The structure of *might*-counterfactuals: a view from Japanese

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1   Introduction

The focus is (1-b), *might*-counterfactuals (CFs):

(1)   a.   If his condition had been good, John *would* have won the game.
      b.   If his condition had been good, John *might* have won the game.

I address the issue of the logical form(s) of *might*-CFs

  a. **Duality**: (1-a) and (1-b) are dual (e.g. Lewis 1973 '$p \;\square\!\!\rightarrow q$' $\Leftrightarrow$ '$\neg(p \;\diamondsuit\!\!\rightarrow \neg q)$')

  b. **Wide-Scope**: *might* scopes over the whole *would*-CF (e.g. Stalnaker 1981)

  c. **Narrow-Scope**: *might* sits within the consequent of *would*-CF (e.g. Lewis 1979)

Today:

- Specifically, I limit my focus to the counterfactuals with '*might have*'-form.

- I reframe the issue by using the logical forms enriched with temporal dimension

- I analyze the issue by using Japanese, a language that overtly encodes the scope relations between modals and tenses

2   *'(if p,) might have q'*

Condoravdi (2002) on the ambiguity of '*might have*' in English:

(2)   John *might have* won the game.
      a.   Pres[might[PERF[he win the game]]] $\rightsquigarrow$ Epistemic reading
      b.   Pres[PERF[might[he win the game]]] $\rightsquigarrow$ CF reading

- Epistemic reading:

    - (2): 'it *is* compatible with the current knowledge/belief that *John won*.'
    - Present Perspective + Past Orientation (uncertainty about the past)
    - *might* scopes over the perfect *have* (2-a)

- CF reading:

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- (2): 'it *was* compatible with some past knowledge/belief that *John would win*.'
- Past Perspective + Future Orientation (uncertainty about the future in the past)
- The perfect *have* scopes over *might* (2-b) (**Temporal Backshift**)

The issue untouched in Condoravdi (2002): **what if we have '*if*'-clause?**

- This question directly connects to the issue of the logical form(s) of *might*-CFs

- Still, Condoravdi's analysis offers a vantage point: temporal dimension

Counterfactual conditionals include Temporal Backshift (**Past-as-Past**):

- Historical alternatives (i.e. worlds indistinguishable at a certain time t) decrease as time goes by (Thomason 1984, Condoravdi 2002, Kaufmann 2005, a.o.)

- Past/Perfect morphology shifts the accessibility time back into the past, so that we can have access to the (currently unactual) antecedent-worlds. (e.g. Ippolito 2003, 2006, 2013)

- I'm open to the possibility of Past-as-Modal analysis (Iatridou 2000, Schulz 2014, a.o.)

Reformulating the three candidates for *might*-CFs' logical form:

- Following Condoravdi, I assume that modals shifted back into the past are evaluated against a metaphysical modal base $MB^{Meta}_{t<t_u}$ (I ignore the case of the so-called past epistemics today)

- I follow the literature in assuming that *might* in Wide-Scope analysis has an epistemic flavor. I assume that *might* in that case is evaluated against a doxastic modal base $MB^{Dox}_{t_u}$

- Based on these assumptions, we have the following three candidate LFs (I assume the restrictor-style analysis of conditionals (e.g. Lewis 1975, Kratzer 1981, 1986, 1991) for the sake of exposition. I will *not* commit to the CEM vs Duality debate here):

(3)   **Possible LFs of *might*-CFs enriched with temporal backshift**

  a.   *if p, might*$_{MB^{Meta}_{t<t_u}}q_{t\leq t'}$:
    At some past time $t < t_u$, at least one p-world in $MB^{Meta}_{t<t_u}$ is also a $q_{t\leq t'}$-world.

  b.   *might*$_{MB^{Dox}_{t_u}}$(*if p, would*$_{MB^{Meta}_{t<t_u}}q_{t\leq t'}$):
    At the utterance time t_u, at least one world in $MB^{Dox}_{t_u}$ is '*if p, would*$_{MB^{Meta}_{t<t_u}}q_{t\leq t'}$'-world.

