

Semantics and Pragmatics of Future Tenses in Spanish

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1. Introduction

Simple future *-rá/-ré* and the conditional tense *-ría* in Spanish have traditionally been considered to have both modal and temporal interpretations. For the case of simple future, the temporal interpretation indicates that the future sentence occurs at a time later than the speech time (ST), as in examples (1) and (2) below. The modal interpretation conveys a probability judgment or the degree of certainty of the speaker (Gili Gaya, 1961). This reading is exemplified in (3) and (4):

- (1) El presidente hablará por televisión.
'The president will speak on TV.'
- (2) Iré a verte.
'I will go to see you.'
- (3) Acabo de ver las luces. Juan ya estará en casa.
'I just saw the lights on. John will be at home already.'
- (4) La librería ya tendrá tu libro.
'The bookstore will have your book by now.'

Critically, this modal reading does not typically receive a future temporal reading. In these cases, the temporal interpretation is compatible with a situation in which the sentence in question is true at the ST (i.e., a present reading).

For the case of the conditional tense, the situation is similar. First, it can receive a future temporal interpretation. In this interpretation, the future sentence refers to a time later than some other time contextually specified, as in (5) below, in which the interpretation is relative to the time of the main verb. Second, it can receive a probability or hypothetical reading. In this interpretation, the temporal reading can overlap a present or past time contextually specified by previous clauses, as in (7) and (8), or by implicit background assumptions, as in (9):

- (5) Juan pensó que María iría a la fiesta.
'John thought that Mary would go to the party.'
- (6) Juan dijo que caminaría.
'John said he would walk.'
- (7) Si fuera rica, compraría un auto.
'If I was rich, I would buy a car.'

- (8) De acuerdo a lo informado por la policía, el asesino estaría fuera del país.
 'According to the police report, the murderer would be out of the country.'
- (9) Serían las diez.
 'It must have been ten.'

Note, however, that these two possible readings of simple future and the conditional tense are not randomly distributed. They only arise in certain contexts, as the felicity of the examples below shows:

- (10) #Si fuera rica, compraré un auto.
 'If I was rich, I will buy a car.'
- (11) ??Acabo de ver las luces. Juan estaría en casa ahora.
 'I just saw the lights on. John would be at home now.'
- (12) ?? Juan quiere venir pero no sabe si puede. Vendrá el jueves.
 'John wants to come but does not know whether he can. He will come on Thursday.'

Thus, the existence of both temporal and modal readings for these tenses and their particular distributions call for an explanation.

Traditional approaches to these facts have followed two different strategies. The first strategy proposes that there is some common notion underlying the distribution of each tense, although for each case a list several exceptions or "uses" is provided. For example, King (1992) attributes to the simple future the meaning of future temporal perspective, whereas he considers the conditional tense an atemporal hypothetical modal. This thus leaves unexplained the modal reading of simple future and the temporal reading of the conditional tense. The second strategy, adopted by Gili Gaya (1961), treats the tenses as expressing different meanings. Simple future is considered to be either an absolute future or a future of probability. In contrast, the conditional tense is considered either a future in the past or a future of probability. This seems to implicitly assume an inherent polysemy associated with the tenses.

There are however, independent reasons to reject these strategies. First, simplicity considerations lead us to prefer a unifying approach (i.e., a single underlying meaning for each tense), but one that accounts for all readings rather than treating one of them as an exceptional use. Second, simple future in several languages (such as English, Modern Greek, Korean, German and Romance languages) also receives both the modal and the temporal interpretation. In addition, the distribution of the conditional tense is also found in at least two more language, namely Modern Greek (the construction *tha* + imperfect) and the French morpheme *-rais*. Given these facts, an underlying systematicity, rather than an overwhelming cross-linguistic polysemy, must explain this phenomenon. The goal of this paper is thus to identify what is common and

systematic in all these uses and to provide precise definitions (model-theoretic truth conditions) of the tense meanings that capture all interpretations.

The basic idea of my proposal is as follows. First, I claim that the aktionsart of the sentence involved determines the temporal reading, in particular, it determines whether the future tenses receive a future or non-future temporal reading. If this is correct, the problem of the non-future readings, which at first sight, complicates any semantic analysis of these tenses, is independently accounted for. The meaning of the tenses thus need not include a particular specification to treat these readings. Second, I claim that different occurrences of *-ré/-rá* and *-ría* respectively have a single meaning with both temporal and modal components, where the modal component is defined as a function from the context of occurrence (as Kratzer 1977, 1979, 1981a,b has noted for other modals). For any given occurrence, both temporal and modal specifications are present so that there is no temporal use independent from a modal one. The temporal meaning is treated as a future logical operator, interpreted relative to different times for each tense. Simple future is an operator evaluated relative to the ST, whereas the conditional tense is an operator evaluated relative to a contextually provided reference time (RT). The modal part of the meaning requires the sentence modified by the tenses to follow from the assumptions in the context of utterance (conversational background). This context dependency is thus responsible for some of the different interpretations found in each case. Finally, note that as exemplified in (10)-(12), not every context is suitable to obtain an appropriate occurrence of the tenses. To explain this, I claim that the set of contexts in which the tenses can occur is restricted by the lexical meaning of the tenses themselves, i.e., their meanings require certain presuppositions to be satisfied in the context for the tenses to be felicitous.

