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Iffy discourse: Japanese *moshi* in conditionals and nominal topics

Abstract: Conditional antecedents often contain elements that require the truth of the antecedent proposition to be open. One such element is Japanese *moshi*, which can occur in conditional antecedents and topics. I argue that in both constructions, *moshi* requires the context to be "iffy", in that the antecedent proposition or the set of individuals picked out by the topic must not be settled by the context. I build on Ebert, Christian, Cornelia Ebert & Stefan Hinterwimmer (2014. A unified analysis of conditionals as topics. *Linguistics and Philosophy* 37(5). 353–408) and analyze *moshi* as an element that imposes a variation requirement on the speech act performed by conditional antecedents and topics.

Keywords: conditional markers; conditionals; Japanese; *moshi*; speech acts; topics

1 Introduction

This paper explores the intuition that conditionals sometimes require the truth of the antecedent proposition to remain open. Lewis (1975) notes sentences like (1), where the antecedent describes a state of affairs whose truth is unquestionable in each situation quantified over. He points out that using *if* in such sentences is unnatural. The intuition that *if* requires openness about antecedent propositions was later dubbed "iffiness" by von Fintel and Iatridou (2002).

(1)   {*?If / When*} *Caesar woke up, he usually had tea.*
        (von Fintel and Iatridou 2002: (29))

However, it is not clear how exactly iffiness should be defined if we solely rely on Lewis's example. For instance, German *sollte* 'should' in conditional antecedents is also degraded in Lewis's examples, and contrasts with *wenn* 'when', as shown in (2).[1] Nevertheless, *if* and *sollte* come apart in environments like factual conditionals, as shown in (3).[2]

(2)   {*#Sollte Peter aufwachen /Wenn Peter aufwacht*}, *trinkt er meistens erst mal eine Tasse*
        should Peter wake.up   when Peter wake.up   drink he mostly   first time a   cup
        Kaffee.
        coffee
        'When Peter wakes up, he always drinks a cup of coffee first.'
        (Magdalena Kaufmann, pers. comm.; modified from Hinterwimmer 2014: (15))

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1 For ease of comparison, I use *sollte* in V1 position in (2)–(3). See Hinterwimmer (2014) and Sode and Sugawara (2018) for non-V1 *sollte* in *wenn*-clauses and *falls*-clauses.

2 Examples are glossed following the Leipzig Glossing Rules. Abbreviations used: ACC accusative; ADD additive; ASP aspectual; C complementizer; COND conditional; CONT continuative; COP copula; DAT dative; EVID evidential; GEN genitive; LOC locative; MOD modal; NEG negation; NOM nominative; NPST non-past; PASS passive; POL polite; PST past; Q question particle; RP resumptive pronoun; SFP sentence-final particle; TOP topic marker; VOL volitional.

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(3)   Context: You are looking at the timetable with your friend. As you and your friends both know,
           according to the schedule, the train leaves at 8:00 …
      a.   *If the train leaves at 8:00, we have to be at the station at 7:50.*
      b.   *??Sollte   der   Zug   um 8 Uhr abfahren,   dann müssen wir spätestens um 7.50 Uhr am*
           should   the   rain at 8:00 leave   then must   we latest   at 7:50   at
           Bahnhof sein.
           station   be
           (Roughly:) 'If the train were to leave at 8:00, we have to be at the station at 7:50.'
           (Sode and Sugawara 2018: 49 (23b))

This paper aims at providing a precise description of iffiness. As a case study, I focus on Japanese *moshi*, an element that can occur in conditional antecedents and topics. I show that *moshi* requires iffiness in both conditionals and topics, and propose a unified account. In Section 2, I introduce the basic properties of Japanese conditionals and *moshi*, and argue that *moshi* provides us with clearer insights into the notion of "iffiness" than English *if* does. In Section 3, I examine the distribution of *moshi* in conditionals and topics, and develop a precise description of the iffiness expressed. In Section 4, I adopt Ebert et al.'s (2014) analysis of conditional antecedents as topics, and propose a uniform account for *moshi* in conditionals and topics.

2 Basic properties of Japanese conditionals and *moshi*

Japanese conditionals are marked by conditional suffixes like *-tara* and *-reba* and clitics like *nara* on verbs in the antecedents (cf. Takubo 2020).

(4)   *John-ga*   {*ku-**reba***   /*ki-**tara***   /*ku-ru*   ***nara***},   *Mary-mo*   *ku-ru.*
      J-NOM   come-COND   come-COND   come-NPST   COND   M-ADD   come-NPST
      'If John comes, Mary will also come.'

Conditionals marked by these morphemes can also be optionally accompanied by *moshi*, which usually appears at the beginning of antecedent clauses.[3] For instance, (5a) and (5b) below are roughly equivalent in their meanings.