  c.   *if p, would*$_{MB^{Meta}_{t<t_u}}$(*might*$_{MB^{Meta}_{t<t_u}}q_{t\leq t'}$):
    At some past time $t < t_u$, all the p-worlds in $MB^{Meta}_{t<t_u}$ are '*might*$_{MB^{Meta}_{t<t_u}}q_{t\leq t'}$'-worlds

Difficulty with English and Advantage for Japanese:

- English *might have* constructions show the scope interactions between the modal and the perfect *only covertly*, as shown above
  ⤳ Which LF structure the sentence actually represents is not visible from the surface form

- It is desirable to explore the 'might'-CFs in languages which show an *overt* scope alignment of modals and temporal ingredients.
  ⤳ **Japanese is one of such languages!**

- I leave open the potential language variation: the results obtained in Japanese might not be directly imported to English.

- Still, I speculate that Japanese helps dissect the long-standing philosophical controversies from a linguistic perspective.

3 View from Japanese

3.1 Basic ingredients

'kamosirena-' (epis. poss.): can not only take a tensed clause as its prejacent but also be tensed itself

(4) *[[John-ga kat-{**u/ta**}] kamoshirena-{**i/katta**}].*
John-NOM win-{PRES/PAST} MODAL-{PRES/PAST}
  (i) Pres1-Modal-Pres2: 'It is conceivable (now) that John will win.'
  (ii) Past1-Modal-Pres2: 'It is conceivable (now) that John won.'
  (iii) Pres1-Modal-Past2: 'It was conceivable (at that time) that John would win.'
  (iv) Past1-Modal-Past2: 'It was conceivable (at that time) that John had won.'

Higher tense (Tense2)

- the tense on the modal

- controls the accessibility time for the modal relative to the utterance time (Perspective)

Lower tense (Tense1)

- the tense on the prejacent

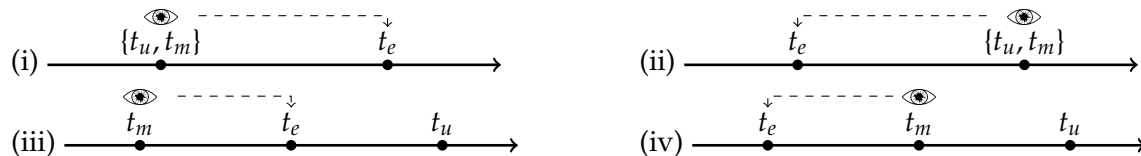- determines the event time of the prejacent relative to the accessibility time (Orientation)

Figure 1: t_u = utterance time; t_m = modal assessment time; t_e = event time; ◉: perspective; ⇢ = orientation. (i) Present Perspective + Future Orientation; (ii) Present Perspective + Past Orientation (iii) Past Perspective + Future Orientation; (iv) Past Perspective + Past Orientation

3.2 Counterfactual conditionals in Japanese

Japanese counterfactuals:

- No tense in the antecedent (cf. the aspect morphology *'-tei'*)

- No overt modal required (↔ e.g. English)

- No mood marking in Japanese (e.g. no distinction such as *'will / would'*)

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- (5): Pres conveys Future Less Vivid (cf. Iatridou 2000)

- (6): Past conveys strong counterfactuality (Ogihara 2014, Mizuno & Kaufmann 2019).

(5)   Context: Mary's not likely to come to the office tomorrow
    Mary-ga   asita   kur-eba,   kaigi-ni   de-{ru/#ta}.
    Mary-ɴᴏᴍ tomorrow come-ᴄᴏɴᴅ meeting-at attend-{ᴘʀᴇs/ᴘᴀsᴛ}
    'If Mary came tomorrow, she would attend the meeting.'

(6)   Context: Mary died yesterday.
    Mary-ga   asita   kur-eba,   kaigi-ni   de-{#ru/ta}.
    Mary-ɴᴏᴍ tomorrow come-ᴄᴏɴᴅ meeting-at attend-{ᴘʀᴇs/ᴘᴀsᴛ}
    'If Mary had come tomorrow, she would have attended the meeting.'

