Tense and Mood in Counterfactual Conditionals: The View from Spanish[*]

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Sinn und Bedeutung 18
University of the Basque Country, Vitoria-Gasteiz, September 11-13, 2013

1. Introduction

- Many languages use an extra layer of morphological past tense –so-called 'fake' tense– to express counterfactual conditionals (Iatridou 2000).[1]

(1) a. If John had come yesterday, they would have had fun.
b. If grandma was/(were) here now, he would scold you.

- Researchers have tried to derive counterfactuality from the semantics of this fake tense:
  - Modal remoteness line: Palmer (1986), Iatridou (2000), Schlenker (2005) building on Stalnaker (1975), Schulz (2010), a.o.
  - Temporal remoteness line: Dudman (1983, 1984), Ippolito (2003), Arregui (2009), Gronn and von Stechow (2009), a.o.

- In Spanish, we see that morphological tense is 'fake' if and only if it is bundled with morphological subjunctive mood: (3a). That is, an extra tense layer plus indicative, as in (3b), or subjunctive with no extra tense layer, as in (3c), do not express a counterfactual conditional about a past event. Similarly for (4). Same for other lgs, eg. Cat., It., Ge., Ice.

(2) Si Juan vino ayer, se divirtieron. PAST IND. COND.
If J came-PAST-IND yesterday, (they) SE enjoyed
'If John came yesterday, they had fun.'

PAST COUNTERFACTUAL COND.

(3) a. Si Juan hubiese venido ayer, se habrían divertido.
If J PLUPERF-SUBJ come yesterday, (they) REFL would-have enjoyed
'If John had come, they would have had fun.'
b. * Si Juan había venido ayer, se habrían divertido.
If J PLUPERF-IND come yesterday, (they) REFL would-have enjoyed
c. * Si Juan viniese ayer, se habrían divertido.
If J came-PAST-SUBJ yesterday, (they) REFL would-have enjoyed

(4) Si la abuela estuviera aquí ahora, te reñiría.
If the grandmother be-PAST-SUBJ here now, (she) you-Acc would-scold.
'If grandma was here now, she would scold you.' PRES. COUNTERFACT. COND.

- The GOAL of this talk is to investigate what each of these two ingredients —extra tense layer and subjunctive mood— contributes to the meaning of conditional sentences so that the end result is a "ride" to counterfactuality.
  - ↳ §2. Contribution of tense independently of mood and of conditionals.
  - ↳ §3. Contribution of mood independently of tense and of conditionals.
  - ↳ §4. Some notes on interpreting the conditional template.
  - ↳ §5. Tentative proposal: double access reading of the time-world index.

[*] This research was funded by the DFG as part of the Research Unit 1614 "What if?".

[1] Counterfactuality is not an entailment or presupposition of fake tense conditionals (Anderson 1951): (i). See Leahy (2011) for how to derive counterfactuality as an anti-presupposition.

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

2. Contribution of tense independently of mood and conditionals.

2.1. Basics.

■ Presuppositional pronominal approach to morphological tenses (Partee 1973, Heim 1994; cf. Cooper 1983 for personal pronouns):

(5) $[\![she_1]\!]^g$ = defined only if g(1) is female; if defined, $[\![she_1]\!]^g$ = g(1).

(6) I didn't turn off the stove. (Partee 1973)
a. LF: $PAST_1$ not [I turned off the stove]
b. Presupposition: g(1) is past wrt speech time-world index i_0: $g(1) < i_0$
c. Assertion: I did not turn off the stove at g(1).

(7) $[\![PAST_1]\!]^{c,g}$ = defined only if $g(1) < i_0$;[2]
if defined, $[\![PAST_1]\!]^{c,g} = g(1)$. [To be revised]

■ Absolute vs. relative uses of tenses (von Stechow 1995, Abusch 1997, Kusumoto 2005): The presuppositional content of a tense can be computed wrt the speech time i_0, as in (6) above, or wrt some higher tense, like *PAST* in in (9).

(8) $[\![PAST_1\ pro_2]\!]^{c,g}$ = defined only if $g(1) < g(2)$;
if defined, $[\![PAST_1\ pro_2]\!]^{c,g} = g(1)$. [Revised version]

(9) John had arrived.
a. LF: λ0 [[$PAST_1$ pro_0] λ3[[$PAST_2$ pro_3] λ4[John arrive at pro_4]]]
b. λi_0: $g(1) < i_0$ & $g(2) < g(1)$. John arrive at g(2)

■ Like pronouns (10), morphological tenses can be bound by quantifiers: (11).
I will assume that tenses can also be bound by silent existential operators: (9')

(10) Everybody in this group admires herself.
a. Presupposition: For every x in this group: x is female.
b. Assertion: For every x in this group: x admires x.

