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Conditional conjunctions informed by Japanese and Korean

Abstract: Many languages assign additional conditional interpretations to apparently regular sentential conjunctions (conditional conjunctions, CCs). Following previous ideas (Kaufmann, Magdalena. 2018. *Topics in conditional conjunctions. Invited talk at NELS*, vol. 49. Cornell University; Starr, Will. 2018. Conjoining imperatives and declaratives. *Proceedings of Sinn und Bedeutung* 21. 1159–1176), we provide additional support for the hypothesis that CCs involve topicalized first conjuncts. We argue that Japanese and Korean, which appear to lack CCs, in fact mark them quite transparently. Both languages combine sentential conjunctions with topic markers: Japanese *-te=wa* (standardly considered one of the language's conditional connectives) and Korean *-ko=nun* (occurring naturally, not discussed in the literature). We show that Japanese conditional *=to* fits into the pattern of CCs as well: it is derived by topicalization of conjunctive *=to*. Conjunctive *=to* is normally restricted to NPs, but it can coordinate finite clauses so long as the finite verb does not precede *=to* (Koizumi, Masatoshi. 2000. String vacuous overt verb raising. *Journal of East Asian Linguistics* 9(3). 227–285). We argue that this requirement can be met in a topicalized clause carrying default tense; the resultant configuration is the conditional connective *=to*. Semantically, CCs are known to be more restricted than *if*-conditionals in not readily realizing epistemic conditionals. The elements *-te=wa*, *=to*, and *-ko=nun* are all subject to exactly this restriction, which we refine to exclude only non-predictive epistemics. Following the transparent structure in Japanese and Korean, we interpret CCs by predicating the regular conjunction distributively of the set of (contextually salient and epistemically accessible) situations described by the topicalized first conjunct. We argue that apparent cases of focus on or within the first conjunct of CCs constitute contrastive topics or corrections.

Keywords: conditionals; conjunctions; topicalization

1 Introduction

Many languages attest conditional readings for sentential conjunctions (conditional conjunctions, CCs) as in (1):

(1)   *Mary starts singing and John leaves the bar.*
        ≈ 'If Mary starts singing, John leaves the bar.'

Asserting a CC like (1) does not commit the speaker to the first conjunct (*Mary will start singing*) and it commits them to the second (*John will leave the bar*) only conditionally on the first. This contrasts with standard Boolean conjunction, an assertion of which commits the speaker to the truth of both conjuncts. CCs have been observed in various languages (minimally English, German, Russian, Hebrew, Spanish, Basque, and Palestinian Arabic; von Fintel and Iatridou 2017).[1]

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1 CCs come in various forms in terms of first conjunct type: seemingly unmodalized declaratives as in (1), imperative clauses (*Sing another song and …*), declaratives containing a sufficiency modal (*Mary only has to sing another song and …*), or NPs (*One more song and …*). Languages differ as to what varieties of CCs they possess. Irrespective of type, the interpretation is always similar to (1) (modulo the second person subject in the imperative variant, and with contextual support for the NP variant). In this paper, we focus on cases with unmodalized declaratives as first conjuncts.

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Deriving the conditional readings for constructions that look just like Boolean conjunctions is an obvious challenge for compositional semantics. Previous work on the phenomenon draws attention to the intonational pattern of CCs specifically in English (high phrase accent, shorter break; Pierrehumbert and Hirschberg 1990) and German (Krifka 2004). Schwager (2006) and Keshet (2013) liken CCs to the partitioning into background (restrictor) and focus (nuclear scope) familiar from deontic modals or quantificational adverbs. Starr (2018) and Kaufmann (2018) argue that thanks to construction-specific lexical or prosodic cues, the first conjunct of a CC introduces a hypothetical state of affairs as the topic, respective to which the second conjunct is evaluated.[2]

Japanese and Korean, two languages with morphological topic marking and a rich inventory of conjunctive affixes, have so far not been shown to possess CCs. In this paper, we show that both of them mark CCs transparently by combining conjunctive and, as Starr (2018) and Kaufmann (2018) would predict, overt topic markers. We take this data to provide important evidence that topic marking itself of a first conjunct derives hypothetical conditionals. We also show that CCs in fact have the syntactic and semantic properties of a topicalization structure.

2 Japanese and Korean: transparent CCs

2.1 CCs from conjunction plus topic marker

Japanese and Korean use a variety of verbal suffixes on the first conjunct to mark clausal coordination, such as Japanese gerundive *-te* and Korean conjunctive *-mye* and gerundive *-ko*. Example (2) illustrates this with the highest frequency coordinators, gerundive *-te* (Japanese) and *-ko* (Korean). These coordinate constructions systematically disallow CC readings.[3]