2. Temporal interpretation and aktionsart

The main question addressed in this section is why both simple future and the conditional tense can receive future and non-future readings. To understand this problem, one needs to look at aktionsart properties, since the temporal interpretation of these tenses is determined in predictable ways by the aktionsart of the sentence involved. Consider first the case of simple future:

Stative sentences

(3) Juan estará en casa ahora.

‘John will be home now.’

(13) Pedro piensa que el cura sabrá mucho de teología.

‘John thinks that the priest will know a lot of theology.’

Eventive sentences

(14) Leerá el libro ahora. / Conducirá todo el día.

‘He will read the book now.’ / ‘He will drive all day long.’

(15) Piensa que vendrá. / Dice que la perseguirán.

‘He thinks he will come’. / ‘She says they will chase her.’

In both independent and subordinate cases, stative sentences are correlated with the possibility of non-future readings, although future readings are also possible. In contrast, event sentences (whether activities or accomplishments) are correlated with future readings. For example, (14) means that he is about to read the book, not that he is reading it now.

A similar situation obtains for the case of the conditional tenses:

Stative sentences

(16) (Pensó en ella por un momento.) Estaría sentada en la ventana, mirando las estrellas.

‘He thought of her for a moment. She would be sitting by the window, looking at the stars.’

(17) Supuso que estaría en casa y decidió llamarla.

‘He thought she would be home and decided to call her.’

(18) Si fuera rica, estaría en una isla desierta.

‘If I was rich, I would be in a desert island.’

Eventive sentences

(5) Juan pensó que María iría a la fiesta.

‘John thought that Mary would go to the party.’

(19) Finalmente, decidió escribirle. Le diría que la dejaba.

‘Finally, he decided to write to her. He’d tell her that he was leaving her.’

(20) Si no estuviera ocupado, iría a verte esta noche.

‘If I was not busy, I would come visit you tonight.’

In subordinate constructions such as (17), the stative sentence correlates with a temporal reading in which the time of the subordinate may overlap the time provided by the main verb. In contrast, this reading is not available with event sentences as in (5). A similar observation holds for independent and conditional sentences. States are typically interpreted as overlapping some contextually specified RT, either provided by the previous context, as in (16), or by the *if*-clause, as in (18), while events are interpreted in sequences. Note however, that an overlapping reading is also possible with events in conditional sentences as in *Si fuera rica, compraría un auto* ‘If I were rich, I would buy a car’. This is because when the *if*-clause is stative, the properties of this clause, but not those of the consequent, will permit an overlapping interpretation of the two clauses of the conditional. Despite this contextual proviso, it is fair to conclude that both simple future and the conditional tense generate overlapping readings if the sentences involved are stative.

This generalization is supported by independent facts. Discourse Representation Theory (e.g., Kamp & Reyle 1983) and Dowty (1986) have pointed out that stative sentences, including generics (Carlson & Pelletier 1995) and progressive ones, typically generate overlapping readings in discourse contexts. In contrast, event sentences generate sequential readings. Consider some examples:

- (21) I went to Bill's office this morning. He was sick.
(22) I went to Bill's office this morning. We discussed the budget proposal.

Similarly, the temporal effects of *imperfecto* in Spanish and progressive in English are attributed to the properties that imperfective aspect shares with stative sentences (cf. Cipria & Roberts 1999, Dowty 1979, 1986, Gennari 1999a,b). These properties explain why *imperfecto* and past progressive correlate with overlapping readings, while *pretérito* and simple past correlate with sequential readings:

- (23) Juan dijo que María estaba viniendo.
'John said that Mary was coming.'
(24) Juan dijo que María vino.
'John said that Mary came.'

The temporal effect of aktionsart properties is thus not restricted to future tenses. Rather, it is a general phenomenon that occurs with several tenses in both English and Spanish.