The same thing as above applies if we connect *if*-clause to (i)-(iv) in (4), as in (7):

- Pres1-Modal-Pres2 only has a Future Less Vivid reading

- Other types lead to strong counterfactuality

(7)   Context: John's condition {is/was} not good, and he {will lose/lost}.
    *Chousi-ga   yoke-reba, John-ga   kat-{**u/ta**}   kamoshirena-{**i/katta**}.*
    condition-ɴᴏᴍ good-ᴄᴏɴᴅ John-ɴᴏᴍ win-{ᴘʀᴇs/ᴘᴀsᴛ} might-{ᴘʀᴇs/ᴘᴀsᴛ}
    (i) 'If his condition were good, John might win.' ⤳ Future Less Vivid
    (ii)-(iv) 'If his condition had been good, John might have won.' ⤳ Strong Counterfactuals

(ii)-(iv) are superficially indistinguishable only with the context in (7).

- In what context can they come apart?

- If they can, what brings about the judgment contrasts?

- Which LFs in (3) do they represent?

- Here I focus on (ii) Past1-Modal-Pres2 and (iii) Pres1-Modal-Past2

3.3   *'Amex'*

(ii) and (iii) come apart in the following context:

(8)   **Context for (9) &(10)**: You are now traveling in Japan. You found two restaurants standing alongside, and entered the left one. After you ordered food, you came to wonder if they accept American Express. You asked a staff, and he told you that they don't. This was disappointing because the only card you have is Amex. While you have no information about the restaurant you didn't enter, you imagine:

(9)   *Mosi tonarino mise-ni   hair-eba,   Amex-ga tuka-e-**ta**   kamosirena-**i**.*
    ᴘʀᴛ   nextdoor restaurant-to enter-ᴄᴏɴᴅ Amex-ɴᴏᴍ use-able-ᴘᴀsᴛ ᴍᴏᴅᴀʟ-ᴘʀᴇs
    'If I had entered the restaurant nextdoor, I might have been able to use Amex.'

(10)   ??*Mosi tonarino mise-ni   hair-eba,   Amex-ga tuka-e-**ru**   kamosirenakat-**ta**.*
    ᴘʀᴛ   next   restaurant-to enter-ᴄᴏɴᴅ Amex-ɴᴏᴍ use-able-ᴘʀᴇs ᴍᴏᴅᴀʟ-ᴘᴀsᴛ
    'If I had entered the next restaurant, I might have been able to use Amex.'

Context (8):

- The speaker leaves open any possibility about the restaurant on the righthand side.

- Thus the speaker still leaves open whether '*if R, would$_{MB_{t<t_u}}$¬A*' or not

- I.e. from the viewpoint of the speaker's current knowledge/belief, '¬(*if R, would$_{MB_{t<t_u}}$¬A*)' and '(*if R, would$_{MB_{t<t_u}}$¬A*)' are both conceivable.

Past1-Modal-Pres2 (9):

- Note: that (9) is felicitous in the context (8) still does not decide its logical form.

Pres1-Modal-Past2 (10):

- (10) improves with the following additional context.

(11)   (...continued from (8)) While waiting for the food, you looked up on the Internet and found that the restaurant nextdoor recently started to accept Amex. Some of the reviews say the register sometimes does not work properly, but it is at least true that:

*Mosi tonarino mise-ni   hair-eba,   Amex-ga   tuka-e-**ru**   kamosirenakat-**ta**.*
PRT   next   restaurant-to enter-COND Amex-NOM use-able-PRES MODAL-PAST
'If I had entered the next restaurant, I might have been able to use Amex.'

- Now in (11), '*if p, would$_{MB_{t<t_u}}$¬ q*' is incompatible with the speaker's knowledge/belief.

- In contrast to (ii), (iii) seems rather sensitive to the existence of the metaphysical possibilities in the past.