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

(9') John had arrived.
a. LF: λ0 [$\exists_1$ [$PAST_1$ pro_0] λ3[$\exists_2$ [$PAST_2$ pro_3] λ4[John arrive at pro_4]]]
b. λi_0. $\exists i_1$ [$i_1 < i_0$ & $\exists i_2$ [$i_2 < i_1$ & John arrive at i_2]]

■ Sequence of tense
Some embedded morphological tenses are just uninterpretable morphological reflexes of a higher interpretable tense (von Stechow 2009).

(12) John said [that Mary had arrived]
a. LF: λ0 [[$PAST_1$ pro_0] John say [λ2 that ~~past~~ $\exists_3$ [$PAST_3$ pro_2] Mary arrive]]
b. Presupposition: $g(1) < g(0)$.
c. Assertion (roughly): 'At g(1) John verbally self-ascribed the property of being at an index i_2 (his subjective 'now') such that Mary arrives at an index i_3 preceding i_2.'

[2] For any two indices $<t_1,w_1>$ and $<t_2,w_2>$: **(i)** if $<t_1,w_1> < <t_2,w_2>$, then $w_1=w_2$ unless otherwise specified, and **(ii)** if $<t_2,w_2>$ is accessible from $<t_1,w_1>$, then $t_1=t_2$ unless otherwise specified.

2.2. Double access readings of tense.

■ Double access readings with tenses

(13) a. John said that Mary <u>is</u> pregnant.
b. # John said two years ago that Mary <u>is</u> pregnant.
↳ In (13a), the time of the (alleged) pregnancy has to overlap both with the speech time i_0 and with the time i' of John's saying event. That is, (13a) does not commit us to just to what (i) says or just to what (ii) says, but to both:
i. John said (at i') that Mary was pregnant (at i').
ii. John said (at i') that Mary would be pregnant (at i_0).

(14) John said Mary <u>bought</u> a car.
↳ The time of Mary's (allegedly) buying a car has to precede both the speech time i_0 and the time of John's saying event.

■ De re readings of Noun Phrases (Cresswell and von Stechow 1982):

(15) Ralph believes that the lover of his wife is a spy.
a. LF: Ralph believes [the lover of his wife]$_{NP,res}$ [$\lambda 1_{res}$ $\lambda 2$ t_1 is a spy at pro_2]
b. 'Ralph uniquely bears at i_0 an acquaintance relation R to the res [[*the lover of his wife*]](i_0), and Ralph self-ascribes at i_0 the property of being at an index i_2 (his subjective 'now') where he bears R uniquely to some thing x such that [[λ_1 t_1 *is a spy*]](x)(i_2)=1.'

(16) Ralph believes that every lover of his wife is a spy.
a. LF: [[every lover of his wife]$_{NP}$ $\lambda 3$[Ralph believes [t_3]$_{res}$ [$\lambda 1_{res}$ $\lambda 2$ t_1 is spy at pro_2]]]

■ Ogihara's (1999) analysis of double access: de re + duplication of temporal property.

(17) John said that Mary <u>is</u> pregnant.
a. LF: $\lambda 0$ [[PAST$_1$ pro_0] John say [PRES$_2$ pro_0]$_{res}$ [$\lambda_{3,res}$ λ_4 t_3 overlaps pro_4 & Mary is pregnant at t_3]]
b. Presupposition: g(1) < i_0 & g(2) overlaps i_0.
c. Assertion: 'John uniquely bears at g(1) an acquaintance relation R to the res [[$PRES_2$ pro_0]], and John self-ascribes at g(1) the property of being at an index i_4 (his subjective 'now') where he bears R uniquely to some index (/time) i such that [[$\lambda 3_{res}$ $\lambda 4$ t_3 *overlaps* pro_4 *& Mary is pregnant at* t_3]](i)(i_4)=1.'