(2) a. Japanese
         Mary=ga   *uta=o*   *utat-**te***   *John=ga*   *dete*   *ik-u.*
         Mary=NOM   song=ACC   sing-GER   John=NOM   leave   go-NPST
         'Mary sings a song and John leaves.'   (both things happen)
         NOT: '(If) Mary sings a song, John leaves.'   (conditional)
     b. Korean
         Mary=ka   *nolay=lul*   *pulu-**ko***   *John=i*   *ttena*   *ka-n-ta.*
         Mary=NOM   song=ACC   sing-GER   John=NOM   leave   go-PRS-DECL
         'Mary sings a song and John leaves.'   (both things happen)
         NOT: '(If) Mary sings a song, John leaves.'   (conditional)

When the gerundive is followed by the topic marker (Japanese *=wa*, Korean *=(n)un*), the conditional reading emerges and the conjunctive reading disappears:

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2 From a dynamic point of view, the connection between conjunctions and at least epistemic hypothetical conditionals is intuitively plausible: conjunctions update an information state with the first conjunct, followed by an update with the second. Conditionals involve the same computation but keep as a live option also the part of the information state that did not pass the update with the first conjunct. Yet, it is not obvious why the commitment to the first conjunct (and the second depending on it) remains hypothetical in nature (see Klinedinst and Rothschild [2012] and Starr [2018] for dynamic accounts relying on polysemy of the conjunctive connective; and Hara [2019] for a diachronic account that departs from a dynamic conjunctive connective that can be evaluated at substates of the information state and achieves commitment to the first conjunct only by pragmatic strengthening).
3 Examples are glossed following the Leipzig Glossing Rules. Abbreviations used: 1 first person; ACC accusative; CLF classifier; DECL declarative; DEF definite; FUT future; GEN genitive; GER gerundive; LOC locative; NOM nominative; NPST non-past; POL polite; PROG progressive; PRS present; PST past; SG singular; SUSP suspective; TOP topic. In representing bound morphemes, we adopt the view that postverbal suffixes are affixes (indicated with "-"), while postnominal particles such as the topic marker are enclitics (indicated with "="), for Japanese (Vance 1993) and for Korean (Cho and Whitman 2020). The particle *=to* is a clitic in all of its uses, as shown by the fact that it can be stranded (Tsubomoto 1993: 124–125), a possibility for post-head clitics in Japanese, but never for affixes.

(3) a. Japanese

    Mary=ga   *uta=o*   *utat-te=**wa***   *John=ga*   *dete*   *ik-u.*

    Mary=NOM   song=ACC   sing-GER=**TOP**   John=NOM leave go-NPST

    '(If) Mary sings a song, John leaves.'   (conditional)

    NOT: 'Mary sings a song and John leaves.'   (both things happen)

   b. Korean

    Mary=ka   *nolay=lul*   *pulu-ko=**nun***   *John=i*   *ttena* *ka-n-ta.*

    Mary=NOM   song=ACC   sing-GER=**TOP**   John=NOM leave go-PRS-DECL

    '(If) Mary sings a song, John leaves.'   (conditional)

    NOT: 'Mary sings a song and John leaves.'   (both things happen)

While *-te=wa* is among the markers generally listed as a conditional connective in Japanese (along with *-reba*, *-tara*, *=to*, *-te mo* (also implicating the gerundive), and *nara*; see Takubo 2020), Korean *-ko=nun* is not discussed in standard grammars but occurs frequently in natural speech (see examples from the internet in (A1) in the Appendix).[4]

Korean also possesses a standard conditional marker *-myen*, which has only a conditional interpretation ((A2) in the Appendix). From a diachronic perspective, all but one of the Japanese conditional connectives, as well as Korean *-myen*, are derived from the combination of a conjunctive suffix plus topic marker. Korean *-myen* derives from the conjunctive suffix *-mye* plus an allomorph of the topic marker *=n* (Martin 1992). The Japanese forms derive from realis *-(r)e-*, the irrealis stative auxiliary *-tara-* and the irrealis copula *-nara-* plus the ending *-ba* (thus modern conditional *-(r)eba* but also *-tara < taraba* and *nara < naraba*).[5] The ending *-ba*, in turn, is derived from a contraction of the Old Japanese copula infinitive *ni* plus topic marker *=pa* (Ōno et al. 1974).

Of the Japanese conditional forms listed by Takubo (2020), *=to* stands out as the chief item not transparently involving a topic marker. Yet, as we argue in the next subsection, *=to* is possibly even more similar to English-style CCs: it too is a conjunction, which achieves a conditional interpretation through topicalization, but without an overt topic-marking morpheme.

2.2 Japanese *=to*-conditionals are in topic position

The particle *=to* in Japanese has two functions that are treated as distinct in descriptive grammars. First, *=to* can mark conditionals, as in (4). The verb before conditional *=to* is fully tensed, but restricted to Nonpast; Past is prohibited.

(4) *Mary=ga*   *uta=o*   *uta-u/*utat-ta=**to***   *John=ga*   *dete*   *ik-u.*

    Mary=NOM   song=ACC   sing-NPST/sing-NPST=**to**   John=NOM leave go-NPST

    'If Mary sings a song, John leaves.'

Second, *=to* is used for NP conjunction (5a) and as a comitative particle (5b). Normally, *=to* cannot conjoin VPs or clauses (5c).

