^{\textsc{l}}_{\textsc{metaphy}}\ \text{pro}_1^{[\textsc{past}\ \text{pro}_0]}$
$\lambda 8\ \exists_4[\text{you be hungry at pro}_4^{[\textsc{subj}\ \text{CG}][\cancel{\text{past}}][\textsc{fut}\ \text{pro}_8]}]$
$\lambda 8\ \exists_4[\text{your stomach be growling at pro}_4^{[\cancel{\text{past}}][\textsc{fut}\ \text{pro}_8]}]\ ]$

This LF leads to the truth conditions (52). Note the temporal back shift $i_1 < i_0$ above the modal and the lack thereof inside the antecedent and consequent clauses, corresponding to the uninterpreted, 'fake' tense morphology in these clauses. Additionally for Spanish, Subjunctive mood in the antecedent clause imposes no modal presupposition on index i_8: $\cancel{i_8 \in CG}$. The resulting formula correctly matches the truth conditions of hypothetical counterfactual conditionals under the temporal remoteness view:

[10] The Spanish verbal paradigm has only one mood version of 'would+Verb'. Since there is no mood choice for this form in the consequent clause, the mood distinction in the consequent is neutralized.

[11] See Romero (2017) for two adjustments to this LF and truth conditions, one concerning temporal alignment between i_4 and the actual index i_0 and one restricting the methaphysical possibilities quantified over (Morgenbesser cases).

(52) $\lambda i_0.\ \exists i_1\ [i_1 < i_0 \wedge \forall i_8 \in \text{Metaph}^L(i_1)$:
$\exists i_4\ [\sout{i_8 \in CG \wedge}\ i_8 < i_4 \wedge$ you be hungry at $i_4] \rightarrow$
$\exists i_4\ [i_8 < i_4 \wedge$ your stomach be growling at $i_4]]$

This accounts for the grammaticality of 'fake' tense in the antecedent and consequent of hypothetical counterfactuals both in English and Spanish and for the grammaticality of subjunctive mood in the antecedent of hypothetical counterfactuals in Spanish.

3.2 Grammatical Biscuit Counterfactuals

We turn now to grammatical biscuit counterfactual forms like (53)–(54), whose consequent clause has no 'fake' tense in English and Spanish and bears Indicative mood in Spanish:

(53) If you were hungry right now, there **is** pizza in the fridge. =(42b)

(54) Si (tú) tuvieses hambre, hay pizza en el frigorífico.
If (you) had.Subj hunger, **have.Ind** pizza in the fridge. =(43b)

Following Romero and Csipak (2019), we propose that these forms involve broken Sequence of Tense and broken "Sequence of Mood", leading to a double access reading of the temporal and modal parameters of the evaluation index.

To implement this idea, some formal apparatus will be needed. Next to temporal intervals overlapping with two times à la Ogihara (1999), we need modal 'intervals'—i.e., stretches of logical space—overlapping with two modal contexts.[12] We construe an interval as a plural sum T of time points and, following Schlenker (2004), as a plural sum W of possible worlds. We put these pluralities into a pair to form an i(nternally)-plural

[12] As noted by a reviewer, temporal intervals are convex: For any two time points t_1 and t_2 belonging to an interval, all points temporally ordered between t_1 and t_2 also belong to that interval. To have convex modal intervals, we would need an ordering of worlds, e.g. à la Stalnaker (1968), Lewis (1973) or Kratzer (2012). We leave for future research what ordering system would be best suited.

index <W,T>. Temporal precedence < and overlap ∘ between i-plural indices are defined in (55) and a parallel definition for modal overlap • is given in (56). Note that the condition on the latent parameter has been relaxed: While (25) required the equality w=w′ for atomic worlds, (55) requires a non-empty intersection $W \cap W' \neq \emptyset$ between plural worlds (and similarly for (56)):

(55) For any two indices <W,T> and <W′,T′>:
<W,T> < <W′,T′> iff $W \cap W' \neq \emptyset$ and
(the entire) T is prior to (the entire) T′.
<W,T> ∘ <W′,T′> iff $W \cap W' \neq \emptyset$ and T and T′ overlap.

(56) For any two indices <W,T> and <W′,T′>:
<W,T> • <W′,T′> iff $T \cap T' \neq \emptyset$ and W and W′ overlap.