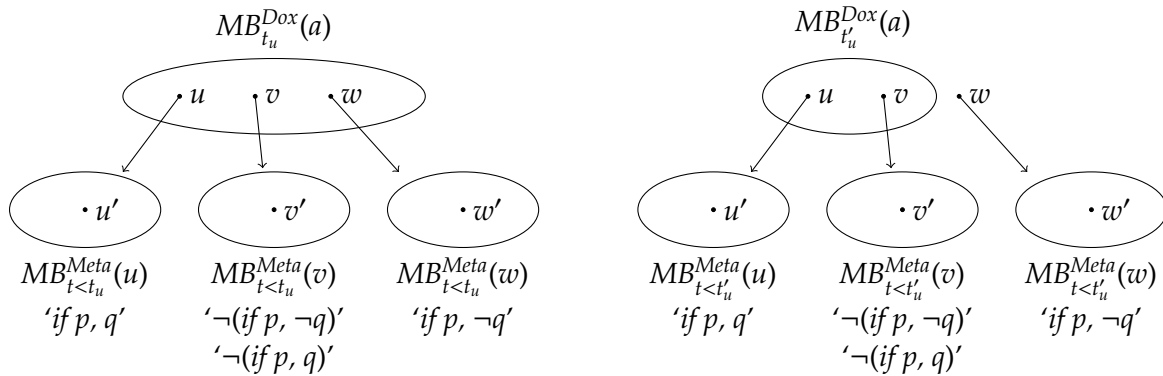- It seems (iii) represents a Duality- or Narrow-Scope-style LF, rather than Wide-Scope one.

Figure 2: Left: The context (8). u, v, w are the speaker's epistemically accessible worlds in a at the utterance time t_u. Each world is mapped to its historical alternatives at some past time $t < t_u$. Right: The context (8) + (11). w is eliminated from the speaker's epistemically accessible worlds at the new utterance time t'_u

3.4 'Coin Choice'

(ii) and (iii) also come apart in the following context, but in a different way:

> **The game**: We use two coins: **Coin A** is a fair coin, and **Coin B** is a double-tailed coin.
>
> 1. First, the two coins are randomly placed on two different slots, **Slot 1** and **Slot 2**. So there are two possible alignments of coins with equal chance: 'A_1B_2' or 'B_1A_2'.
>
> 2. Then you choose either Slot 1 or Slot 2, but which alignment was selected in the previous phase is completely hidden to you. Your choice is irreversible.
>
> 3. The coin in the slot you chose is then flipped. If it has landed heads, you win.
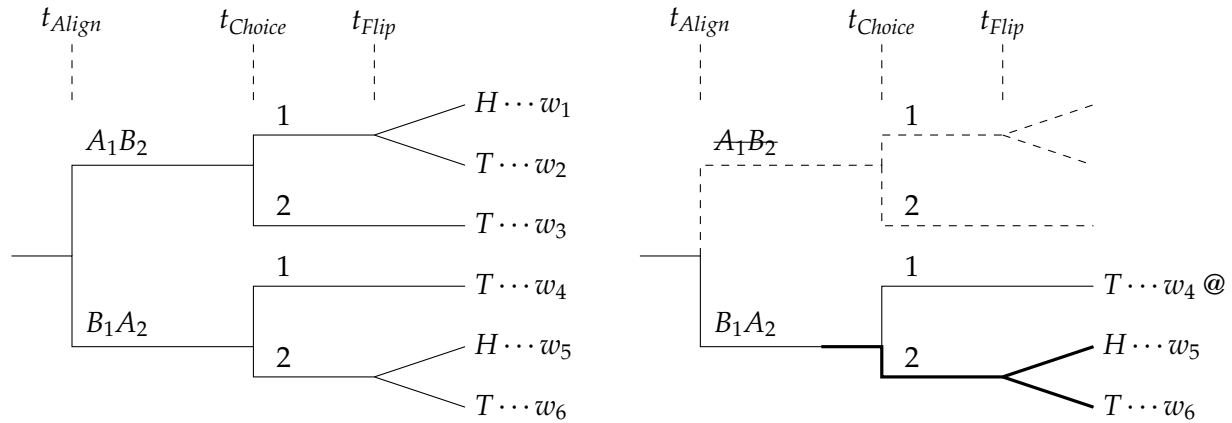

Figure 3: <u>Left</u>: The decision trees according to time (from left to right). <u>Right</u>: after it turned out that the coin in Slot 2 was Coin A. At the utterance time t_u, every world other than w_4 is out. The backshift to t' ($t_{Align} < t' < t_{Choice}$) retrieves all the '$B_1A_2$'-worlds, but not '$A_1B_2$'-worlds, because they are no longer compatible with the current recognition.