2.1. The interpretation of stative sentences

Why are states compatible with non-future readings? Following a suggestion made by Dowty (1986), I have proposed that stative sentences generate overlapping readings because they trigger a temporal pragmatic implication: states imply that they are true at a larger interval that includes the interval (past or future) specified by the meaning of the tense. I call this implication the superinterval implication (Gennari, 1999a,b). The intuition behind this implication is the following. If a certain state holds at interval *i*, one can infer that the state held for some time prior to *i* and will hold for some time later than *i*, i.e., that the state holds at a superinterval surrounding *i*. For example, if I am Argentinean now, one can infer that I was and I will be Argentinean for a while.

This inference follows from what we know about states, their very nature. Note that states do not have internal temporal developments like events do, there is no transformation or internal causal structure. Something can cause a state to come into existence (as my being Argentinean was caused by my being born in Patagonia), but once one is in a certain state, it can persist in time until some other event stops it. Events in contrast, are contingent on a causal force acting upon them. This causal dependency makes them temporally bounded. They entail changes that go from an initial state to a final state. Accomplishments entail a single definite change, while activities entail a sequence of changes (see Dowty 1979 for a discussion of the change-of-state entailment). Such changes, due to their dependency on external forces, are not taken to go on indefinitely but to start and stop within the interval specified by the tense. Intuitively, if an activity or accomplishment is true at interval *i*, it does not necessarily lead us to conclude that the event holds at an interval earlier or later than *i*, since the causal

force that applies at i may not obtain at any other time. Thus, states, but not events, have the superinterval implication.

The temporal effect of the superinterval implication can be clearly seen in the temporal interpretation of future tenses. Consider, first, the case of simple future:

- (3) Juan estará en casa ahora.
 ‘John will be at home by now.’
 $\exists i [i > ST \ \& \ be-home(j, i)]$

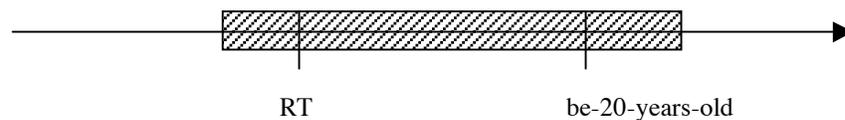
According to the standard account of simple future, (3) is true iff there is a future interval i later than the ST at which John is home. But, given the implication associated with states, i.e., that there is a superinterval i' that contains i at which John is home, it follows that the interval of being home can overlap with the ST. This is exemplified below where the filled square represents the superinterval inferred around the future interval specified by the tense:



Note that the superinterval implication does not necessarily trigger an overlapping reading. The context will help to determine whether such an inference is plausible. For example, *John will be at home next week* may not trigger the inference, because the state involved is not likely to hold true for such a long period. The superinterval implication thus explains why the non-future reading may arise with stative sentences.

A similar reasoning applies for the case of the conditional tense. The difference with simple future is that this tense indicates a relative future, i.e., it is interpreted relative to a reference time or situation (RT) provided by the context:

- (25) Tendría entonces 20 años.
 ‘He must have been 20 years old then.’
 $\exists i [i > RT \ \& \ be-20-years-old(he, i)]$



Despite the future component in the meaning of the tense, the superinterval inferred around the interval specified by the tense explains the problematic overlapping readings relative to RT¹.

That the simple future and the conditional tense are interpreted relative to the ST and a RT respectively is supported by several facts. First, note that in embedded constructions, simple future is interpreted relative to the ST and not relative to the time of the main verb. If this was possible, (26) would be felicitous. Simple future thus behaves as an indexical expression. In contrast, the conditional tense is fine in this context, because it refers to a time later than the time of the main verb and its meaning does not lexically specify any relation to the ST:

(26) Juan dijo (anteayer) que Pedro vendrá (*ayer).

‘John said (the day before yesterday) that Peter will come (*yesterday).’

(27) Juan dijo (anteayer) que Pedro vendría ayer.

'John said (the day before yesterday) that Peter would come yesterday.'

Second, in independent sentences, the intuitions are clear: simple future is interpreted relative to the ST, while the conditional tense requires some other time specified in the context. That is why Gili Gaya (1961) calls them an absolute and a relative future respectively. For example, (25) does not mean that he is 20 years old at the present time or at a future time relative to the ST. Rather, it indicates that he was 20 years old relative to some time given in the discourse. This does not preclude that the conditional tense can be interpreted relative to the present, if the present happens to be the RT. In cases where there is a hypothetical situation assumed in the context, this interpretation is possible. An example of this is *Tendría ahora 20 años* 'He would now be 20 years old', said in a situation in which the person in question had died. Thus, what is relevant for the conditional tense is that it obtains its RT from the current context.