The contribution of mood is redefined in (57): $pro_i^{[\text{IND } pro_k]}$ presupposes modal overlap • between index g(i) and the maximal i-plural index—imax defined in (58)—corresponding to the local context g(k). For example, if our local context is {<w_1,t_7>, <w_2,t_7>, <w_3,t_7}>, its i-max is <$w_1 \oplus w_2 \oplus w_3$, t_7 >.

(57) $[\![pro_i^{[\text{IND } pro_k]}]\!]$ is defined only if g(i) • imax(g(k));
if defined, $[\![pro_i^{[\text{IND } pro_k]}]\!] = g(pro_i)$

(58) For any set I of (atomic) indices:
imax(I) = < max({w′: ∃t′ [<w′,t′> ∈ I]}),
max({t′: ∃w′ [<w′,t′> ∈ I]}) >

Finally, we assume that, if a proposition is predicated of an i-plural index <W,T>, that proposition must hold true throughout that entire modal-temporal space, that is, through all the pairs <w,t> such that w∈W and t∈T.

Let us apply the idea of temporal/modal double-access and this formalization to our examples. The present and indicative morphology in (53)/(54) leads to LF (59). This gives us the temporal and modal alignment of index i_4 with the (atomic) utterance index i_0 and with the CG

in the last ∃-subformula in (60), but no temporal or modal alignment of i_4 with the (atomic) counterfactual index i_8 and Metaph^L(i_1):

(59) LF: $\lambda 0\ \exists_1$[MODAL$^{\text{L}}_{\text{METAPHY}}$ at pro$_1$ [PAST pro$_0$]
$\lambda 8\ \exists i_4$[you be hungry at pro$_4$ [SUBJ CG] ~~past~~ [FUT pro$_8$]]
$\lambda 8\ \exists i_4$[be pizza at pro$_4$ [IND CG] [PRES pro$_0$]]]

(60) $\lambda i_0.\ \exists i_1\ [i_1 < i_0 \wedge \forall i_8 \in \text{Metaph}^L(i_1)$:
$\exists i_4[\sout{i_8 \bullet \text{imax(CG)} \wedge}\ i_8 < i_4 \wedge$ you be hungry at $i_4] \rightarrow$
$\exists i_4[i_4 \bullet \text{imax(CG)} \wedge i_0 \circ i_4 \wedge$ there be pizza at $i_4]]$

To supply the desired alignment, we extend Ogihara's idea and propose to duplicate the temporal and modal relations as $i_8 \circ i_4$ and $i_4 \bullet$imax (Metaph^L(i_1)) to allow for local binding, resulting in (61), with the duplication underlined:

(61) $\lambda i_0.\ \exists i_1\ [i_1 < i_0 \wedge \forall i_8 \in \text{Metaph}^L(i_1)$:
$\exists i_4[\sout{i_8 \in \text{CG} \wedge}\ i_8 < i_4 \wedge$ you be hungry at $i_4] \rightarrow$
$\exists i_4[i_4 \bullet \text{imax(CG)} \wedge i_0 \circ i_4 \wedge$ there be pizza at $i_4 \wedge$
$\underline{i_4 \bullet \text{imax(Metaph}^L(i_1)) \wedge i_8 \circ i_4}]]$

Crucially, i_4 in the last ∃-subformula is an i-plural index overlapping temporally with the time parameters of i_0 and i_8 and overlapping modally with the world parameters of imax(CG) and imax(Metaph^L(i_1)). That is, for each atomic i_0 of shape $\langle w_0, t_0\rangle$ and each atomic i_8 of shape $\langle w_8, t_8\rangle$, there is an i_4 of shape $\langle w_0 \oplus \ldots \oplus w_8$, $t_0 \oplus \ldots \oplus t_8\rangle$ temporally and modally overlapping with them. For each such combination of i_0 and i_8, there being pizza in the fridge is predicated of the entire index i_4. As a result, by breaking Sequence of Tense and Sequence of Mood in BiCFs, the truth conditions (61) guarantee not only that there is pizza in each hypothetical hungry-index i_8, but also at each potential actual index i_0. This hard-wires the 'biscuit' effect: the feeling that the consequent is being asserted (of i_0) regardless of the truth of the antecedent.

In sum, conditionals that combine 'fake' tense and—for Spanish—subjunctive mood in the antecedent clause with no 'fake' tense and—for Spanish—indicative mood in the consequent clause lead to truth conditions that explicitly deliver the 'biscuit' effect. This renders them appropriate forms to express biscuit conditional meanings.