(18) John said Mary <u>bought</u> a car.
a. LF: [PAST$_1$ John say [PAST$_2$ pro_0]$_{res}$ [$\lambda t_{3,res}$ λ_4 t_3 < pro_4 & Mary is pregnant at t_3]]
b. Presupposition: g(1) < i_0 & g(2) < i_0.
c. Assertion: 'John uniquely bears at g(1) an acquaintance relation R to the res [[$PAST_2$ pro_0]], and John self-ascribes at g(1) the property of being at an index i_4 (his subjective 'now') where he bears R uniquely to some index (/time) i such that [[$\lambda_{3,res}$ λ_4 t_3 < t_4 *& Mary is pregnant at* t_3]](i)(i_4)=1.'

Summary of §2:
- Presuppositional pronominal treatment of morphological tense: (8).
- Sequence of tense: [… PAST … [~~past~~ ….]].
- Double access readings à la Ogihara: de re + duplication of the temporal property.

3. Contribution of mood independently of tense and conditionals.

■ We need a syntactic environment where morphological mood –and, in particular, subjunctive– is not bundled with fake tense: complement clauses of attitude verbs.

(19) Juan lamenta que María esté enferma.
J regrets that M be-PRES-SUBJ sick
'John regrets that Mary is sick.'

(20) Juan lamenta que María estuviese enferma.
J regrets that M be-PAST-SUBJ sick
'John regrets that Mary was sick.'

(21) Juan lamenta que María hubiese estado enferma.
J regrets that M be-PLUPERFECT-SUBJ sick
'John regrets that Mary had been sick.'

■ Presuppositional pronominal approach to mood in complements of attitude verbs (Stone 1997; Schlenker 2005 building on Farkas 2003 and Quer 1998, extended in Romero 2012).

(22) Context: One of the guests at a party starts turning up the volume of the stereo. Host says:
My neighbors would kill me.

(23) a. Attitude verbs selecting INDICATIVE: say, think, believe, dream, guess…
b. Attitude verbs selecting SUBJUNCTIVE: want, prefer, regret, be glad, order, …

(24) Where CS is the Context Set of the speaker or a derived Context Set of some attitude holder:
a. $[\![\text{IND}_{1,}]\!]^g$ = defined only if $g(1) \in CS$; if defined, $[\![\text{IND}_1]\!]^g = g(1)$.
b. $[\![\text{SUBJ}_1]\!]^g = g(1)$.

(25) Bea believes [$_{CP}$ that John teaches-**IND** semantics].
a. LF: [$_{CP1}$ Bea believes$_{CS'}$ $\lambda 3$[$_{CP2}$ that [IND_3 CS'] $\lambda 1$[John teaches semantics at i_1]]]
b. $[\![\textit{believe}]\!]^g$ = $\lambda p.\lambda x.\lambda i_0.\ \forall i \in \cap \text{Dox}_x(i_0)\ [p(i)=1]$
c. $[\![\lambda 3\ \text{CP2}]\!]^g$ = $\lambda i'$: i' ∈ CS'. John teaches semantics in i'
↳ i' ∈ the CS of Bea's believing act
d. $[\![\text{CP1}]\!]^g$ = $\lambda i_0.\ \forall i\ [i \in \cap \text{Dox}_{bea}(i_0) \rightarrow [\lambda i'$: i' ∈ CS'. John teaches sem in i'$](i)]$

(26) Bea regrets [$_{CP}$ that John teaches-**SUBJ** semantics].[3]
a. LF: [$_{CP1}$ Bea regrets$_{CS'}$ $\lambda 3$[$_{CP2}$ that [SUBJ_3 CS'] $\lambda 1$[John teaches semantics at i_1]]]

[3] As a factive verb, *x regrets p* presupposes (that the speaker believes that) p. For simplicity, this presupposition is ignored in (26). It does not interfere with mood selection.

b. ⟦*regret*⟧
= λp.λx.λi_0: ∀i ∈ ∩$Dox_x(i_0)$ [p(i)=1].
∀i ∈ ∩$Dox_x(i_0)$ [$Sim_i(\neg p) >_{Bou\_x(i0)} Sim_i(p)$]
= Presupposition: in x's belief indices(/worlds) in i_0, *p* is true.
Assertion: we are at an index (/world) i_0 such that, for every belief index i of x in i_0:
every non-*p*-index maximally similar to i is more desirable to x in i_0 than any *p*-index maximally similar to i.

c. ⟦λ3 CP2⟧^{g} = λi': ~~i' ∈ CS'~~. John teaches semantics in i'

d. ⟦CP1⟧^{g}
= λi_0: ∀i ∈ ∩$Dox_{bea}(i_0)$ [John teaches sem at i].
∀i ∈ ∩$Dox_{bea}(i_0)$ [Sim_i (λi'.¬John teaches sem at i') $>_{Bou\_bea(i0)}$
Sim_i (λi'.John teaches sem at i')]

(27) Juan enseña-**IND** semántica.
John teaches-**IND** semantics.
a. LF: λ3[$_{CP}$ [IND_3 CS*] λ1[John teaches semantics at i_1]]
b. ⟦λ3 CP⟧^{g} = λi': i' ∈ CS*. John teaches semantics in i'
↳ i' ∈ the CS of the speaker's current speech act
⇨ Declarative speech act.