Given these facts and the superinterval implication discussed above, it is possible to maintain that the semantic lexical specification of the tenses is always future (either relative to a RT or to the ST). Independent aktionsart facts will explain the non-future readings. This thus solves part of the initial problem: there are not two different temporal meanings associated with the tense, one future and the other non-future. There is only one meaning but the overlapping readings come about for independent reasons.

2.2. The interpretation of event sentences

I indicated before that events have internal causal structure and are contingent on some external cause. This distinguishes them from states and explains that one does not typically expect events to persist in time. However, even when this general expectation is correct, the aktionsart properties of activities are logically compatible with their truth at a superinterval: Because activities typically involve the repetition of small acts, nothing precludes that such acts can occur before or after the arbitrary interval provided by the tense². Thus, as an anonymous reviewer points out, there may be situations compatible with the pragmatic context in which activities could in principle persist at least long enough to overlap the ST or RT. For example, in a situation in which everybody knows that John spends his days working at the cafeteria from nine to five, example (28), said at any time between nine and five, must be able to mean that John will be working at the cafeteria now:

(28) Juan trabajará en la cafetería ahora.

'John will work at the cafeteria now.'

However, the temporal interpretation of (28) cannot overlap with the ST. Thus, even when the pragmatic conditions are met and our knowledge of causal facts

still holds, the sentence is infelicitous: activities cannot extend long before and after the interval provided by the tense³.

Why can't activities be interpreted beyond the interval specified by the tense? I have proposed elsewhere (Gennari 1999a,b) that this is because activities in general have temporal implications that are inconsistent with their truth at a superinterval. Thus, in contrast to states, the superinterval implication cannot be obtained. To see this, note that activities are normally assumed to be contained within the interval provided by the temporal operator. They typically imply that they take place within some arbitrary initial and end point of their interval of truth (Smith 1991). Consider the following (where \Rightarrow means *implies*):

- (29) Juan bailó/bailará esta tarde. \Rightarrow Juan terminó/terminará de bailar esta tarde.
'Juan danced/will dance this afternoon. Juan stopped/will stop dancing this afternoon.'

When activities occur with simple non-aspectual tenses, they are interpreted to occur within the boundaries specified by temporal adverbs. This stems from the fact that a quantity pattern of implicature is triggered by the grammatical elements of the sentence, in particular by the possible alternation between the simple tense and the progressive form⁴. Consider the following:

- (30) Juan bailará.
'Juan will dance.'
 $\exists i [i > ST \ \& \ \text{dance}(j, i)]$
- (31) Juan estará bailando.
'Juan will be dancing.'
 $\exists i [i > ST \ \& \ \text{PROG}[\text{dance}(j, i)]]$

By the definition of progressive, (31) logically entails, rather than implicates, that there is a superinterval containing i during which the process of dancing will take place. This is because, like the English progressive (see Dowty 1979), Spanish future progressive has both an aspectual and temporal component. The temporal component denotes an interval after the ST. The aspectual meaning introduces a superinterval surrounding the interval provided by the temporal component⁵. *PROG* in (31), for example, is true iff for some superinterval containing the future interval i , Juan is in the process of dancing. The intuition behind this definition is that it allows the event in question to be in progress at the given interval, rather than starting and finishing in it. This explains why the activity of (31) can start obtaining at or before the ST. (31) thus clearly contrasts with (30), which simply says that the process of dancing will take place at a future interval i .

Since progressive conveys more temporal information, this is the type of situation that triggers Gricean quantity inferences due to the speaker's choice of the simple tense over the progressive. For if the speaker does not choose progressive (the most informative form), he/she implicates that the superinterval

does not obtain, i.e., that the possibility of the event at the present is not available. This results in a bounded reading, in which the event is interpreted within the limits of the interval denoted by the tense. The progressive sentence is the most informative form because it can be true in fewer situations than the simple sentence. In fact, the set of situations in which the progressive sentence is true is a subset of those in which the simple tense sentence is true. Thus, when simple tenses occur with activities, they yield bounded readings due to a Gricean inference triggered by the grammatical elements of the sentence.

That activities implicate rather than entail bounded readings is clear from the fact that the implicature in question can be cancelled, a typical characteristic of Gricean inferences (Levinson, 1983). Consider the following:

- (32) El presidente hablará por televisión dentro de poco. En realidad, (creo que) ya ha empezado.
'The president will speak on television in a while. In fact, (I think that) he has already started.'

The first sentence in the discourse implies that the event in question will start in the future. However, the second sentence cancels this implication because the speaker corrects the content of his/her statement. The judgments are similar to other cancellation cases. Consider for example, *John has three kids. In fact, he has four.* This confirms that the bounded interpretation associated with simple future activities comes from a pragmatic implicature, rather than from a logical entailment or simple world knowledge.