(5) a. [*Mary=**to** John*]*=ga*   *dete*   *ik-u.*

    Mary=**to** John=NOM leave   go-NPST

    'Mary and John leave.'

   b. *Mary=ga*   *John=**to***   *dete*   *ik-u.*

    Mary=NOM   John=**to** leave go-NPST

    'Mary leaves with John.'

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4 Japanese *-te=wa* conditionals express additionally that the speaker considers the topicalized conjunct undesirable (or presupposes it to be considered undesirable in the ongoing conversation). As the effect is absent from all other CC constructions under consideration in this paper, we leave it to future research to explain this specific property of Japanese *-te=wa*.

5 See Hara (2019) for an account of how realis *-(r)eba*, once very similar to "factual" *=to* (Section 2.2), developed into the modern hypothetical conditional marker.

    c.   **Mary=ga   dete   ik-u=to*   *John=mo   dete   ik-u.*
          Mary=NOM   leave   go-NPST=*to*   John=also   leave   go-NPST
          Intended: 'Mary leaves and John leaves.'

When the main clause verb appears in past tense, =*to* may also mark temporal or "factual" (Takubo 2020) adverbial clauses, as in (6), cited from Tsubomoto (1993: 100). The verb preceding factual =*to* has to be in Nonpast, just like the one preceding conditional =*to* (see (4) above).

(6)   *Hikooki=wa,   kasooro=ni   de-ru/*ta=to,*   *ikioi   yoku   hasitte   it-ta.*
      plane=TOP   runway=LOC   go.out-NPST/PST=*to*   vigor   well   running   go-PST
      'When the plane got out on the runway, it accelerated vigorously.'

In the Japanese tradition, hypothetical =*to* as in (4) and factual =*to* as in (6) are both treated as a type of conditional (*jōkensetu* 条件節), with the difference that the antecedent in (6) is assumed to be true. The 'when' translation in (10) is approximate: factual =*to* is often described as "sequential" (e.g., Inoue 2006), where the event expressed by the main clause follows immediately on the event of the =*to* clause. A better translation of (10) might be 'Once the plane got out on the runway, it accelerated vigorously (down the runway).' Some authors (e.g., Tsubomoto 1993) have attempted to relate the immediacy effect of factual =*to* clauses to the "lawlike" (and sometimes generic) effect of =*to* hypotheticals. That is, "B immediately follows upon A" (temporal) is related, on this view, to "B always follows upon A". We endorse this intuition and in Section 3.2 propose an analysis that assimilates factual and hypothetical =*to* clauses.

    Returning to =*to* as a coordination, Koizumi (2000) shows that =*to* in fact can serve as a clausal coordinator, just so long as it is not immediately preceded by a tensed verb. Sentential coordination with =*to* is acceptable so long as there is no overt verb in the first conjunct:

(7)   [[*Mary=ga   ringo=o   huta-tu* t$_i$]=*to*   [*Nancy=ga   banana=o   san-bon* t$_i$]]   *tabe-ta$_i$.*
      Mary=NOM   apple=ACC   two-CLF=*to*   Nancy=NOM   banana=ACC   three-CLF   eat-PST
      'Mary (ate) two apples and Nancy ate three bananas.'
      (Modified from Koizumi [2000: 230]; compare his example (6))

Koizumi's data show that the infelicity of =*to* as a clausal conjunction in contexts like (5c) is due to a surface constraint: so long as the verb is not spelled out directly adjacent to =*to*, clausal coordination with =*to* is allowed. In (7), on Koizumi's analysis, the verb in both conjuncts is extracted by ATB raising to T, and is spelled out following the second conjunct.

    Hasegawa (2017) hypothesizes that factual =*to* clauses occupy Spec, ForceP in the articulated left periphery. Hasegawa argues that factual =*to* in thetic or broad focus sentences cannot be preceded by a topic-marked matrix subject (8a). Hypothetical =*to* can (8b). But neither type of =*to* can follow a non-focused nominative-marked matrix subject (8a,c).

(8)   a.   **Hanako$_i${=ga/=wa}* {$\phi_{speaker}$/ϕ_i}   *mado=o   ake-ru=to,*   *tat-tei-ta.*
          Hanako{=NOM/=TOP}   window=ACC   open-NPST=*to*   stand-PROG-PST
          'When (I) opened the window, Hanako was standing there.'
          (Hasegawa 2017: 393)
    b.   *John=wa*   [*Mary=ga   uta=o   uta-u=to*]   *dete   ik-u.*
          John=TOP   Mary=NOM   song=ACC   sing-NPST=*to*   leave   go-NPST
          'John, (if) Mary sings a song, leaves.'
    c.   **John=ga*   [*Mary=ga   uta=o   uta-u=to*]   *dete   ik-u.*
          John=NOM   Mary=NOM   song=ACC   sing-NPST=*to*   leave   go-NPST
          (Unacceptable if John is unfocused.)