(28) Que Juan enseñe-**SUBJ** semántica.
That John teaches-**SUBJ** semantics.
a. LF: λ3[$_{CP}$ [$SUBJ_3$ CS*] λ1[John teaches semantics at i_1]]
b. ⟦λ3 CP⟧^{g} = λi': ~~i' ∈ CS*~~. John teaches semantics in i'
⇨ Imperative or exclamative speech act.

■ Double access reading in the modal domain (Schlenker 2004 on French, translated into Spanish in (29b-d)):

(29) Context: It is raining outside. [Spanish]
a. Si Juan pensase que hace-**IND** buen tiempo, se pondría pantalones cortos.
'If John thought that the weather is-IND nice, he would put on shorts.'
b. Si Juan pensase que hiciese-**SUBJ** buen tiempo, se pondría pantalones cortos.
'If John thought that the weather was-SUBJ nice, he would put on shorts.'
b. Si Juan pensase que hace-**IND** buen tiempo, estaría loco.
'If John thought that the weather is-IND nice, he would be crazy.'
c. # Si Juan pensase que hiciese-**SUBJ** buen tiempo, estaría loco.
'If John thought that the weather is-SUBJ nice, he would be crazy.'

Summary of §3:
- Presuppositional pronominal treatment of morphological mood: (24).
- Double access reading in the modal domain.

4. Some notes on interpreting the conditional template

- INDICATIVE conditionals about the past and about the future:
  - About the past (so-called 'epistemic' conditionals): Both (30b) and (30c) —when said by the indicated speakers— are true, since the modal base of each conditional is relative to the epistemic state of its speaker (Gibbard 1981, v. Fintel & Gillies 2008).

(30) Gibbard's riverboat case:
a. Scenario: Sly Pete and Mr. Stone are playing poker on a Mississippi riverboat. It is now up to Pete to call or fold. My henchman Zack sees Stone's hand, which is quite good, and signals its content to Pete. My henchman Jack sees both hands, and sees that Pete's hand is rather low, so that Stone's is the winning hand. At this point, the room is cleared. A few minutes later and after the hand has been played, Zack slips me a note which says (b) and Jack slips me a note which says (c).
b. If Pete called, he won. (statement by Zack)
c. If Pete called, he lost. (statement by Jack)

  - About the future (so-called 'metaphysical' conditionals): Same as in (30), indicating that the modal base of each 'metaphysical' conditional is relative the epistemic state of its speaker as well (Bennett 2003:85; see Gibbard 1981:228 and Kaufmann 2005)

(31) Gibbard's riverboat case:
a. Scenario: Same as in (29) up to the moment the room is cleared. Five second later and before the hand has been played, Zack slips me a note which says (b) and Jack slips me a note which says (c).
b. If Pete calls, he will win. (statement by Zack)
c. If Pete calls, he will lose. (statement by Jack)

- COUNTERFACTUAL conditionals and the similarity measure:
  von Fintel (2001) argues for building the similariy measure needed for counterfactuals not as part of the assertion –i.e., not as in (33)– but as a contextual parameter called Modal Horizon that evolves in the course of a discourse –as in (34)-(35).

(32) (John didn't come.) If John had come, it would have been fun.

(33) Similarity built into the selection function (Lewis 1973):
$\lambda i_0.\ \forall i \in Sim_{i0}(\lambda i'.$ John went to party at i') [the party was at i]

(34) Admissible Modal Horizon (von Fintel 2001):
A function f from worlds to set of worlds is an admisible modal horizon with respect to the ordering source g iff
$\forall w: \forall w' \in f(w): \forall w''\ [w'' \leq_g w' \rightarrow w'' \in f(w)]$