To complete the discussion of the temporal interpretation of different event types, consider now culminated events. In contrast to simple tense activities, accomplishments and achievements entail temporal information logically incompatible with a superinterval. As Dowty (1979), Taylor (1978), Verkuyl (1993) and many others have pointed out, accomplishments and achievements entail a change of state. This is equivalent to entailing the falsehood of the proposition in question at a certain interval *i*, and its truth at an interval *i'* later than *i* (see definition of BECOME in Dowty 1979). For example, if one writes a letter at *i*, this entails that the letter was not written before *i*, and that it is written immediately after *i*. The resulting and initial state must therefore obtain if the accomplishment sentence is true. This is why the second sentence of (33) is contradictory:

- (33) Juan escribirá /escribió una carta. *Pero no la terminará/terminó.
'Juan will write/wrote a letter. But he will not finish it/did not finish.'

This entailment of achievements and accomplishments is thus logically incompatible with the truth of the sentence at longer intervals or at the present. This explains why future sentences with culminated events receive a bounded interpretation: the event denoted will start and finish within the interval specified by the tense.

In sum, activities occurring with future tense do not overlap the ST because of a Gricean quantity maxim generated by the contrast between the simple and the progressive form. Accomplishment and achievements, in contrast, have logical entailments that are incompatible with such a reading. This thus explains why future-tensed event do not receive non-future readings, and supports the previously observed fact that only states can do so via the superinterval implication.

3. The modal interpretation

Basic assumptions: According to Kratzer's (1979, 1981a,b) account, modals are context dependent expressions. They are interpreted relative to what Kratzer calls the Conversational background, i.e., the set of premises or assumptions in the common ground from which conclusions are drawn. Formally, CBs are functions that apply to the utterance context in the actual world and return the set of propositions in it (i.e., a set of worlds where these propositions are true). Thus, $CB(st, w_a)$, where w_a is the actual world, is the set of propositions assumed at ST and w_a . This context dependency is clear in the following English example:

(34) John must not be the student who failed the exam.

Intuitively, the speaker makes a conclusion that follows from the implicit assumptions taken for granted in the context of utterance. The meaning of *must* thus specifies that (34) is true if it follows from the CB that John is not the student who failed the exam.

Notice also that different interpretations of modals depend on different kinds of CBs. In (34), the CB can be deontic or epistemic and so can the interpretation. (34) can be uttered in a context where the speaker makes a conclusion from what he/she knows, or in a situation in which the speaker (say, John's mother) makes a conclusion from John's responsibilities assumed in the context. Each context thus generates a different interpretation.

This context dependency of the interpretation is constrained by the fact that the lexical specification of modals may impose certain conditions on the CB in which they occur. Not all CBs are suitable for every modal. For example, *must* cannot occur in every context, but requires either epistemic or deontic contexts:

(35) ??If I was sick, I must be home.

Hypothetical counterfactual situations are not appropriate for the occurrence of *must*. One way of viewing this sort of restrictions on the context is to say that modals presuppose certain set of worlds/propositions in their CB for them to be felicitous. (35) is thus infelicitous because the requirement of an epistemic or deontic context associated with *must* is not satisfied by the current CB, which

contains only propositions compatible with the hypothetical situation of the *if*-clause.

3.1. Future tenses and CBs

One way to explore the question of whether Spanish future tenses are modals is analyzing cases in which these expressions co-occur with CB-introducing expressions. According to Kratzer (1977, 1979, 1981a,b), phrases such as *under such and such view*, *according to ...*, or *in view of ...* denote sets of propositions (CBs) relative to which the modified sentence is interpreted. Consider the following examples:

- (36) De acuerdo a la propuesta republicana, el gobierno contribuirá/contribuiría dinero a las cuentas médicas.
'According to the republican proposal, the government will/would contribute money to medical accounts.'
- (37) Según lo informado por la cancillería, el presidente se encontrará/encontraría con el embajador de Alemania.
'According to the embassy report, the president will meet/would meet the German Ambassador.'

Both simple future and *-ría* sentences do not have to be true in the actual world. They are intuitively true if they hold in the worlds in which the proposal or the report also holds. For example, (36) is true if the proposal entails that the government will/would contribute money to medical accounts. Note that a simple non-modal tense such as present would not have such an interpretation in this context. Simple present in (36) would be true if the government currently contributes money to medical accounts in the actual world and the republican proposed this in the past (there is no entailing relation). This suggests that these future tenses behave like modals in that their evaluation is dependent on the current CB.