(5)   Context: It is not clear whether Mary will come, but …
      a.   *Mary-ga*   *ki-tara,*   *John-mo*   *ku-ru*   *darou.*
            M-NOM   come-COND   J-ADD   come-NPST   MOD
      b.   ***moshi***   *Mary-ga*   *ki-tara,*   *John-mo*   *ku-ru*   *darou.*
            MOSHI   M-NOM   come-COND   J-ADD   come-NPST   MOD
      'If Mary comes, John will probably also come.'

Furthermore, *moshi* does not appear in root clauses, as exemplified in (6).[4]

(6)   *(*moshi)*   *John-ga*   {*ki-mas-u*   /   *ku-ru*   *darou*   /   *ku-ru*   *youda.*}
      MOSHI   J-NOM   come-POL-NPST   come-NPST   MOD   come-NPST   EVID
      Intended: 'John will come.' / 'John will probably come.' / 'It looks like John will come.'

In addition, there is a previously unnoticed usage of *moshi* in topics (marked by *wa*), as illustrated in (7).[5]

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3 See Yoshida (2006) for *moshi* in the middle of antecedent clauses.

4 Note that there are some special cases that will be discussed in Section 4.2, which can be predicted by my account.

5 Although a large number of naturally occurring examples like (7) are attested online, the use of *moshi* in *wa*-marked phrases is not fully productive, being most frequently found with *wa*-marked relative clauses that are headed by *hito* 'people' and *kata* 'people'. As pointed out by an anonymous reviewer, the topic use of *moshi* may be marginal for some speakers. In my own consultations with native speakers, four speakers found the use of *moshi* in examples like (7) natural, while two found it degraded. Apart from online data, examples like (7) are also found in corpora. In the Corpus of Spontaneous Japanese (created by The National Institute for Japanese Language and Linguistics, National Institute of Information and Communications Technology, and Tokyo Institute of

(7) | ***moshi*** | ***tameshi-ta*** | ***koto*** | ***nai*** | ***kata-wa*** | *taiken* | *shi-ta* | *hou-ga* | *ii* | *des-u* |
|---|---|---|---|---|---|---|---|---|---|
| MOSHI | try-PST | thing | NEG | people-TOP | try | do-PST | way-NOM | good | COP.POL-NPST |

yo!
SFP

lit. 'People who haven't tried are such that they should try it.'
(Roughly:) 'If one hasn't tried it, one should try it.'[6]

As indicated by the above basic profile of Japanese conditionals and *moshi*, *moshi* differs from English *if* in two respects that make it a particularly interesting and revealing case for the study of iffiness. First, the two languages differ in terms of the division between morphosyntactic marking and iffiness: in English, both are expressed by *if*, whereas in Japanese, conditionals are morphosyntactically marked by suffixes like *-tara*, and iffiness is expressed by *moshi* (cf. Section 3). Japanese thus allows us to directly disentangle iffiness by comparing conditionals with and without *moshi*. Another reason is that *moshi* can appear in topics, which makes it a testing ground for whether iffiness is a more general phenomenon that goes beyond conditionals.[7]

3 *Moshi* as an iffy element

Traditional grammarians (Alfonso 1974; Jorden 1963) note that *moshi* is a "signal of a supposition" and "should not be used […] when it is obvious or certain that the condition [named by the antecedent proposition] will be verified" (Alfonso 1974: 696–697). I will show that this description is not only on the right track for *moshi* in conditionals (Section 3.1), but also extends to the use of *moshi* in topics (Section 3.2).[8]

3.1 Iffiness in conditionals

As a reasonable first attempt, let us check how *moshi* fares with Lewis's original example. Consider (8) and (9): in (8), *moshi* is odd, whereas in (9), it is acceptable (and optional).

(8) | *(??moshi)* | *John-ga* | ***ashita*** | *oki-tara,* | *mazu* | *meeru-o* | *chekku* | *su-ru* | *darou.* |
|---|---|---|---|---|---|---|---|---|
| MOSHI | J-NOM | tomorrow | wake.up-COND | first | mail-ACC | check | do-NPST | MOD |

'When John wakes up tomorrow, he will probably check his e-mail right away.'

Technology; available at https://ccd.ninjal.ac.jp/csj/), eleven instances of *moshi … kata-wa* were attested. A more detailed quantitative study on the topic use of *moshi* has to await future research.

6 Modified from https://twitter.com/genki_dltg/status/1303818621609631744 (accessed 15 September 2020).

7 In fact, English *if*-clauses can also modify noun phrases such as *the consequences if we fail* (Lasersohn 1996). I leave it to future research to explore whether such uses of *if* display any iffiness effect.