(35) Dynamic semantics for counterfactual (rough) (von Fintel 2001):
a. Context change potential
$f\,|\phi > \psi|^{\leq} \quad = \quad \lambda w.\ f(w) \cup \{w': \forall w'' \in [\![\phi]\!]^{f,\leq}: w' \leq_w w''\}$
b. Truth conditions
$[\![\phi > \psi]\!]^{f,\leq}(w) = 1$ iff
$\forall w' \in f\,|\phi > \psi|^{\leq}(w):\ [\![\phi]\!]^{f,\leq}(w') = 1 \rightarrow [\![\psi]\!]^{f\,|\phi > \psi|\leq,\leq}(w') = 1$

Summary of section 4:
- Future indicative conditionals involve an epistemic attitude.
  - ↳ De re treatment possible.
- Maximal similarity wrt i_0 is built as a general contextual Modal Horizon.
  - ↳ The Modal Horizon can in principle apply not just to conditionals but to quantification over indices(/worlds) in general (perhaps even in referential uses).

5. Combining the contributions of past tense and subjunctive mood in conditionals

■ Dudman's (1983) 'jump back':
Dudman relates the semantics of a counterfactual conditional uttered at i_0 to that of the corresponding future indicative conditional uttered at a relevant time before i_0.

(36) Uttered on September 11:
If John had come in August, we would have had fun.

(37) Uttered on July 11:
If John comes in August, we will have fun.

(38) A "strawman" implementation of Dudman's idea:
PAST [$_{\text{FUT-IND-COND}}$ If John comes in August, we will have fun]

■ First, the combination of a jump back + indicative conditional alone does not justify the **extra tense** found in counterfactuals:

(39) Según lo que sabíamos el 11 de julio, si Juan venía en agosto, nos divertiríamos.
'According to what we knew back on July 11, if John came-PAST-IND in August, we would have fun.' (as uttered on Sept 11)

(40) Rough LF for an indicative conditional under a "jump back" time shift:
[PAST [[if ~~past~~ (FUT) MOOD [p]] [~~past~~ FUT [q]]]]
⇧ ⇧
Dudman's uninterpreted
jump back

(41) Si Juan hubiese venido, nos habríamos divertido.
If J had-SUBJ come, we us would-have enjoyed
'If John had come, we would have had fun.'

(42) Rough LF for a counterfactual conditional:
[PAST [[if ~~past~~ (FUT) PAST MOOD [p]] [~~past~~ FUT PAST [q]]]]
⇧ ⇧ ⇧
Dudman's uninterpreted ???
jump back

- Arregui (2009) ignores lower PAST.
- Gronn and Stechow (2009) merge SUBJ and lower PAST as uninterpretable uSubj2.

■ Second, the combination of a jump back + indicative conditional alone does not justify the **subjunctive mood** found in counterfactuals:

(43) Rough LF for an indicative conditional under a "jump back" time shift:
[PAST [[if ~~past~~ (FUT) IND [p]] [~~past~~ FUT [q]]]]
⇧ ⇧
Dudman's uninterpreted
jump back

(44) Rough LF for a counterfactual conditional:
[PAST [[if ~~past~~ (FUT) PAST SUBJ [p]] [~~past~~ FUT PAST [q]]]]
⇧ ⇧ ⇧
Dudman's uninterpreted ???
jump back

- Edginton (to appear); see also Dudman (1983:36) and Ippolito (2003:fn.14):

(45) (…) the (conditional) probability to be attached at the time of the utterance of 'If he had had the operation, he would have been cured' is that which you now endorse for the hypothetical earlier indicative judgement 'If he has the operation he will be cured'." (Edginton (to appear:4)) [MR's emphasis]

■ Key idea of the proposal:
Counterfactuals involve a double access reading wrt the time-world index introduced by the embedded [PAST SUBJ]. Assuming Ogihara's de re analysis of double access readings, this means that the embedded [PAST SUBJ] is interpreted as de re.
(Cf. Arregui 2007 on indexical aspect in non-counterfactual future conditionals.)

■ Spelling out some ingredients of the proposal:

(46) (Rough) LF for a PAST counterfactual conditional:
$\exists_1$ [$PAST_1$ pro_0] λ2 [PAST [$MODAL_{EPI}$ $[t_2]_{res}$ λ5[if ~~past~~ (FUT) λ8[[$t_{5,res}$ < pro_8] [p]]]
[$SUBJ_1$ pro_0] ~~[$t_{5,res}$ ⊂ pro_8]~~
λ5[~~past~~ FUT λ8[[$t_{5,res}$ < pro_8] [q]]]]]
~~[$t_{5,res}$ ⊂ pro_8]~~