3.3 Unacceptable Biscuit Counterfactuals

After having presented an account of why counterfactual biscuits with a mood mismatch, such as (53)/(54), are grammatical, we now turn to the less acceptable variants:

(62) # If you were hungry right now, there would be pizza in the fridge. =(42a)

(63) # Si (tú) tuvieses hambre, habría pizza en el frigorífico.
If (you) had.Subj hunger, would.have pizza in the fridge. =(43a)

We observe that (62) and (63), which do not break Sequence of Tense/Mood, are unacceptable. Notice that this is the case in English and Spanish, respectively, pace Franke (2009), who claims both of the following sentences are acceptable:

(64) If you had needed some money, there was some in the bank.
(= Franke (2009)'s (113a), cited from Johnson-Laird (1986))

(65) If you had been hungry, there would have been pizza in the fridge.
(= Franke (2009)'s (114e))

Our informants agree that (64) is in fact acceptable, but (65) is not. We point out that language variation plays an important role here: Csipak (2018) shows that while English is restricted in this way, German is not, and Csipak (2015) argues that languages in which the subjunctive has a 'politeness' use in unembedded clauses typically allow it to appear in the consequents of biscuit conditionals such as (65). We do not discuss these languages further.

Let us return to the unacceptable (62) and (63) and compare their truth-conditions with those of the acceptable forms (53)–(54). Recall the truth-conditions of the acceptable forms in (61), repeated here as (66):

(66) $\lambda i_0.\ \exists i_1\ [i_1 < i_0 \wedge \forall i_8 \in \text{Metaph}^L(i_1)$: (=(61))
$\exists i_4[\sout{i_8 \in CG \wedge}\ i_8 < i_4 \wedge$ you be hungry at $i_4] \rightarrow$
$\exists i_4[i_4 \bullet \text{imax}(CG) \wedge i_0 \circ i_4 \wedge$ there be pizza at $i_4 \wedge$
$i_4 \bullet \text{imax}(\text{Metaph}^L(i_1)) \wedge i_8 \circ i_4]]$

The index i_4 in (66) must stretch temporally and modally to include the time and world parameters of (past hypothetical) i_8 and (present actual) i_0. Recall that, under the double access reading, the relevant proposition has to hold of *all* the points in the temporally and modally stretched i_4. This means that there is pizza in the fridge at all indices i' of shape <w',t'> such that $t_8 \leq t' \leq t_0$ and $\text{imax}(\text{Metaph}^L(i_1)) \leq w' \leq \text{imax}(CG)$. Hence, (66) entails that there is pizza in the fridge at a hypothetical index t' that shares the world parameter with i_8 but is temporally posterior to i_8.

Consider now the truth conditions of the unacceptable forms (62) and (63), given in (67):

(67) $\lambda i_0.\ \exists i_1\ [i_1 < i_0 \wedge \forall i_8 \in \text{Metaph}^L(i_1)$:
$\exists i_4\ [\sout{i_8 \in CG \wedge}\ i_8 < i_4 \wedge$ you be hungry at $i_4] \rightarrow$
$\exists i_4\ [i_8 < i_4 \wedge$ there be pizza at $i_4]]$

The index i_4 in (67) is only specified to be temporally posterior to the hypothetical index i_8 (and, following definition (25a), to share its world parameter with i_8); no requirement that i_4 stretches to overlap with i_4 is imposed by these truth-conditions. Thus, the acceptable (53)–(54) have stronger truth conditions than the unacceptable (62)–(63).

Following Franke (2009), we predict that both sets of biscuit counterfactuals, (53)/(54) and (62)/(63), are actually grammatical, and both receive a biscuit interpretation. This is irrespective of tense and mood, since conditional independence is defined independently, and *p* and *q* are

conditionally independent in both sets of conditionals. But this means that (53)/(54) and (62)/(63) compete for signalling the same message, namely the conditional *if p, q* as well as the speaker's commitment to *q* in i_0. This latter message is signalled differently by the two sets of conditionals: the semantically stronger form (53)/(54) breaks Sequence of Tense/Mood to allow a double access reading, thus explicitly signalling the overlap of i_4 with i_0. The semantically weaker form (62)/(63) on the other hand relies purely on pragmatic inferencing (deriving the 'biscuit' reading from conditional independence of *p* an *q*).

In a context where the speaker wishes to signal a counterfactual biscuit meaning, i.e., where she wants to signal both her commitment to the counterfactual conditional and to the truth of the consequent in the actual world, the stronger form should be chosen, and the weaker form should be dispreferred.