8 *Moshi* can also appear on situation-denoting NPs in the form of relative clauses headed by *toki* 'moment, when', as in (i), and *baai* 'situation', as in (ii). Note that in both cases, conditional markers like *-tara* cannot appear on the verb in the clause modifying *toki* and *baai*. Also, *toki* and *baai* can be, but need not be, marked by the topic marker *wa* (e.g. *wa* can be deleted in (ii)). Due to space restrictions, I will not deal with these uses of *moshi* in this paper.

(i) | *moshi* | *noukousesshokusha-ni* | *nat-ta* | ***toki***-*ni,* | *riyou* | *dekiru* | *hoteru-ga* | *ar-u* | *kana?* |
|---|---|---|---|---|---|---|---|---|
| MOSHI | close.contact-DAT | become-PST | moment-DAT | use | can | hotel-NOM | be-NPST | Q |

'In case I am a close contact with a confirmed case, are there hotels for me to stay?'
(Modified from https://twitter.com/morimoridaisuki/status/1338655474854449152, accessed 23 December 2020.)

(ii) | *moshi* | *asaichi-de* | *nimotsu-ga* | *ko-nai* | ***baai***-*ni-wa* | *anago-ni* | *shi-mas-u.* |
|---|---|---|---|---|---|---|
| MOSHI | morning-LOC | package-NOM | come-NEG | instance-DAT-TOP | eel-dat | do-POL-NPST |

'In case the package doesn't arrive in the early morning, I will use eels to replace squids.'
(Modified from https://twitter.com/946donmaru/status/1340279580767076352, accessed 23 December 2020.)

(9)   *(moshi) John-ga* **yonaka** *oki-tara,   mazu   meeru-o   chekku   su-ru   darou.*
       MOSHI   J-NOM   midnight   wake.up-COND   first   mail-ACC   check   do-NPST   MOD
       'When John wakes up at midnight, he will probably check his e-mail right away.'

Under normal circumstances, for each day quantified over, whether one wakes up tomorrow should not be questionable, whereas whether one wakes up at midnight might be. Hence, the contrast in terms of the felicity of *moshi* between (8) and (9) indicates that *moshi* requires the antecedent proposition to be iffy.

     Second, unconditionals have antecedents that raise multiple options that jointly exhaust all possibilities (e.g. in (10), that Alfonso goes to the party and that he does not). Hence, whatever one takes iffiness to mean exactly, an iffy element should be incompatible with unconditionals.

(10)   *Whether or not Alfonso goes to the party, it will be fun.*
       (Rawlins 2013: 112 (2))

For *moshi*, this prediction is borne out, as shown by the alternative unconditional in (11) and the constituent unconditional in (12) (terminology from Rawlins 2013).[9]

(11)   **(#moshi)** *Mary-ga   ki-temo   ko-naku-temo,   John-wa   ku-ru   darou.*
       MOSHI   M-NOM   come-COND   come-NEG-COND   J-TOP   come-NPST   MOD
       'Whether or not Mary comes, John will probably come.'

(12)   **(#moshi)** *dare-ga   ki-temo,   watashi-wa   ik-imas-en.*
       MOSHI   who-NOM   come-COND   I-TOP   go-POL-NEG.NPST
       'Whoever comes, I will not go.'

Furthermore, *moshi* becomes felicitous in conditionals whose antecedents raise multiple options but do *not* jointly exhaust all possibilities, as shown in (13). Since it is possible for one to neither fail nor get laughed at, the antecedent in (13) provides a proposition that is plausible for one to be iffy about.[10] The acceptability of (13) is thus expected under our claim that *moshi* expresses iffiness.

(13)   *(moshi) shippai   shi-temo   baka-ni   sare-temo,   kanojo-wa   akirame-nai   darou.*
       MOSHI   fail   do-COND   idiot-DAT   do.PASS-COND   she-TOP   give.up-NEG   MOD
       'Even if she fails, even if people laugh at her, she probably will not give up.'

But whose iffiness about the antecedent proposition does *moshi* express? It might be natural to take iffiness to refer to the speaker's uncertainty regarding the truth of the antecedent proposition. However, *moshi* is not subject to such a requirement. Consider (14), where the speaker already knows that the antecedent proposition is true; nevertheless, *moshi* is felicitous.

(14)   Context: Mary and John bought a lottery ticket together. John checked the result before Mary did, and
       found that they won one million yen. He decided to tell Mary the result …
       ima   kara   takarakuji-no   kekka-o   i-u   kedo,   (moshi)   hyakuman-en
       now   from   lottery-GEN   result-ACC   say-NPST   but   MOSHI   million-yen
       atat-tei-tara,   nani-o   ka-u?
       win-ASP-COND   what-ACC   buy-NPST
       'I'm going to tell you the result of the lottery ticket now. If we won one million yen, what will you buy?'