(47) (Rough) LF for a PRESENT counterfactual conditional:
$\exists_1$ [$PRES_1$ pro_0] λ2 [PAST [$MODAL_{EPI}$ $[t_2]_{res}$ λ5[if ~~past~~ (FUT) λ8[[$t_{5,res}$ overlaps pro_8] [p]]]
[$SUBJ_1$ pro_0] ~~[$t_{5,res}$ ⊂ pro_8]~~
λ5[~~past~~ FUT λ8[[$t_{5,res}$ overlaps pro_8] [q]]]]]
~~[$t_{5,res}$ ⊂ pro_8]~~

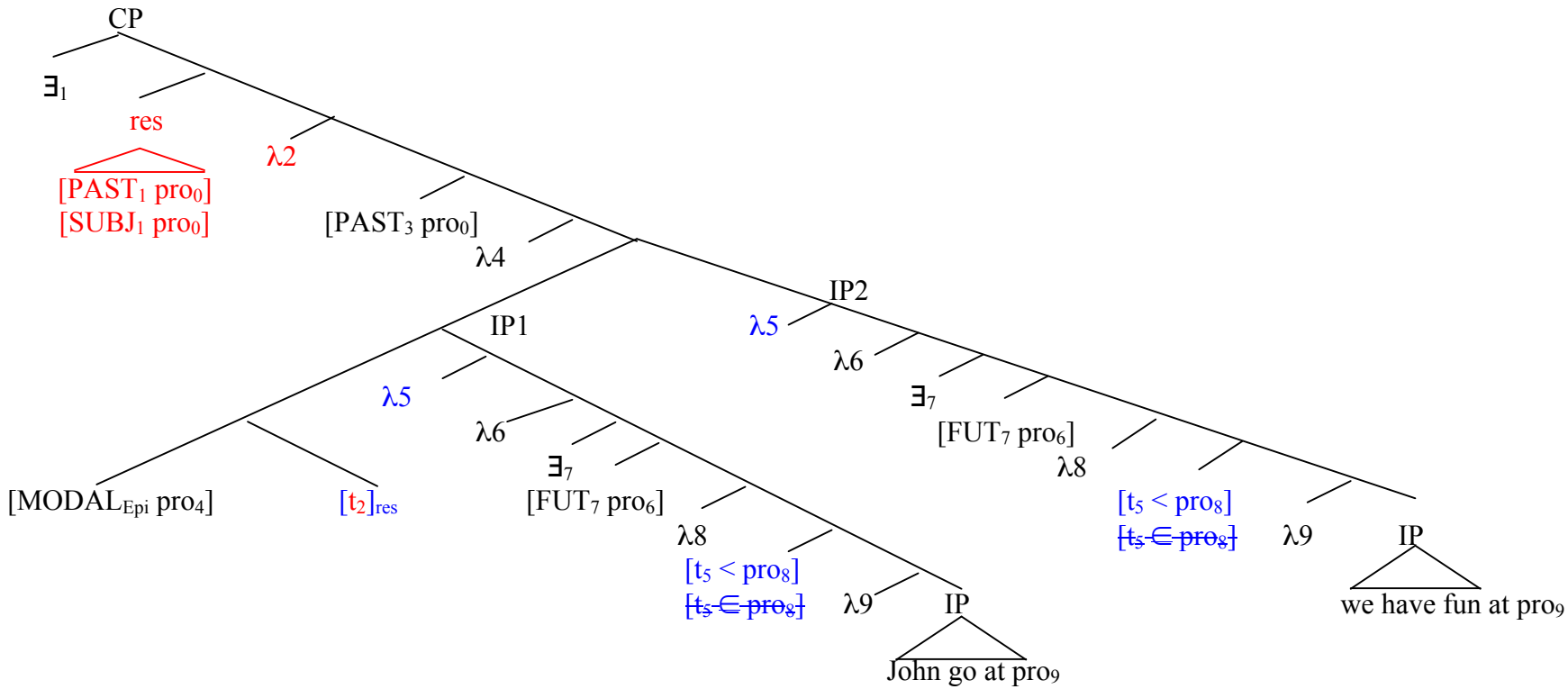
(48) $[\![PAST_1\ pro_0, SUBJ_1\ pro_0]\!]^{c,g}$ = defined only if g(1) < i_c and ~~g(1) ⊂ CS_c~~;
if defined, it equals g(1).

(49) $[\![PRES_1\ pro_0, SUBJ_1\ pro_0]\!]^{c,g}$ = defined only if g(1) overlaps i_c and ~~g(1) ⊂ CS_c~~;
if defined, it equals g(1).