These facts indicate that both types of =*to* clause occupy a position higher than unfocused subjects. The highest positions in Rizzi's (1997: 297) articulated left periphery are, in order, ForceP, a higher TopicP, FocusP,

and a lower TopicP, all above unfocused subjects in Spec,TP. The data in (8) indicate that *=to* clauses occupy Spec, ForceP (Hasegawa's assumption), or one of the Spec,TopicP positions.[6]

The topicalization structure of conditional *=to* clauses is consistent with an important property that distinguishes them from coordinate *=to* clauses like Koizumi's example in (7). Crosslinguistic data indicate that CCs block ATB extraction, as shown in (9) for English relativization. While a CC reading is possible with relativization out of the first conjunct only in (9a), the conditional interpretation becomes impossible with ATB extraction out of both conjuncts in (9b).[7]

(9)   a.   *That's the tune [that Mary sings* t *and John leaves the bar]*.
           (CC interpretation possible)
      b.   *That's the tune [that Mary sings* t *and John hates* t*]*.
           (only Boolean interpretation)

This in turn predicts that if Koizumi's analysis involving ATB verb raising in Japanese sentences like (7) is correct, such sentences disallow a CC reading. This prediction is borne out: this pattern receives only a Boolean, not a conditional interpretation, as seen in (10).

(10)   [[*Mary=ga*   *ringo=o*   *huta-tu* t_i]=**to**   [*Nancy=ga*   *banana=o*   *san-bon*$_i$]]   *tabe-ru*$_i$.
       Mary=NOM   apple=ACC   two-CLF=**to**   Nancy=NOM   banana=ACC   three-CLF   eat-NPST
       'Mary (ate) two apples and Nancy ate three bananas.' (Boolean only)
       NOT: '(If) Mary eats two apples, Nancy eats three bananas.' (CC)

Analyses of ATB phenomena have generally assumed a symmetric coordinate structure. What appears to be the general impossibility of ATB extraction in CCs provides further evidence that they do not have such a structure.

This brings us back to the fact noted at the beginning of this section: the verb in conditional *=to* clauses must be in Nonpast tense. Examples like (6) show that Nonpast must be selected before conditional *=to* even when describing events in the past; in other words, the fixed Nonpast in conditional *=to* clauses is semantically vacuous. We suggest that fixed Nonpast before conditional *=to* is a default or dummy form (an idea present in the Japanese literature as well; e.g., Inoue's [2006] *futei jisei* 不定時制 "indeterminate tense"). On this view, the constraint that *=to* cannot follow a tensed verb can be satisfied in two ways: by ATB extraction of the verb in symmetric coordinate contexts, or by insertion of default tense in asymmetric CC contexts. Default tense is spelled out as Nonpast at PF, but needs to receive a true tense value from a higher tense at LF (matrix tense in CCs). The latter option is unavailable in symmetric coordinate contexts, since tense in the first conjunct is not in the scope of tense in the second at any level of the derivation.

3 From topicality to hypotheticality

The typological connection between topics and conditionals is well known (Ebert et al. 2014; Haiman 1978); above we have shown that Japanese and Korean conditionals show topic properties either through overt topic marking or position, and that they derive, synchronically or historically, from a variety of conjunction patterns plus topic marking. We focus in the remainder of the paper on the conditional markers that are transparently

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6 This analysis is reminiscent of Liu and Wang's (2022) analysis of Chinese CCs with *jiu*, in that it places the antecedent in the left periphery.

7 The fact that CCs block ATB extraction appears to be a robust generalization. The data in (i–ii) indicate that other kinds of ATB extraction, such as *wh* movement in questions, also block the CC interpretation.

(i)   *Remind me which tune Mary sings* t *and John leaves the bar*.   (CC reading OK)
(ii)   *Remind me which tune Mary sings* t *and John dances to* t.   (no CC reading)

The impossibility of ATB extraction in CCs provides strong support for the view that they do not have the symmetric coordinate structure traditionally assumed for across-the-board phenomena.

related to sentential conjunctions (Japanese *-te=wa* and *=to*, Korean *-ko=nun*), which, as we show, share specific semantic properties of English-style CCs.

3.1 Restriction in readings

Like English-style CCs (Bolinger 1967; Keshet 2013; among others), Japanese and Korean CCs can convey immediate consequence, causation, or result, but appear to be unacceptable as epistemic conditionals. The relevant English judgment in (11) (from Bolinger 1967) can be replicated for Japanese *-te=wa* and *=to* as well as Korean *-ko=nun* (see (A3) and (A4) in the Appendix).