Another way to assess whether future tenses behave like modals is to establish that they possess similar characteristics to other modal expressions. One of these characteristics is that modals impose restrictions on the CB, i.e., they presuppose certain kinds of CBs in order to be felicitous. To see this, consider the contrast between the interpretations of the two tenses in (36) and (37). With the simple future, the speaker adheres to the content of the introductory phrase, i.e., he/she takes its content as known or planned facts. In (36) for example, the speaker thinks that the proposal will pass and its effect will take place. Likewise, in (37), the speaker takes for granted the embassy report so that it can be predicted that the meeting will take place. In contrast, the conditional tense does not commit the speaker to any truth. For all the speaker knows, the proposal or the report can be either true or false.

The contrast between the simple and conditional future becomes more evident in conditional sentences, where they can be true in clearly different

situations. According to Kratzer's (1979, 1981b) account, the consequent of a conditional sentence is interpreted relative to a CB to which the *if*-clause has been added. In the case of counterfactual conditionals (in which the conditional tense typically occurs), the consequent must follow from the maximally consistent set of propositions including the initial CB and the antecedent. In other words, the consequent must be true in all those worlds in which as many as possible propositions of the initial CB are true together with the antecedent. For example, (38) is true iff Mr. Perez finds a girlfriend in all possible worlds of the CB in which he is rich⁶:

(38) Si el señor Perez fuera rico, conseguiría una novia.
'If Mr. Perez were rich, he would find a girlfriend.'

(39) Te lo prestaría, pero lo necesito.
'I would lend it to you, but I need it.'

In (38), the conditional tense is interpreted relative to a CB that is not true in the actual world, because a contrary-to-fact-proposition is assumed. Note, incidentally, that in (39), a conditional interpretation is also obtained although no explicit *if*-clause is present. The context entails an implicit condition from which the future sentence follows (e.g. *si no lo necesitara, te lo prestaría* 'If I did not need it, I would lend it to you'). This example supports our suggestion that the tense is context dependent: It suffices that the condition in question is implicit in the CB.

Consider now the case of indicative conditionals involving simple future:

(40) Si el señor Perez es rico, conseguirá una novia enseguida.
'If Mr. Perez is rich, he will find a girlfriend soon.'

In terms of CBs, indicative conditionals are true iff the consequent follows from the intersection of the CB and the antecedent (Kratzer, 1981a). But in contrast to counterfactual conditionals, the consequent must follow from a CB that is required to be true in the actual world. Thus, (40) is false if Mr. Perez does not find a girlfriend in an actual situation where he is rich. However, note that the intersection of the factual CB and the antecedent may or may not be true in the actual world. If the intersection of the previous CB and the antecedent is empty (i.e., the antecedent is false in the actual world), the entire conditional sentence is true, since the consequent vacuously follows. If the antecedent is true in the actual world, the consequent should also be true in it. (This is equivalent to the logical definition of material implication.) Thus, while the conditional future clause is typically true in hypothetical situations different from the actual one, simple future is true in situations which are supposed to be true in the actual world.

This difference corresponds to that of being evaluated relative to two different types of CBs. In the same way that *must* requires epistemic or deontic contexts, simple future requires a realistic or factual CB, while the conditional

tense requires a hypothetical one. A realistic CB is such that propositions that are true in the actual world are taken for granted. Formally, a realistic CB is a function f which applies to the ST and the actual world (w_a) and returns a set of proposition such that $w_a \in \cap f(st, w_a)$. Note that epistemic CBs are a special case of realistic CB. Epistemic CBs are those that return propositions that are established knowledge in w_a (for a group or a community). Since only true propositions can be known, epistemic CBs are realistic CBs (Kratzer 1981a). In contrast, a hypothetical CB is one that returns a set of propositions not taken as true in the actual world, i.e., a set of propositions such that it is possible that $w_a \notin \cap f(st, w_a)$. This definition is compatible with the CBs of the conditional tense discussed so far. The propositions in the CB may be false in w_a , as in counterfactual conditionals, or simply possible, as in (36) and (37), but in all cases, the propositions are not taken as true in the actual world. The specific CB at hand will determine which of these options is obtained.

That simple future tense presupposes a realistic CB explains why (10) and (12) are not felicitous:

(10) #Si fuera rica, compraré un auto.

‘If I was rich, I will buy a car.’

(12) ?? Juan quiere venir pero no sabe si puede. Vendrá el jueves.

‘John wants to come but he does not know whether he can. He will come on Thursday.’

In (10), the *if*-clause introduces a non-realistic hypothetical proposition into the CB. In (12), the first sentence of the discourse adds to the CB the proposition that John does not know whether he can come. This conflicts with the fact that the future sentence requires this knowledge. Similarly, that hypothetical non-factual CBs are presupposed by the conditional tense explains the following example:

(11) ?? Acabo de ver las luces. Juan estaría en casa ahora.