(50) Assignment g is a mapping from <variables, type>-pairs to objects, with **0** as the designated variable, so that:
g(**0**, type s) = i_c (the world-time index of the utterance context)
g(**0**,type <s,t>) = CS_c (the Context Set of the utterance context)

■ Example of a past counterfactual conditional:

(51) Si Juan hubiese venido, nos habríamos divertido.
If J had-SUBJ come, we us would-have enjoyed
'If John had come, we would have had fun.'



$[\![\lambda 9$ John go at $pro_9]\!]^{c,g,f,\leq}$ = $[\lambda i_9$. John go at $i_9]$

$[\![\lambda 8$ $[[t_5 < pro_8$ ~~$t_5 \subset pro_8$~~$]$ $\lambda 9$ John go at $pro_9]]\!]^{c,g,f,\leq}$ = $[\lambda i_8$: $g(5) < i_8$. John go at $g(5)]$

$[\![\lambda 6\ \exists_7$ $[FUT_7$ $pro_6]$ $\lambda 8$ $[[t_5 < pro_8$ ~~$t_5 \subset pro_8$~~$]$ $\lambda 9$ John go at $pro_9]]\!]^{c,g,f,\leq}$ =

$[\lambda i_6$. $\exists i_7$ [$i_6 < i_7$ & $g(5) < i_7$ & John go at $g(5)]]$

$[\![$ $[_{IP1}$ $\lambda 5$ $\lambda 6$ $\exists_7$ $[FUT_7$ $pro_6]$ $\lambda 8$ $[[t_5 < pro_8$ ~~$t_5 \subset pro_8$~~$]$ $\lambda 9$ John go at $pro_9]$ $]\!]^{c,g,f,\leq}$ =

$[\lambda i_5.\lambda i_6$. $\exists i_7$ [$i_6 < i_7$ & $i_5 < i_7$ & John go at $i_5]]$

$[\![$ $[_{IP2}$ $\lambda 5$ $\lambda 6$ $\exists_7$ $[FUT_7$ $pro_6]$ $\lambda 8$ $[[t_5 < pro_8$ ~~$t_5 \subset pro_8$~~$]$ $\lambda 9$ we have fun at $pro_9]$ $]\!]^{c,g,f,\leq}$ =

$[\lambda i_5.\lambda i_6$. $\exists i_7$ [$i_6 < i_7$ & $i_5 < i_7$ & we have fun at $i_5]]$

$[\![MODAL_{EPI}]\!]^{c,g,f,\leq}$ $(i_s)(x_{\sigma,res})(P_{<\sigma,st>})(Q_{<\sigma,st>})$ = 1 iff

one uniquely bears an acquaintance relation R to the res x at i, and for all the indices i' (= potential subjective now + subjective world) epistemically accessible for one at i:

if one bears R uniquely to some y such that P(y)(i')=1

then one bears R uniquely to some y such that Q(y)(i')=1

$[\![MODAL_{EPI}$ pro_4 t_2 IP1 IP2$]\!]^{c,g,f,\leq}$ = 1 iff

one uniquely bears an acquaintance relation R to the res g(2) at g(4), and for all the indices i' (= potential subjective now + subjective world) epistemically accessible for one at g(4):

if one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & John go at y]

then one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & fun at y]

$[\![[PAST_3$ $pro_0]$ $\lambda 4$ $MODAL_{EPI}$ pro_4 t_2 IP1 IP2$]\!]^{c,g,f,\leq}$ =

defined only if g(3) < g(0);

if defined, it equals 1 iff

one uniquely bears an acquaintance relation R to the res g(2) at g(3), and for all the indices i' (= potential subjective now + subjective world) epistemically accessible for one at g(3):

if one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & John go at y]

then one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & fun at y]

$[\![\exists_1$ $[PAST_1$ pro_0 $SUBJ_1$ $pro_0]$ $\lambda 2$ $[[PAST_3$ $pro_0]$ $\lambda 4$ $MODAL_{EPI}$ pro_4 t_2 IP1 IP2$]]\!]^{c,g,f,\leq}$ =

defined only if g(3) < g(0);

if defined, it equals 1 iff

$\exists i_1 \in f(g(0)) \cup \{i': \forall i'' \in [\![IP1]\!]^{c,g,f,\leq}: i' \leq_{ic} i''\}$ [$i_1 < g(0)$ & ~~$i_1 \subset g(0)$~~ & one uniquely bears an acquaintance relation R to the res i_1 at g(3), and for all the indices i' (= potential subjective now + subjective world) epistemically accessible for one at g(3):

if one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & John go at y]

then one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & fun at y]