(11) a. *If you have the other half of the locket you are my half sister.*
      b. *#You have the other half of the locket and you are my half sister.*

According to Keshet (Keshet 2013; Keshet and Medeiros 2019), CCs result when a quantificational operator (generated above the conjunction or LF-extracted from the second conjunct) outscopes a conjunction and gets restricted by the backgrounded material therein (typically, the first conjunct):

(12) a. MODAL [A & B]
      b. {always/sometimes/usually …}$_i$ [A & [B … t_i …]]

In contrast to deontic modals and Q-adverbials, epistemic modals like *must* and epistemic adverbs like *probably* cannot be constrained information-structurally. Keshet takes this to explain why they cannot constitute the conditional operator in CCs, as exemplified for *probably* in (13) (Keshet's (23a) and (23b), with his judgments):

(13) a. *#John left work at six and he's probably home by now.*
      b. *#Probably, John left work at six and he's home by now.* (No CC reading)

Examples like (14), however, contradict the claim that CCs cannot be formed with *probably*. Example (15) provides a felicitous translation into Japanese with the conjectural modal *daroo* in a hypothetical *=to* clause:[8]

(14) a. *Mary tosses that coin, and it probably comes up heads.*
      b. *Probably Mary tosses that coin and it comes up heads.*

(15) *Sono koin=o   nage-ru=to, (kitto)   omote=ga   de-ru   daroo.*
      that coin=ACC toss-NPST=*to* probably heads=NOM emerge-NPST is.probable
      'If Mary tosses that coin, it will probably come up heads.'

Examples (14a), (14b), and (15) are felicitous if the speaker explicitly excludes that a typical CC-style conditional in terms of immediate consequence might be true ('I know that Mary always cheats a bit and manages to often make fair coins come up heads, but I exclude that she can guarantee it'). This suggests that *probably/daroo* contributes to the conditional connection itself instead of scoping over a typical CC expressing causation, immediate consequence, or result.

The possibility of epistemic adverbs (and conditionals) is further confirmed by a modification of our exemplar example:

(16) *Mary sings one more song and John probably has a headache for five weeks.*

The data in (14)–(16) suggest that CCs are sensitive not to epistemic modality, but to predictivity.[9] CCs cannot express non-predictive conditionals, that is, conditionals for which antecedent and consequent are objectively

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8 Compare also (A1b) in the Appendix, with Korean *-ko=nun* + suspective *-ci*.
9 Paolo Santorio (pers. comm.) suggests an objective/metaphysical interpretation for *probably*, an option we leave for future research. Independently, it seems implausible for Japanese *daroo*, which is usually considered subjective (e.g., Hara 2006; Larm 2009).

settled at utterance time such that uncertainty can only be epistemic ("predictive"/"non-predictive" follows Kaufmann [2005]). The epistemic conditionals considered in the literature on CCs, beginning with Bolinger's example given in (11), are all non-predictive in nature: they involve antecedents whose truth value is already settled at the time of utterance.[10] In contrast, (14)–(16) express reasoning about future possibilities.

It is tempting to relate the predictivity-restriction to the obligatory absence of semantic tense (Section 2.2) and modality in Japanese *-te=wa* and *=to* clauses; see (17):

(17) *Mary=ga   uta=o   uta-u   (*daroo)=to   John=ga   dete   ik-u.*
      Mary=NOM   song=ACC   sing-NPST   be.probable=*to*   John=NOM   leave   go-NPST
      'Mary will (#probably) sing a song, and John will leave.'

Korean *-ko=nun* provides striking confirmation for the incompatibility of tense in the antecedent/first conjunct with a CC reading. Conjunctive *-ko* can embed past tense (unlike Japanese *=te*), but when V-past + *-ko* is topic marked, the result is ungrammatical, as seen in (18):[11]

(18) *Mary=ka   nolay=lul   pul-ess-ko(*=nun)   John=i   ttena   ka-ss-ta.*
      Mary=NOM   song=ACC   sing-PST-GER=TOP   John=NOM   leave   go-PST-DECL
      'Mary sang a song, and John left.' (Both things happen.)

The impossibility of tense marking in Korean *-ko=nun* CCs further supports our claim in Section 2.2 that obligatory Nonpast under Japanese *=to* is a semantically vacuous default. The morphological conditions on the expression of tense in these patterns differ in the two languages: tense is morphologically permitted before Korean *-ko*, disallowed before Japanese *-te*, and realizable only as default Nonpast before Japanese *=to*. The consistent shared property across all three contexts is that past tense in the first conjunct is not possible in a CC. It is tempting to relate the impossibility of encoding temporal oppositions to Bjorkman's (2013) findings for English, Modern Greek, and Dutch: symmetric conjunctions have to be full CPs, asymmetric conjunctions (including CCs) have to be smaller (TPs, for her). Semantically, she takes asymmetric conjunctions to relate objects from an intrinsically ordered domain (situations or events), while CP conjunctions relate sets of maximal situations (possible worlds). If non-predictive epistemic conditionals involve quantification over possible worlds, and the morphosyntactically constrained CC clauses denote properties of possibly non-maximal situations, the absence of non-predictive CCs is expected and may relate to the impossibility of encoding temporal oppositions.[12]

3.2 Toward a compositional interpretation of topicalization and coordination

The data from Japanese and Korean support the idea that conditional readings for sentential conjunctions result from topicalization of the first conjunct. In Section 3.1, we have shown that CCs express predictive conditionals which specify how a particular type of situation evolves generically or is expected to evolve if instantiated in the future. Formally, the antecedents of at least Japanese/Korean-style CCs cannot contain

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10 An exception is constituted by the following example from Culicover and Jackendoff (1997; see also Weisser 2015), which involves a settled antecedent and an unsettled consequent, suggesting that unsettledness of the consequent might be sufficient:

You have broken another vase and I'm leaving.