‘I just saw the lights on. John would be at home now.’

The first sentence of the discourse introduces a proposition that is known as a fact by the speaker. Thus, in all cases, the CB does not satisfy the presupposition associated with the tense and therefore the sentences are infelicitous.

3.2. Accounting for other modal and temporal readings

Let’s consider now whether the modal properties of future tenses discussed so far are also found in different types of examples that do not involve conditionals or CB-introducing phrases. Consider first simple future:

(3) Juan estará en casa ahora.

- ‘John will be at home now.’
(41) Juan vendrá.
‘John will come’
(42) Juan cree que vendrá.
‘John believes that he will come’

Note that in all these cases, there is a logical relation to the implicit CB. For example, in (3), it is taken for granted that the speaker knows something (e.g., the time at which John typically gets home) from which he/she concludes the sentence, hence the inferential or probabilistic interpretation. Given the non-future temporal reading discussed earlier, the speaker simply says that for all he/she knows, John is home. The speaker makes the statement depend on the truth of the CB. This explains the probability intuition that the speaker is not 100% sure, because other factors unknown to the speaker may lead him/her to conclude otherwise (e.g., John did not get home at the usual time today). This interpretation contrasts with the use of present tense in (3), where the sentence would be given as a known fact. Similarly, in (41), as in (37) above, the speaker assumes certain knowledge about John (John’s plans or intentions), to be able to make a prediction about the future. The case of (42) is also similar in the light of the fact that intensional verbs introduce worlds or propositions according to which the embedded sentence is interpreted, i.e., they behave as CBs⁷. The subordinate sentence must therefore follow from what John knows or assumes. Thus, these examples are parallel to the behavior of the CB in indicative conditionals: the CB contains assumptions taken to hold in the actual world (or in somebody’s views of the actual world), not in other possible worlds.

However, the assumptions that seem to be implicit in these examples are actually quite different. They are assumptions of different kind, for example, they may refer to intentions or plans (example (41)), habitual behavior (example (3)), people’s views (example (42)) or any other fact (example (40)). This is what makes the future tense context dependent. The specific interpretation obtained in each case will depend on the context of utterance, hence, the probabilistic vs. predictive reading. The only constraint that simple future imposes on its context is that it should be true in the actual world.

Consider now some few more examples of the conditional tense:

- (5) Juan dijo que María iría a la fiesta.
‘He said Mary would go to the party.’
(9) Serían las diez.
‘It must have been 10.’

In the case of (5), the subordinate sentence is interpreted relative to John’s cognitive worlds, and specifically, it follows from all propositions that John assumes in relation to Mary’s going to the party (e.g., her plans). In (9), there is an implicit set of assumptions from which the speaker infers the statement, for example, certain indications which made him/her think that the time in question

must have been 10 o'clock. However, in both cases, the assumptions made are not taken as established facts, for all the speaker knows (although they may ultimately turn out to be true in the actual world). For example, in (5), María's going to the party depends on propositions that John takes as possible but contingent on other factors⁸, while in (9), the reasons to infer the relevant statement may be mistaken (as they come from the speaker's recollection). The CB in these cases is possible rather than counterfactual, as in conditional sentences. But this is a consequence of the context of occurrence rather than a requirement of the tense. The tense simply presupposes that the CB is not taken as true in the actual world. As with other modals, different contexts of occurrence may give rise to different interpretations.

In sum, both simple future and the conditional tense are interpreted relative to the current CB. Their modal component requires that they follow from the CB, i.e., that the sentence in question is true in all worlds of the CB. The difference in their modal interpretations comes from the fact that these tenses presuppose different set of worlds or propositions in their contexts: simple future presupposes factual assumptions while the conditional tense presupposes hypothetical non-factual ones. This correctly accounts for the intuition that simple future commits the speaker to the truth of the CB in the actual world, while the conditional tense does not. Thus this tense is the preferred choice in hypothetical non-factual situations.

4. Final proposal

I am now in a position to give the formal semantic definitions and pragmatic requirements of simple future and the conditional tense, according to the discussion above:

(43)-*ría*[Q] = $MOD[FUT_R[Q]]$ is true in w at st iff it follows from the CB that $FUT_R[Q] = \exists i [i > RT \ \& \ Q(i)]$, i.e., iff $\forall w'$ such that w' belongs to the $\cap CB$, $FUT_R[Q]$ is true in w' .

Presupposition: CB is hypothetical = possibly, $w_a \notin \cap CB$

(44)-*rál-ré*[Q] = $MOD[FUT[Q]]$ is true in w at st iff it follows from the CB that $FUT[Q] = \exists i [i > ST \ \& \ Q(i)]$, i.e., iff $\forall w'$ such that w' belongs to the $\cap CB$, $FUT[Q]$ is true in w' .