I argue that *moshi* expresses iffiness about the antecedent proposition with respect to the shared beliefs of the conversational participants in an utterance context. The evidence comes from factual conditionals, whose

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9 For a recent account of Japanese unconditionals, see Oda (2021).
10 For simplicity, I assume that a sequence of two *temo*-clauses expresses the *union* of the set of worlds denoted by the first and the second clause. For how this idea can be spelled out compositionally, see Rawlins (2008, 2013).

antecedents are presupposed to be true in the context (Iatridou 1991).[11] As was first observed by Akatsuka (1985), *moshi* is infelicitous in factual conditionals. This is exemplified by (15).[12]

(15) A: 'I received my bonus yesterday.'

B: *(#moshi)*   *kinou*   *kin'ippuu-ga*   *de-ta*   *nara,*   *ashita*   *kaimono-ni*
MOSHI   yesterday   bonus-NOM   release-PST   COND   tomorrow   shopping-DAT
ik-ou.
go-VOL
'If you received your bonus yesterday, let's go shopping tomorrow.'
(Adapted from Arita 2007: 114)

This point is further corroborated by the improvement of *moshi* in (16), where the stressed *hontouni* 'really' in the antecedent indicates that B is unwilling to commit to the proposition that A received the bonus. In other words, B's utterance signals that there are worlds in the context where A did not receive the bonus.[13]

(16) A: 'I received my bonus yesterday.'

B *(moshi)*   *kinou*   **HONTOU-ni**   *kin'ippuu-ga*   *de-ta*   *nara,*   *ima*   *sugu*
MOSHI   yesterday   really-DAT   bonus-NOM   release-PST   COND   now   immediately
koko-ni   *mot-te*   *ki-te*   *yo!*
here-DAT   bring-CONT   come-CONT   SFP
'If you REALLY received your bonus yesterday, show it to me now!'

I assume with Stalnaker (1978, 2002) that a context set is the set of worlds compatible with the mutual joint beliefs that the interlocutors of a conversation hold for the sake of their communication. The effect of the stressed *hontouni* 'really' can be considered as an indication that A's proposal to update the context set with her assertion is not accepted by B. It contrasts with the plain factual conditional in (15), where the update proceeds successfully, since B does not explicitly object to A's assertion. Based on the above observations, I formulate the iffiness requirement of *moshi* as in (17).

(17) **The iffiness condition of *moshi* in conditionals:** *Moshi* is felicitous only if the antecedent proposition marked by conditional markers (e.g. *-tara*) is not entailed by the context set.

3.2 Iffiness in topics

Japanese has so-called conditional topics, as exemplified by the *wa*-marked constituent in (18) (Kuroda 1986; Mikami 1960; Tateishi 1990; among others). As noted by Tateishi (1990) and Tomioka (2016), conditional topics can be paraphrased as conditional antecedents, as in (19).

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11 A note on terminology: My use of the term "factual conditionals" follows the literature that classifies conditionals based on how the consequents are related with the antecedents, as in e.g. Iatridou (1991) and Bhatt and Pancheva (2006). It should not be confused with the use of this term in the literature on Japanese conditionals for conditionals with temporally interpreted antecedents (cf. Takubo 2020: Section 5.1). I thank an anonymous reviewer for pointing out this potential confusion.

12 The original example in Akatsuka (1985: 629) involves an antecedent referring to future states of affairs. I do not cite her example to avoid possible complications that futurate antecedents may bring to factual conditionals. See Arita (2007: 113–118) and Takubo (2020: Section 3.4) for relevant discussion. Another issue is that, as first observed by Akatsuka (1985: 629), factual conditionals are compatible with *nara*, but not with the other conditional connectives such as *-reba* and *-tara*. The choice of conditional connectives in factual conditionals is orthogonal to our current concern about how *moshi* fares with factual conditionals, and I again refer the reader to Arita (2007: 113–118) and Takubo (2020: Section 3.4) for relevant discussion. I thank an anonymous reviewer for pointing out these issues. Note also that the infelicity of *moshi* in (15) is independent of whether B is actually convinced that A has received the bonus. That is, *moshi* would still be infelicitous even if B holds her own belief that A did not receive the bonus, but simply decides not to pursue this issue further with A in their conversation.

13 Thanks to an anonymous reviewer of the SPOCC workshop at DGfS 2021 for pointing out such examples.

(18)   ***shinbun-o***   ***yomi-tai***   ***hito-wa,***   *koko-ni*   *ar-imas-u.*
       newspaper-ACC   read-want   people-TOP   here-DAT   be-POL-NPST
       lit. 'People who want to read newspapers, they are here.'
       (Roughly:) 'If you want to read newspapers, they (= the newspapers) are here.'
       (Tateishi 1990: 459 (1))

(19)   (*moshi*)   *shinbun-o*   *yomi-takat-tara,*   *koko-ni*   *ar-imas-u.*
       MOSHI   newspaper-ACC   read-want-COND   here-DAT   be-POL-NPST
       'If you want to read newspapers, they are here.' ≈ (18)

I suggest subsuming conditional topics under the phenomenon of relevance topics, which pick out individuals that relate to the comment part of the sentence via their *relevance* (cf. Repp 2011; Ebert et al. 2014). For instance, for (18), where the newspapers are does not depend on who wants or does not want to read newspapers. Relevance topics thus contrast with aboutness topics in this respect, since the latter establish entities that the comment parts predicate over (Reinhart 1981, see also the Appendix for more details regarding the two types of topics).