11 Importantly, Yoon (1997) argues that while gerundive *-ko* clauses may have an asymmetric structure, Past *-ko* clauses must have a symmetric or true coordinate structure. This is consistent with our finding in (21) that the former, but not the latter, may function as CCs.

12 The situation in English and German is less clear-cut: Kaufmann (2019) shows that epistemic conditionals (as we now add, of the non-predictive kind) become available for English and German CCs in list contexts, where multiple alternatives to the antecedent are salient and paired up with the relevant conclusions to be drawn. In reasoning contexts of this kind, data like (13) can be felt to improve as well. On the form side, Bjorkman (2013) notes that German word order (V2 in CCs) poses a problem for her account (see also Weisser 2015). Japanese and Korean CCs appear to strictly adhere to the syntactic generalizations for smaller coordination structures and non-predictive conditionals fail to improve in inferencing contexts for all but one of the speakers consulted.

non-default tense marking or modality. To capture the latter two generalizations, we follow Bjorkman (2013) and Keshet (2013) and treat the underlying conjunctions as expressing properties of minimal situations and their extensions (Heim 1990; Kratzer 1989).

Implementing the effect of topicalization faces the challenge that this notion has been discussed as encompassing different strategies of information packaging and common ground management, and that different morphological and syntactic strategies of topic marking can differ in the specific properties they encode (e.g., Tomioka 2020). Moreover, existing discussions of different types of topics often focus on individual referring expressions, which makes it harder to test the specific topic properties of different CC types.[13]

The first conjuncts of CCs fit the characterization of frame setters, which "restrict the application of the proposition expressed by the rest of the sentence to a certain domain" (Jacobs 2001: 656), but can also be conceived of as aboutness topics that serve as the antecedents for a contextual variable that constitutes the restrictor of a quantificational operator as hypothesized in von Fintel (1994). In the following we minimize our commitments regarding the specific notion of topichood at play.

Intuitively, the first conjunct of an English CC like (19a) restricts *usually* in the second conjunct and is not entailed, even though it occurs in what seems to be a transparent position. We derive the effect from the LF in (19b), where *Mary sings* (type $\langle s,t \rangle$, denoting a proposition characterizing the set of situations in which Mary sings) is topicalized, but leaves a copy in trace position which gets interpreted as is. Example (19) can be translated to Japanese with *taitei* 'usually' and to Korean with *taykay* 'usually' in the second clause, the results of which should be analyzed analogously.

(19)   a.   *Mary sings and John usually leaves.*
       b. $[_{\text{TopicP}} [\text{Mary sings}]_1 [\text{TOPIC} [\ldots [_{\text{TP}} [_{\&\text{P}} [_{\text{AspP1}} \text{Mary sings}_{1,\langle s,t \rangle}] [\text{and} [_{\text{AspP2}} [\text{usually C1}] [\text{John leaves}]]] \text{T}]]]]$

We translate the topicalized expression as referring to the situation plurality consisting of all situations s such that (a) s is a contextually relevant part of a world that is epistemically accessible to the speaker from utterance situation $w_@$ $(R^{epi}speaker\ (w_@)(s)\ \&\ c(s))$,[14] and (b) s is a situation in which Mary sings; see (20a) (modeled after Ebert et al. 2014).[15] On the salient reading (*usually* as the perceived conditional operator) the domain variable of the Q-adverbial is identified with the fronted topic. The conjunction of the topicalized and the non-topicalized proposition yields a predicate of (atomic) situations, which by standard assumptions of plural semantics (Link 1983) is applied to the topicalized plural situation pointwise, resulting in universal quantification over the topic situations.

(20)   a. $[\text{Mary sings}]_{\text{Top}} \rightsquigarrow \sigma(\lambda s.sing_s(mary)\ \&\ R^{epi}_{speaker}\ (w_@)(s)\ \&\ c(s))$
       b. $[\text{Mary sings}_{1,\langle s,t \rangle} [\text{and} \ldots]] \rightsquigarrow \lambda s.sing_s(mary)\ \&\ usually(C_1)(\lambda s_2.leave_{s2}(john))$
       c. $(\forall_{s_1} \sqsubseteq \sigma(\lambda s.sing_s(mary)\ \&\ R^{epi}_{speaker}\ (w_@)(s)\ \&\ c(s)))[sing_{s_1}(mary)\ \&\ usually(\sigma(\lambda s.sing_s(mary)\ \&\ R^{epi}_{speaker}\ (w@)(s)\ \&\ c(s)))(\lambda_{s_2}.leave_{s_2}(john))]$

Interpreting also the copy of the topicalized proposition in base position allows the conjunction to retain its normal interpretation.[16] Moreover, no specific assumptions need to be made for why quantificational adverbs within the second conjunct can be restricted by the material in the first.[17] The effect follows from standard

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13 For instance, unlike individual referring expressions, clauses denote propositions familiar to the addressee solely in virtue of linguistic knowledge.