(12) **Context for (13) &(14)**:

You chose Slot 1, and your coin is going to be flipped in three minutes. But before the flip you somehow learn that the coin in Slot 1 is Coin B. This means that the coin in Slot 2, which you didn't choose, was Coin A, a fair coin. You then think:

(13) ??*Slot2-o   erab-eba,   sanfungo   koin-wa omote-o   dasi-**ta**   kamosirena-**i**.*
      Slot2-ACC choose-COND in.3.minutes coin-TOP heads-ACC show-PAST MODAL-PRES
      'If I had chosen Slot 2, the coin there might have landed heads in three minutes.'

(14) *Slot2-o   erab-eba,   sanfungo   koin-wa omote-o   das-**u**   kamosirenakat-**ta**.*
      Slot2-ACC choose-COND in.3.minutes coin-TOP heads-ACC show-PRES MODAL-PAST
      'If I had chosen Slot 2, the coin there might have landed heads in three minutes.'

Past1-Modal-Pres2 (13):

- It does not suffice if it was just *possible* for the coin to land heads with the coin in Slot 2.

- This excludes Duality-style analysis, in which at least one 'Slot2'-world at t' ($t_{Align} < t' < t_{Choice}$) is also a 'heads'-world.

- This also excludes Narrow-Scope-style analysis, in which all the 'Slot2'-worlds at t' ($t_{Align} < t' < t_{Choice}$) were 'might heads'-world.

- It is more plausible that Past1-Modal-Pres2 represents '$might_{MB_{t_u}^{Dox}}(if\ p,\ would_{MB_{t<t_u}^{Meta}}q_{t \leq t'})$'

Pres1-Modal-Past2 (14):

- It was settled (historically true) at t' ($t_{Align} < t' < t_{Choice}$) that it was possible for the coin (Coin A) to land heads.

- This confirms that (iii) represents either Duality- or Narrow-Scope-style LF.

- But, we still cannot identify which LF it corresponds to between Duality and Narrow-Scope. I also leave open whether they are actually distinguishable or not.

4   Loose ends & Future directions

- Perspective & Orientation underlie in both indicatives and CFs?

- I didn't deal with (iv) Past1-Modal-Past2.

- A compositional analysis remains to be done.

References

Condoravdi, Cleo. 2002. Temporal interpretation of modals-modals for the present and for the past. In I. D. Beaver, L. D. C. Martinez, B. Z. Clark, & S. Kaufmann (Eds.), *The construction of meaning*.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic inquiry*, 31(2), 231–270.

Ippolito, Michela. 2003. Presuppositions and implicatures in counterfactuals. *Natural language semantics*, 11, 145–186.

Ippolito, Michela. 2006. Semantic composition and presupposition projection in subjunctive conditionals. *Linguistics and Philosophy*, 29, 631–672.

Ippolito, Michela. 2013. *Subjunctive conditionals: A linguistic analysis*. Cambridge: MIT Press.

Kaufmann, Stefan. 2005. Conditional truth and future reference. *Journal of Semantics*, 22, 231–280.

Lewis, David. 1973. *Counterfactuals*. Cambridge: Harvard University Press.

Lewis, David. 1979. Counterfactual dependence and time's arrow. *Noûs*, 13, 455–476.

Mizuno, Teruyuki. & Kaufmann, Stefan. 2019. Past-as-Past in Japanese counterfactuals. *The Proceedings of Chicago Linguistics Society 54*.

Ogihara, Toshiyuki. 2014. The semantics of '-ta' in japanese future conditionals. *The Art and Craft of Semantics: A Festschrift for Irene Heim*, (pp. 1–21).

Schulz, Katrin. 2014. Fake tense in conditional sentences: a modal approach. *Natural language semantics*, 22, 117–144.

Stalnaker, Robert. 1981. A defense of conditional excluded middle. In R. S. W. Harper & G. Pearce (Eds.), *Ifs* (pp. 87–104). Dordrecht: Reidel.

Thomason, Richmond H. 1984. Combinations of tense and modality. In M. Gabbay & F. Guenthner (Eds.), *Handbook of Philosophical Logic: Extensions of Classical Logic*, volume vol. II (pp. 135–165). Dordrecht: Reidel.