The new observation is that *moshi* can appear in relevance topics. The variant with *moshi* in (20) is roughly equivalent with (18).

(20)   ***moshi***   *shinbun-o*   *yomi-tai*   *hito-wa,*   *koko-ni*   *ar-imas-u.*
       MOSHI   newspaper-ACC   read-want   people-TOP   here-DAT   be-POL-NPST
       lit. 'People who want to read newspapers, they are here.' ≈ (18)

To precisely identify the iffiness expressed by *moshi* in relevance topics, I first note that relevance topics in Japanese are subject to what I call the Relevance Constraint in (21).

(21)   **The Relevance Constraint:** A relevance topic must not pick out all salient individuals in the context.

To see this, consider the discourse in (22), modified from Arita (1992). In this context, it is clear that all salient individuals satisfy the property described by the topic in (22c), that is, all the students want to read newspapers.

(22)   a.   Teacher: 'Who wants to read newspapers? Raise your hands if you do.'
       b.   (All students raised their hands.)
       c.   Teacher: *#shinbun-o*   *yomi-tai*   *hito-wa,*   *koko-ni*   *ar-imas-u*   *yo.*
                       newspaper-ACC   read-want   people-TOP   here-DAT   be-POL-NPST   SFP
            lit. 'People who want to read newspapers, they are here.'

As the Relevance Constraint arises independently of *moshi*, we need to control for it when testing the effects of adding *moshi* to relevance topics.

Now, the key observation is that *moshi* imposes its own iffiness requirement on relevance topics. Compare the (in)felicity of *moshi* in (23) and (24).

(23)   a.   Teacher: 'Who wants to read newspapers? Raise your hands if you do.'
       b.   (Those who want newspapers raise their hands, those who do not want newspapers do not raise their hands.)
       c.   Teacher: (***#moshi***)   *shinbun-o*   *yomi-tai*   *hito-wa,*   *koko-ni*   *ar-imas-u.*
                       MOSHI   newspaper-ACC   read-want   people-TOP   here-DAT   be-POL-NPST
            lit. 'People who want to read newspapers, they are here.'

(24)   Context: Teacher has heard from Ann, Bill, and Chris that they want to read newspapers, but has not heard anything from the other students yet. To the whole class …
       Teacher: (***moshi***)   *shinbun-o*   *yomi-tai*   *hito-wa,*   *koko-ni*   *ar-imas-u.*
                   MOSHI   newspaper-ACC   read-want   people-TOP   here-DAT   be-POL-NPST
       lit. 'People who want to read newspapers, they are here.'

Unlike (24), in (23), the individuals satisfying the property named by the topic are all identified, since prior to the utterance of (23c), the students are separated into a group of those who want to read newspapers and a group of those who do not. Importantly, the Relevance Constraint is satisfied in both contexts: in (23), there are students who do not want to read newspapers; in (24), it remains open whether any students other than Ann, Bill, and Chris want to read newspapers or not. I thus take the contrast regarding the felicity of *moshi* between (23) and (24) to indicate the requirement that *moshi* imposes on relevance topics and formulate it as in (25):

(25)   **The iffiness condition of *moshi* in topics:** *Moshi* is felicitous only if it is open in the context which individuals satisfy the property expressed by the topic and which individuals do not.

4 A unified analysis

This section develops an account that captures the two major properties of *moshi* observed above: (a) the iffiness conditions formulated in (17) and (25), and (b) the fact that *moshi* does not usually appear in root clauses (cf. (6)). Section 4.1 introduces Ebert et al.'s (2014) analysis of conditional antecedents as topics, which will allow us to treat *moshi* in conditionals and topics uniformly. Section 4.2 formulates my proposal for *moshi*.

4.1 Conditional antecedents and topics as speech acts

The vast literature on topics is far from uniform regarding how to analyze or even identify them (see Tomioka 2021). To explain the similarity between different topics and conditional antecedents in German, Ebert et al. (2014) adopt an analysis that treats the information-structural split into topic and comment in these constructions at the speech act level.[14] Example (26) exemplifies a simple conditional and its structure assumed under this analysis.

(26)   a.   *If Mary comes, John will also come.*
       b.