That is:

defined only if $g(3) < i_c$;

if defined, it equals 1 iff

$\exists i_1 \in f(i_c) \cup \{i': \forall i'' \in [\![IP1]\!]^{c,g,f,\leq}: i' \leq_{ic} i''\}$ [$i_1 < i_c$ & ~~$i_1 \subset CS_e$~~ & one uniquely bears an acquaintance relation R to the res i_1 at g(3), and for all the indices i' (= potential subjective now + subjective world) epistemically accessible for one at g(3):

if one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & John go at y]

then one bears R at i' uniquely to some y such that $\exists i_7$[i' < i_7 & y < i_7 & fun at y]

■ Features of the analysis:

- Dudman(1983) and Edginton (to appear) combined:
  Dudman's idea of having a future indicative conditional --*[MODAL... IP1 IP2]* in (51)-- under a 'back jump' in time --$PAST_3$-- has been implemented while deriving Edginton's observation that the assessment of that future indicative conditional is computed wrt to what we know now at $f(i_c)$ apart from $[\![IP1]\!]^{c,g,f,\leq}$.

(52) $\exists i_1 \in f(i_c) \cup \{i' : \forall i'' \in [\![IP1]\!]^{c,g,f,\leq} : i' \leq_{ic} i''\}$ [... $PAST_3$ ... [MODAL ... IP1 IP2]]

s

- $PAST_1$ and $SUBJ_1$ interpreted:
  $PAST_1$ and $SUBJ_1$ are interpreted, each with its own semantic contribution as witnessed in other constructions in the grammar where the two are not bundled together.

(53) $[\![PAST_1\ pro_n]\!]^{c,g}$ = defined only if $g(1) < g(n)$;
if defined, $[\![PAST_1\ pro_n]\!]^{c,g} = g(1)$.

(54) $[\![SUBJ_1\ pro_n]\!]^{g}$ = ~~defined only if $g(1) \subset g(n)$~~; if defined, $[\![SUBJ_1]\!]^{g} = g(1)$.

- De re treatment of $PAST_1$ and $SUBJ_1$:
  The semantic contribution of $PAST_1$ and $SUBJ_1$ is taken de re with respect to $MODAL_{EPI}$. This means that the res i_1 precedes the utterance index i_c and is not (required to be) a member of the Context Set CS_c of the utterance context.

(55) $\exists i_1 \in f(i_c) \cup \{i' : \forall i'' \in [\![IP1]\!]^{c,g,f,\leq} : i' \leq_{ic} i''\}$ [$i_1 < i_c$ & ~~$i_1 \subset CS_c$~~ & ...]

- The "ride" to counterfactuality:
  Since SUBJ was used instead of the presuppositionally stronger IND, an anti-presupposition is computed in the appropriate contexts, yielding $i_1 \notin CS_c$: (56). The combination of this anti-presupposition with the minimal extension of Modal Horizon f produces counterfactually in the relevant contexts (von Fintel 1997, Leahy 2011).

(56) $\exists i_1 \in f(i_c) \cup \{i' : \forall i'' \in [\![IP1]\!]^{c,g,f,\leq} : i' \leq_{ic} i''\}$ [$i_1 < i_c$ & $i_1 \notin CS_c$ & ...]

6. Conclusions and further issues.

■ A composotional analysis has been advanced for past (and present) counterfactual conditionals in Spanish where all bits of temporal and mood morphology receive the interpretation independently assigned to them in other constructions in the grammar.

■ Details and potential extensions remain to be worked out, e.g.:
  - $[PAST_1\ pro_n\ \ SUBJ_1\ pro_n]$ as possibly picking up a plural sum of indices.
  - Closer examination of lgs with the same morphological pattern in conditionals: e.g. Catalan, Italian, German, Icelandic.
  - Potential extension to lgs with total or partial (selective) syncretism in the mood system, e.g. English, French.

- Other "subjunctive" conditionals (Iatridou 2000, Ippolito 2003, Arregui 2009, a.o.):
    - Future less vivid:

(57) If Grandma was(/were) here tomorrow, she would be happy.

    - Future mismatched past counterfactuals:

(58) If Grandma had been here tomorrow, she would have been happy.

    - Present mismatched past counterfactuals:

(58) If Grandma was(/were) here now, she would be happy.

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