14 The contextual restriction is needed to ensure suitable truth conditions for statives and in particular for negated propositions (thanks to Anastasia Giannakidou for bringing up the latter point).

15 Topicalization has effects on information management and discourse representation (activation/storage of the respective discourse referent), and may introduce restrictions on the input and/or output context (concerning givenness, familiarity, or overall discourse strategy). These details do not matter for our account and may differ for individual topicalization strategies (Gyuris 2020; Tomioka 2020).

16 Quantification over minimal situations results in situational extension (Heim 1990). At this point, we cannot explain why, for the temporally and modally deficient propositions expressed in Japanese/Korean-style CCs, minimal extension has to be forward-expanding in time.

17 In contrast, Keshet (2013) has to assume that the adverbial can be moved covertly to a position outscoping the conjunction.

assumptions about the resolution of the domains of adverbial quantifiers. (Example (A5) in the Appendix shows how the topicalized proposition can restrict a quantifier with scope over the conjunction.)

If *usually* is replaced by *probably*, this epistemic adverbial is not combined with a domain variable, but depends on its local situation variable. As it gets evaluated pointwise at epistemic alternatives of the speaker, the result is similar to a global interpretation under standard assumptions of positive and negative introspection (i.e., speakers are not uncertain about what they believe to be true or hold possible; see, e.g., Kaufmann and Kaufmann 2015).

Ideally, the account should extend to factual *=to* as in (6). Intuitively, in this case, the speaker has in mind a specific situation of the plane coming out, so the topicalized situation referent could consist of just this contextually relevant situation in the world of evaluation. This situation is then said to verify the proposition in (21b): it is presupposed to be located before the utterance time (UTT) and is a situation in which the contextually relevant plane comes out that extends to a situation in which that plane accelerates.

(21) a. $[[\text{plane come-out}]_1$ TOPIC [PAST [plane come-out$_{1,<s,t>}$ [and [plane accelerates]]]]]
      b. $\lambda s: s < UTT.\textit{come-out}_s(\textit{the-plane}_c) \ \& \ \exists_{s_1}[s \leq s_1 \ \& \ \textit{accelerate}_{s_1}(\textit{the-plane}_c)]$

Hypothetical and factual *=to* rely on the same topicalization operation but differ in whether they introduce atomic or plural situation referents as topics, triggering predication of a situation in the actual world (veridical) or universal quantification over hypothetical situations (possibly non-veridical), respectively. In Japanese, the combination of past tense in the consequent and default tense in the antecedent gives rise to the factual reading only (in contrast, generic interpretations of past tense in both conjuncts can give rise to past CCs at least in English).[18]

3.3 Topics of questionable topicality?

In spite of typological and diachronic findings and a strong tendency for conditional antecedents to be topical, the connection cannot be considered conventionally encoded for English *if*-clauses (von Fintel 1994). In contrast, our analysis predicts the antecedents of CCs to be invariably topical. Two phenomena appear to challenge this at first glance. First, building on Givón (1982), von Fintel (1994) shows that *if*-antecedents can bear answerhood focus (see also Iatridou 2013):

(22) a.   *Under what conditions will you buy this house?*
      b.   *I will buy this house if you give me the money.*
          (von Fintel 1994: 81, his (6))

Our analysis seems to predict CCs to be unacceptable in such contexts. Indeed, *-ko=nun* and *-te=wa* are judged as marked, similarly to Keshet's (2013) observations for English-style CCs. However, our informants readily accept Japanese *=to* clauses as answers in exchanges like (22). We think that it would be too hasty to conclude that they can be non-topical. English *if … then*-conditionals are considered topicalization constructions (von Fintel 1994: 89), and these, too, can serve as answers in contexts like (23), provided they are construed as partial answers.

(23)   *If you give me the money, then I will give you the house.*

A topicalized constituent including answerhood focus constitutes a contrastive topic (Krifka 2007). These render salient (unresolved) questions about alternative answers (Büring 2003). Conditional antecedents can, by default, always contrast with their negations. We leave it to future research to investigate topics as providing answers,[19] but emphasize that the phenomenon is not specific to CCs.

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18 Absent default tense marking as with Japanese *=to*, factual readings are hard to distinguish from Boolean conjunctions. We leave it to future research to investigate potential factual variants of other CC constructions.

19 An analysis in terms of frame setting (Krifka 2007) could be viable as well. For conditionals as answers in question strategies in general, see Ippolito (2013) and Kaufmann and Kaufmann (2021).

Second, according to Keshet (2013), English-style CCs can carry focus marking on the first conjunct in particular contexts (his reverse CCs), such as in (24a). He concludes that focus on the second conjunct is just a strong tendency and that material in either conjunct can be excluded from the quantificational restriction through focusing. His interpretation is sketched in (24b).