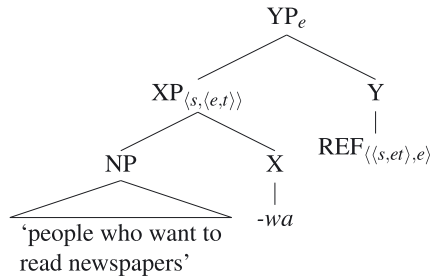REF   *If Mary comes*   ASSERT   *John will also come*

In the main text, I will only discuss how to deal with conditional antecedents and topics under this analysis; see the Appendix for details regarding the composition between antecedents of different types of conditionals and their consequents, as well as the composition between different types of topics and their comments.

I first illustrate the derivation of topic constructions. I propose the structure in (27a) for the *wa*-marked topic in (18). Abstracting away from the internal composition of the *wa*-marked constituent, I assume that *wa*-marked phrases denote properties, that is, elements of type $\langle s, \langle e, t \rangle \rangle$, as in (27b). I further assume that topics contain a speech act operator REF that composes with the *wa*-marked constituent. As shown in (27c), REF maps a property P to the plurality consisting of the salient individuals that have the property P at the world of the context. Formally, the pluralities are generated by a σ-operator (Link 1983), which maps a set of atomic

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14 See e.g. Searle (1969), Lambrecht (1994), and Endriss (2009) for more works that treat topics as speech acts.

individuals to the maximal element of their closure under sum (e.g. $\sigma(\{x,y,z\}) = x \oplus y \oplus z$). Overall, YP in (27a) denotes the plurality of the contextually salient individuals who want to read newspapers in the world of the context.
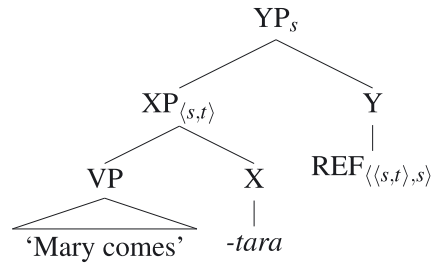
(27) a.

```
                              YP_e
                        ┌──────────┴────┐
                    XP_⟨s,⟨e,t⟩⟩           Y
                 ┌──────┴────┐            │
               NP           X        REF_⟨⟨s,et⟩,e⟩
            ┌───┴───┐        │
        'people who want to  -wa
         read newspapers'
```

b. $[\![XP]\!]^c = \lambda w.\lambda x.\textbf{want-to-read-newspapers}(x)(w)$
c. $[\![REF]\!]^c = \lambda P_{\langle s,et\rangle}.\sigma(\{x|P(w_c)(x)\})$, where x is an salient individual in c

For conditional antecedents, the overall idea is that they are definite descriptions of possible worlds (Bhatt and Pancheva 2006; Schein 2001; Schlenker 2004; Stalnaker 1968; among others). I assume a derivation that is analogous to that of topics, as exemplified in (28) for the antecedent of (5a). As shown in (28b), the constituent consisting of the antecedent proposition (*Mary-ga kuru* 'Mary comes') and the conditional marker *-tara* denotes the set of worlds where Mary comes. The speech act operator REF maps this proposition to the plurality of worlds in the context set where this proposition holds, as shown in (28c). YP in (28a) thus refers to the plurality of the live possibilities where Mary comes.

(28) a.

```
                              YP_s
                        ┌──────────┴────┐
                    XP_⟨s,t⟩              Y
                 ┌──────┴────┐            │
               VP           X        REF_⟨⟨s,t⟩,s⟩
            ┌───┴───┐        │
        'Mary comes'       -tara
```

b. $[\![XP]\!]^c = \lambda w.\textbf{come}(\mathbf{m})(w)$
c. $[\![REF]\!]^c = \lambda p_{\langle s,t\rangle}.\sigma(\{v|p(v)\})$, where $v \in CS_c$
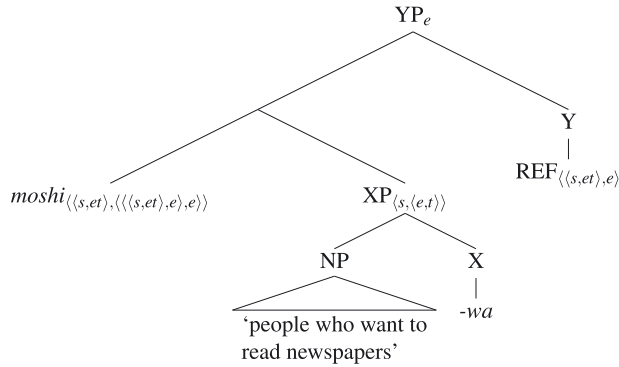
4.2 *Moshi* modifies the referring speech act

I propose that *moshi* tests whether the speech act operator REF composes with an element whose extension varies across the context set. I analyze this requirement as the presupposition of *moshi*, as schematized in (29): there must be some worlds in the context set that disagree with respect to the extension of *moshi*'s first argument. Truth-conditionally, *moshi* is vacuous and simply applies REF to the topic.