To explain how this preference comes about, we appeal to two recent works: the work on cessation implicatures by Altshuler and Schwarzschild (2013) discusses similar effects in another domain, and we use Lauer (2014)'s analysis of Need-a-Reason implicatures to explain why the pragmatic inferencing that takes place in (62)/(63) is non-optional and thus leads to contradictory messages.

Altshuler and Schwarzschild (2013) propose that competition between tenses leads to cessation implicatures. This phenomenon is illustrated in (68)–(69). Under certain conditions (with a stative predicate and when no topical past time is salient), we observe a cessation implicature when the past tense is used instead of the present tense: the implicature that the stative property does not hold at the utterance time.

(68) John is sick.

(69) John was sick. $\rightsquigarrow$ John is no longer sick.

To derive this cessation implicature, Altshuler and Schwarzschild (2013) argue that present tense stative predicates entail being true not just of the utterance time but also of prior times, due to the *Open Interval Hypothesis*.

(70) Open Interval Hypothesis (Altshuler & Schwarzschild 2013)
The run-time of a state is an open interval. That is, if e is a stative eventuality and $t' \subseteq \tau(e)$, then there is a temporal instant t'' such that $t'' < t'$ and $t'' \subseteq \tau(e)$.

This means that, by using present tense, the speaker of (68) conveys the stronger message that the interval of John being sick includes both the speech time and times prior to speech time. In contrast, using the past tense in (69) only commits the speaker to John being sick at some times prior to speech time, thus giving rise to the implicature that the speaker does *not* want to commit to John being sick at speech time.[13] We note that this implicature is easily cancellable, as in (71).

(71) John was sick last week. In fact, he still is.

A similar, but slightly different mechanism is at work in our examples. We assume that a speaker has a choice between two forms, (72) and (73). By uttering (72), the speaker breaks Sequence of Tense, whereas (73) observes it.

(72) If you were hungry now, there is pizza in the fridge. =(42b)

(73) # If you were hungry now, there would be pizza in the fridge. =(42a)

We first consider the semantics of the stronger form (72), seen above in (66). By breaking Sequence of Tense, the speaker signals that she is committed to there being pizza in the fridge both at the counterfactual hungry-indices and at the actual index. Note that inclusion of the actual index happens semantically.

Now turning to (73), we remember that the semantics only commit the speaker to there being pizza at the counterfactual hungry-indices, *not* at the actual index. This of course gives rise to the implicature that the

[13] We note that the purpose of Altshuler and Schwarzschild's proposal is to argue against Sequence of Tense as presented in Ogihara (1999). This does not diminish its similarity to our example.

speaker does not want to commit to there being pizza at the actual index. Let us call this the non-actuality implicature.

Given conditional independence and the reasoning resulting from it (i.e., that the speaker must have some evidence for *q* in the actual world), we would expect that the non-actuality implicature should be cancelled. But we argue that this implicature is mandatory: it is a Need-a-Reason implicature in the sense of Lauer (2013, 2014). Lauer argues that when speakers choose an otherwise 'dispreferred' form (i.e., one that is more complex and less informative than a competitor), their interlocutors draw the inference that they must have a reason for choosing this form. Such implicatures are not cancellable. Consider Lauer's example (7) below.

(74) Somewhere in San Francisco, A and B are planning a dinner party, talking about who they should invite.
A: Is John in town?
B: No, he is in Paris or in London.

B's utterance gives rise to an ignorance implicature: B does not know which of the two cities John is in. Lauer calls this a Need-a-Reason implicature and observes that is almost impossible to cancel. For the purpose of the conversation in (74) it is irrelevant whether John is in Paris or in London. Furthermore, the form using *or* is also more complex than its alternatives (*John is in Paris* and *John is in London*), as well as being less informative than the alternatives. In sum, B has chosen a form that is—seemingly needlessly—less informative and more complex than its alternatives. The interlocutors therefore infer that B must have 'had a reason' for choosing this form, namely to convey the content of the implicature (that B doesn't know whether John is in Paris or in London). This makes the implicature very hard to cancel. And in fact it is very difficult to follow up B's utterance with 'In fact, he is in London.'