(24) a. *[You press the space bar]*$_F$ *and your character jumps.*
      b. All (typical) cases in which you do something relevant and your character jumps are cases in which you press the space bar and your character jumps.
      c. Pressing the space bar is the action such that, if you do it, your character jumps.

As Keshet himself observes, (24b) does not correspond to a focused restrictor, a paraphrase of which we add in (24c). In contrast to (24c) and to native speaker intuitions about (24a), (24b) can be true if there are many cases in which you press the space bar and your character does not jump. We conclude that, even in reverse CCs, the quantification is restricted by the ordinary semantic value of the first conjunct. Upon closer inspection, cases like (24) instantiate corrections: (24) cannot function as an answer to (25a) out of the blue, but becomes felicitous when a previous attempt at providing an answer has been rejected, as in (25b).[20]

(25) a. *Under what circumstances does your character jump?*
      b. *Your character jumps if you press the Shift key.*
          – Nonsense! Tell me, really: how do you make your character jump?

We conclude that CC first conjuncts are indeed conventionally marked as topical. Apparent exceptions are analyzed better as either contrastive topics or as corrections of previous utterances, both of which can involve focus marking within or on a topicalized constituent (Krifka 2007).

4 Conclusions

We have shown that in languages with overt topic marking, adding a topic marker to the first conjunct in a standard coordination pattern produces a conditional reading. Synchronic conditional morphology is analyzable in virtually every case as arising from the combination of a conjunctive affix and a topic marker.

Of more general theoretical import, we have shown that these transparent CCs have the syntactic properties of topics, both in terms of their position in the matrix clause and their resistance to ATB extraction. We build on these discoveries to propose an interpretation of CCs that builds on the semantics of topicalization. The phenomenon is restricted not by modal flavor (exclusion of epistemic modality) as has long been held for English-style CCs, but by predictivity, which, for the transparently marked cases in Japanese and Korean, we relate to the obligatory absence of tense and modality in the first conjunct. The topicalization-driven interpretation covers hypothetical CCs of the English style and of the transparent Japanese/Korean style, and extends to factual CCs of the Japanese *=to* type. The behavior of quantificational adverbials in CCs follows naturally from independently motivated assumptions for how adverbial quantifier domains are resolved depending on information structure.

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20 Keshet (2013: 229, n. 17) mentions corrections as one possible interpretation of stress within the first conjunct of CCs.

Appendix

(A1) Korean: Examples of *-ko=nun* from a web search for the gerundive *pes-ko* 'remove, take off and' plus topic marker

　　a. *Kuliko　　pelke-pes-ko=nun　　　khal=ul　　chal　　swu　　eps-upni-ta.*
　　　　then　　　strip-remove-GER=TOP　　sword=ACC　sheathe　ability　not.exist-DEF-DECL
　　　　'Then, if you take off your clothes, you can't wear the sword (on your waist).'

　　b. *Ankyeng=ul　pes-ko=nun　　ilsang　saynghwal=i　pulkaha-ci-o.*
　　　　glasses=ACC　remove-GER=TOP　Daily　life=NOM　　　impossible-SUSP-POL
　　　　'(If you take off your glasses, daily life is probably impossible.'

(A2) Korean: Standard conditional with *-myen*

　　Mary=ka　　nolay=lul　pulu-myen　John-i　　ttena　ka-keyss-ta.
　　Mary=NOM　song=ACC　sing-COND　John=NOM　leave　go-FUT-DECL
　　'If Mary sings a song, John leaves' (conditional)

(A3) Japanese: Unacceptability of *-te=wa* and *=to* as epistemic conditionals

　　a. *#Rokketto=o　mottei-te=wa　ore=no　ibosi　　da.*
　　　　locket=ACC　have-GER=TOP　1SG=GEN　half.sister　Is
　　　　'You have the other half of the locket and you are my half sister.'

　　b. *#Rokketto=o　mottei-ru=to　ore=no　ibosi　　da.*
　　　　locket=ACC　have-NPST=TO　1SG=GEN　half.sister　is
　　　　'You have the other half of the locket and you are my half sister.'

(A4) Korean: Unacceptability of *-ko=nun* as epistemic conditional

　　#Lokhes=lul　kaciko　iss-ko=nun　ney　ipok　　camay-ta.
　　locket=ACC　having　be-GER=TOP　my　half sister　be-DECL
　　'You have the other half of the locket and you are my half sister.'

(A5) English: Topicalized proposition restricting a quantifier with scope over the conjunction

　　a. *Usually Mary sings and John leaves.*

　　b. [$_{TopicP}$ [Mary sings]$_1$ [TOPIC [… [$_{TP}$ [usually C$_1$ [$_{\&P}$ [$_{AspP1}$ Mary sings$_{1,<s,t>}$] [and [$_{AspP2}$ John leaves]]]] T]]]]

　　c. [usually C$_1$ [Mary sings$_{1,<s,t>}$ [and [John leaves]]]]
　　　　$\rightsquigarrow \lambda s_1.usually(C_1)(\lambda s.sings(mary) \& \exists_{s_2}[s \leq s_2 \& leave_{s_2}(john)])$

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