(29) $[\![moshi]\!]^c \underbrace{(X_{\langle s,\tau\rangle})}_{antecedent/topic} \underbrace{(f)}_{REF}$ is defined only if $\exists u \in CS_c. \exists v \in CS_c [X(u) \neq X(v)]$.
When defined, $[\![moshi]\!]^c(X)(f) = f(X)$.

To see how this works, consider (30a) for the derivation of the topic phrase in (20). The entry for *moshi* is given in (30b). It presupposes that some worlds in the context disagree with respect to the set of individuals who want read newspapers there, which is in line with our intuition about *moshi* in topics formulated in (25).
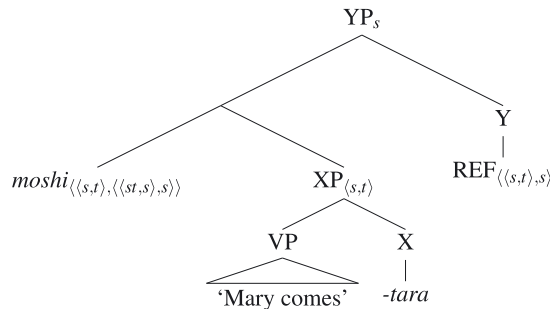
(30) a.

$$\text{YP}_e$$

$moshi_{\langle\langle s,et\rangle,\langle\langle\langle s,et\rangle,e\rangle,e\rangle\rangle}$ $\text{XP}_{\langle s,\langle e,t\rangle\rangle}$

Y

$\text{REF}_{\langle\langle s,et\rangle,e\rangle}$

NP X

'people who want to
read newspapers'

-wa

b. $[\![moshi]\!]^c(P_{\langle s,\langle e,t\rangle\rangle})(f_{\langle\langle s,et\rangle,e\rangle})$ is defined only if $\exists u \in CS_c.\exists v \in CS_c[P(u) \neq P(v)]$.
When defined, $[\![moshi]\!]^c(P)(f) = f(P)$.

The meaning of *moshi* is similar in conditionals. The derivation of the antecedent of (5b) and the entry of *moshi* in conditionals are given in (31). It presupposes that there be worlds in the context set that disagree in terms of the truth value of the antecedent proposition.[15] In other words, *moshi* prevents REF from applying to propositions whose extensions (i.e. truth values) do not vary across the context set, which is in line with our intuition about *moshi* in conditionals formulated in (17).

(31) a.

$$\text{YP}_s$$

$moshi_{\langle\langle s,t\rangle,\langle\langle st,s\rangle,s\rangle\rangle}$ $\text{XP}_{\langle s,t\rangle}$

Y

$\text{REF}_{\langle\langle s,t\rangle,s\rangle}$

VP X

'Mary comes' *-tara*

b. $[\![moshi]\!]^c(p_{\langle s,t\rangle})(f_{\langle\langle s,t\rangle,s\rangle})$ is defined only if $\exists u \in CS_c.\exists v \in CS_c[p(u) \neq p(v)]$.
When defined, $[\![moshi]\!]^c(p)(f) = f(p)$.

This proposal satisfies the desiderata for the analysis of *moshi* that we set up at the beginning of this section. First, the iffiness conditions that *moshi* requires in conditionals and topics are explained uniformly by the presupposition that the extension of *moshi*'s first argument varies across the context set. Second, since *moshi* must take an expression that is of the same type of the REF speech act operator as its input, we correctly rule out the occurrences of *moshi* in declaratives shown in (6).

Importantly, the second prediction is not made by imposing requirements regrading the *clause types* that *moshi* is allowed to appear in. Rather, our proposal allows *moshi* to be able to appear in any clause type, as long as it can provide *moshi* with the two arguments that it needs at the compositional level. Hence, we would expect *moshi* to be allowed in root clauses that perform the referring speech act. One place to check this prediction are "suppose"-sentences, expressed in Japanese by the embedding predicate *to suru* (lit. 'to do'), as shown in (32).

(32) (***moshi***) *dorobou-ga* *ki-ta* *to* *su-ru.* *soitsu-ga* *terebi-o* *motteik-u*
     MOSHI burglar-NOM come-PST C do-NPST he-NOM TV-ACC take.away-NPST
     kamoshirenai.
     MOD
     'Suppose a burglar broke in. He might take the TV.'