Presupposition: CB is realistic = $w_a \in \cap CB$

(43) says that a sentence Q modified by the conditional tense is true in the actual world at the ST iff it follows from the hypothetical CB that there is a future interval relative to some contextually specified RT at which Q is true. In other words, (43) is true iff for all worlds w' in the hypothetical CB, there is an interval later than the RT at which Q is true in w' . (44) says that a sentence Q modified by the simple future is true in the actual world at the ST iff it follows from the (realistic) CB that there is an interval later than the ST at which Q is

true, i.e., iff for all worlds w' in the (realistic) CB, there is an interval later than the ST at which Q is true in w' .

Note that in both cases, the meaning of the tense is composed by a modal operator, which quantifies over the worlds of the CB, and a temporal operator, which quantifies over intervals. The difference in temporal interpretation between the tenses comes from the fact that they are interpreted relative to different times. Simple future is indexical, as it is always evaluated relative to the ST. The conditional tense in contrast, is relative, i.e., evaluated relative to some contextually specified time. Also, in both cases there is a presupposition associated with the lexical meaning of the tense. These presuppositions account for the differences in modal interpretation between the tenses, as they occur in different contexts and convey different degrees of modal judgments. Finally, recall that in both cases, *aktionsart* can interfere to generate overlapping readings with each relevant time, either the ST or the RT. This possibility arises because of the superinterval implication, although the lexical meaning of the tense remains the same for all cases. Thus, for both the modal and the temporal interpretation, the context of occurrence as well as the *aktionsart* involved play a role when generating a particular reading.

5. Conclusions

In this paper, I have addressed the problem of the multiple interpretations that Spanish future tenses can receive. I have proposed that (a) future tenses are defined as dual modal and temporal operators with pragmatic felicity conditions, and (b) non-future readings follow from the independent fact that states trigger a temporal inference that permits their truth at a superinterval. The definitions account for a wide range of readings in both independent and subordinate sentences, although further refinements may be necessary. The approach suggests that several contextual and pragmatic factors, in addition to the lexical meaning of the tenses, contribute to the temporal and modal interpretations of the tenses.

Notes

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1. The question of how the RT is determined in any given context is a complex one I cannot address in this paper. However, for suggestions of how this can be treated within a formal account, see Portner (1992).
2. Put more formally, an activity α entails that if it is true at interval i , it is also true at every subinterval i' of i . This is logically compatible with the truth of the activity at a superinterval. If α is true at i , it can also be true at $i+i'$.
3. This is also true of activities occurring in past tense. In contrast to states in simple past, an interpretation in which there is a continuation of the activity into the present is not available. (e.g., *Juan bailó. ??Y todavía está bailando.* 'Juan danced. ?? And he is still dancing.' vs. *Juan estuvo enfermo. Y todavía lo está.* 'Juan was sick. And he still is.').
4. The observation also applies to simple past, except that the contrast obtains relative to the *imperfecto* (see Gennari, 1999a,b).
5. For simplicity, I am ignoring the modal component of progressive. See Dowty (1979) for a complete definition.
6. Note that in this case, the only proposition in the CB ends up being the contrary-to-the-fact antecedent, since all other propositions inconsistent with it (e.g., the fact that Mr. Perez is not rich) are not in the CB.
7. According to the standard analysis of subordinate contexts (Hintikka (1969), Farkas 1992, Heim, 1992), intentional verbs such as *believe*, *think*, *suppose*, *etc.* are world-creating expressions. They introduce a set of worlds or propositions according to which the subordinate sentence is evaluated. Note the

equivalence between *According to what John thinks, Mary is smart* and *John thinks that Mary is smart*. A similar situation holds for the temporal interpretation. The temporal interpretation of the subordinate sentence is evaluated relative to the time of the main verb, except if the subordinate sentence contains an indexical tense (Abusch, 1997, Ogihara 1996). Thus, when a modal or a future tense appears within an intensional domain, it has to be evaluated relative to the worlds and the time introduced by the intensional verbs, rather than relative to the CB of the utterance context. If the modal has a presupposition, it will have to be satisfied within the set of worlds provided by the intensional verb. This may define a relevant subset of propositions among all the ones compatible with somebody's cognitive worlds.

8. King (1992), following Bolinger, has pointed out that the subordinate occurrences of the conditional tense are like independent ones in that they require an implicit *if*-clause, i.e., hypothetical contexts. For example, in (5), *María would go to the party if everything goes as expected*. This thus supports our unified analysis of different uses of the conditional tense.

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