Returning to our example, we saw that maintaining Sequence of Tense and choosing the subjunctive—i.e., leaving it open whether there is pizza at the actual index—results in a less informative statement than breaking Sequence of Tense and choosing the indicative—i.e.,

committing oneself to there being pizza at the actual index.[14] Thus the implicature that is derived from using the weaker form ('the speaker does not want to commit whether there is pizza in the actual world') is a non-cancellable, Need-a-Reason implicature. But remember that the hearer is also invited to follow a Franke-style reasoning about the independence of p and q: since p and q are conditionally independent, the speaker should have reason to assume that q does hold at the actual index. Thus, the Need-a-Reason implicature and the reasoning triggered by independence send conflicting messages: the speaker is signalling both that she doesn't want to commit to there being pizza in the actual world (qua subjunctive) and that she does have reason to believe that there is pizza in the actual world (qua conditional independence). Compared to its competitor (72), (73) is thus not only weaker semantically, but also gives rise to contradictory inferences. It is therefore dispreferred.

Note that there are contexts where the dispreferred form becomes available when the desired interpretation is conditional independence (a 'biscuit' reading), but no commitment of the speaker to q in i_0. For example, consider modal subordination contexts such as (75) due to Swanson (2013). Here, the speaker is only committed to there being biscuits at her desire indices (conditionally independently of p), but crucially not at i_0. Since the BiCF appears in a modal subordination context, the grammar does not allow for a morphological choice and the consequent clause must feature the Subjunctive. This means that that there is no explicit morphological cue leading to the biscuit interpretation. Hence, conditional independence alone derives the 'biscuit' interpretation.

(75) I want to vacation at a posh hotel in London. We would have tea every afternoon, and there **would be** biscuits on the sideboard if one were so inclined. (Swanson 2013)

[14] We leave it open whether it is more complex to use the subjunctive or to break Sequence of Tense/Mood.

Importantly, the speaker of (75) has *not* committed to there being biscuits on the sideboard of the posh London hotel *at* i_0.[15]

3.4 Unacceptable Hypothetical Counterfactuals

We have now accounted for the acceptability of counterfactual biscuits that break Sequence of Tense/Mood and the unacceptability of counterfactual biscuits that do not break it (in the typical case). What remains is to explain why hypothetical counterfactuals which break Sequence of Tense/Mood are unacceptable:

(76) # If you were hungry right now, your stomach is growling. =(40b)

(77) # Si (tú) tuvieses hambre, tu estómago está gruñendo.
If (you) had.Subj hunger, your stomach is.Ind growling. =(41b)

To give forms like this a better chance, we consider a scenario where a speaker might wish to convey both the hypothetical counterfactual and the consequent proposition.

(78) **Context:** A is a detective at a crime scene. Her partner, B, is stuck in traffic and can thus not see the crime scene yet. A is describing the scene.
A: #If the victim had gotten poisoned with arsenic, he is showing the following symptoms: X, Y, and Z.

How come the utterance by A is not acceptable? It seems like this would be a convenient way of communicating two things at once: both what symptoms the victim would be showing in case of arsenic poisoning, and the fact that the victim is actually showing these symptoms. Yet even in

[15] We will have nothing to say on the status of (i), which seems to oscillate between the speaker's dream worlds and what she has read about the actual world.

(i) I want to vacation at the Waldorf-Astoria in New York. I read the brochure and know all about their features. We would have tea every afternoon, and there **is** a sauna if we were so inclined.

the context where A is trying to convey exactly those two facts, (78) is unacceptable.

To explain this, we appeal to a suggestion by DeRose and Grandy (1999) about why speakers use conditionals. They propose that there are two main reasons why speakers choose to utter a conditional of the form *if p, q* rather than plain *q*, and that when neither of these conditions is met, via the Gricean Principle of Manner (Grice 1975), plain *q* should be uttered. We tentatively follow their argument, outlined below, but leave open the possibility that there may be other reasons to utter *if p, q*.

The first reason for which a speaker may utter *if p, q* rather than *q* is that they are uncertain about the truth of *q* in the actual world w_0, but sufficiently certain about the truth of *if p, q*. In such cases, *p* and *q* will be conditionally dependent, and the resulting conditional *if p, q* will be interpreted as a hypothetical conditional. DeRose and Grandy argue that there is a competition between *q* and *if p, q* such that if the speaker is sufficiently certain that *q* is true at w_0, then she should utter plain *q* rather than *if p, q*. Conversely, if the speaker is only sufficiently sure about *if p, q* but not about plain *q*, then she should utter the conditional.

The second reason for uttering *if p, q* is in cases where the speaker is uncertain whether plain *q* is sufficiently relevant (to the conversation) at w_0. In that case, *p* and *q* will be conditionally independent and the speaker will utter a biscuit conditional. And again there is competition between plain *q* and *if p, q* such that if the speaker is sufficiently certain that *q* is relevant to the interlocutors, she should simply utter plain *q* instead of the conditional.

Taken together, the two reasons why one should *not* utter a conditional when a simple *q* might suffice falls under Grice's Principle of Manner: in particular, the submaxim to *be brief*—uttering plain *q* rather than the longer *if p, q* is preferable when the conditions for uttering *q* are given.

Since we are interested in deriving a hypothetical counterfactual reading for (78), we would expect the first line of argument to apply. But we can see that the speaker of (78) is violating these rules: what she wants to convey is, first, a conditional dependence between *p* and *q*, and, second, that *q* holds in the actual world. But by uttering *if p, q* instead

of plain *q*, she is signalling that she is not in a position to utter plain *q* (remember that *q* and *if p, q* are in competition such that if a speaker is reasonably certain that *q* holds in w_0, she should utter that instead of the conditional). So on the one hand, by uttering the conditional, the speaker signals that she is *not* trying to convey that *q* holds in w_0. But by breaking Sequence of Tense/Mood, she is explicitly trying to do the opposite: breaking Sequence of Tense/Mood ensures that the speaker communicates their belief that *q does* hold at w_0. This contradiction is what causes (78) to fail.

We now consider an interesting related case.

(79) If Tom had come, Mary still would have come.

(80) *If Tom had come, Mary (still) came.

The acceptable (79) conveys both that the counterfactual *if p, q* is true and that *q* is true at w_0, whereas (80), which attempts to break Sequence of Tense/Mood, is unacceptable. The reason for (80) failing is parallel to the one given above.

The crucial difference between the pair in (79)–(80) and (78) is that for (79) it is already common ground that Mary did come in the actual world (signalled by the presupposition trigger *still*). So the speaker of (79) is actually not trying to newly establish that *q* holds in w_0, but is only trying to convey the conditional link between *p* and *q*. The relation between *q* and w_0 is already settled.

4 Outlook

We have illustrated how to extend the unified, independence-based approach for indicative hypothetical and biscuit conditionals to *counterfactual* hypothetical and biscuit conditionals to derive (40)–(43). We have done this by combining the temporal remoteness approach to counterfactual conditionals with breaking Sequence of Tense/Mood in an extension of Ogihara (1999). Then, we have shown how this extension derives the attested combinations of conditional interpretation and

tense/mood and why pragmatic principles rule out the unattested combinations. Competition between more informative and less informative forms rules out biscuit counterfactuals that do not break Sequence of Tense/Mood (except in cases of modal subordination), and the Gricean principle of Manner rules out hypothetical counterfactuals that do, via an insight by DeRose and Grandy (1999) of what the communicative purpose of conditionals is.

There are a number of open issues that we leave for future research.

First, the analysis of double access readings as presented in Romero and Csipak (2019) needs to be further refined and unified across constructions, possibly as a *de re* analysis. This includes purely temporal double access like (36), index double access like our counterfactual biscuits (42b)/(43b) and potentially other double-access-looking data. For example, in (81), translated into Spanish from Schlenker (2004), the (a)-version breaking Sequence of Tense/Mood can be used to convey that, if Juan thought of the actual rainy weather pattern that it counts as good weather, Juan would be crazy, while the (b)-version does not allow for this interpretation.

(81) Context: It is raining outside and the speaker sees that. [Spanish]

a. Si Juan pensase que hace.Ind buen tiempo, estaría loco.
'If John thought that the weather **is.Ind** nice, he would be crazy.'

b. # Si Juan pensase que hiciese.Subj buen tiempo, estaría loco.
'If John thought that the weather **was.Subj** nice, he would be crazy.'

Second, on the empirical front, we only consider counterfactual biscuit conditionals in languages like English and Spanish, which both use verbal morphology to convey counterfactuality and have attested double-access readings on that morphology. How does this work in languages that use other means to express counterfactuality, and do they allow a 'biscuit' interpretation of counterfactuals? If so, do they also permit a double-access indexing option, or is the 'biscuit' interpretation derived from pragmatic inference as in Swanson (2013)'s (75)?

Finally, a challenge is build into our analysis by virtue of using the temporal remoteness approach to counterfactuality. Counterpossibles

like (82) have been argued to posit a problem for the overall temporal remoteness line:

(82) If two plus two were five, this addition would be correct.

The temporal remoteness approach depends on being able to go back to a point in time where it was possible for the antecedent to be true, and it is not clear whether this is possible for the antecedent of (82). One way to solve this might be to relativize indicative and counterfactual conditionals to a given epistemic state (cf. Leahy 2018). We leave this possibility for future research.

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