---

15 This condition is similar to the Diversity Condition in Condoravdi (2002).

Under our analysis, the first sentence in (32), which sets up a context for modal subordination similarly to conditional antecedents (Kaufmann 2000; Roberts 2012), can be construed as having a REF-operator that applies to the definite description of worlds where a burglar broke in. Hence, the current analysis predicts *moshi* to be acceptable as long as there are worlds in the context set where no burglar broke in. This prediction is consistent with speakers' intuitions.

5 Conclusions

I have argued that *moshi* requires iffiness in both conditionals and topics in the sense that the extension of the constituent modified by *moshi* (propositions marked by conditional markers or topic-marked constituents) must vary across the context set. The intuition has been implemented in the framework of Ebert et al. (2014), where conditional antecedents and topics are both interpreted as speech acts, which in Japanese can both be modified by *moshi*.

One issue that remains to be explained is the fact that *moshi* does not occur in topics as freely as it does in conditionals, that is, it is incompatible with aboutness topics, as in (33). This observation calls for more fine-grained distinctions between topics and conditionals, as well as between aboutness topics and relevance topics (see the Appendix for potential ways of making those distinctions).

(33) (*#moshi*) *jibyou-ga*   *ar-u*   *hito-wa*   *kansen* *su-ru*   *risuku-ga* *takai*.
      MOSHI   chronic.condition-NOM be-NPST people-TOP infect   do-NPST   risk-NOM   high
      Intended: 'People with chronic conditions, they have higher risks of getting infected.'

It also remains to be explained to what extent the notion of iffiness developed here holds cross-linguistically. It obviously does not carry over to English *if*, since *if* is perfectly acceptable in factual conditionals but is degraded in Lewis's example (see (1)). What is the iffiness that *if* expresses, then? And does the contrast between *if* and *moshi* have to do with whether they morphosyntactically mark conditional antecedents? Solutions to these problems will have to await future research.

Appendix: Motivation and main idea of Ebert et al. (2014)

Ebert et al.'s (2014) treatment of conditional antecedents as topics is motivated by the similarity between aboutness topics and regular hypothetical conditionals on the one hand, and between relevance topics and biscuit conditionals on the other. The gist of their analysis is that aboutness topics and antecedents of hypothetical conditionals relate with their comments/consequents via predication; specifically, they establish novel discourse referents that resolve the anaphoric elements in the comments/consequents. In contrast, relevance topics and antecedents of biscuit conditionals relate with their comments/consequents in terms of their coherence in discourse. Below, I highlight their key observations and briefly introduce how the observations are explained by their proposal.

In English, aboutness and relevance topics can be expressed by dislocating a DP to the left and by separating phrases like *as for*, respectively (see also Repp 2011).

(34) a.   *The pastor, nobody likes.*
  b.   *As for the pastor, the marriage sermon was wonderful.*
  (Ebert et al. 2014: 365 (38))

In German, they can be distinguished based on the forms of the pronouns in the comment parts. In aboutness topics (the construction is called German left dislocation), the pronoun must be a weak *d*-pronoun, whose case must match with the case of the topic, as shown in (35). In relevance topics (usually called hanging topic left dislocation), the pronoun in the comment may occur in various forms such as the personal pronoun in (36), and its case need not match that of the topic.

(35) (Aboutness)

Den	*Pfarrer,*	*den*	*kann*	*keiner*	*leiden.*
the.ACC	pastor	RP.ACC	can	nobody	like

‘The pastor nobody likes.’
(Ebert et al. 2014: 364 (33))

(36) (Relevance)

Der/Den	*Pfarrer,*	*keiner*	*kann*	*ihn*	*leiden.*
the.NOM/the.ACC	pastor	nobody	can	him	like

‘The pastor, nobody likes him.’
(Ebert et al. 2014: 364 (34))

See their Section 3.1 for other ways of distinguishing between the two types of topics based on prosody and binding.

Ebert et al. (2014) propose that the different requirements for resumptive pronouns reflect how each type of topics combines with their comment. For aboutness topics, the resumptive *d*-pronoun in the comments is analyzed as a variable that must be bound by the topical referent. Hence, the comment of (34a)/(35) is interpreted as the speaker's commitment to the truth of the proposition that nobody likes the topical referent (i.e. the pastor) at the world of evaluation, as in (37a).[16] For relevance topics like (34a), the comment asserts only that the proposition is true in the world of evaluation (in German (36), the anaphoric pronoun is interpreted as a free variable).

(37) a.   Comment of (34a)/(35) $\leadsto [\![\text{ASSERT}]\!]^c (w_c)(\lambda w. \neg \exists y. [\mathbf{person}(w)(y) \wedge \mathbf{like}(w)(x_1)(y)])$,
    where x_1 is bound by the referent established by the topic.
  b.   Comment of (34b) $\leadsto [\![\text{ASSERT}]\!]^c (w_c)(\lambda w.\mathbf{wonderful}(w)(\iota x.\mathbf{marriage}\text{-}\mathbf{sermon}(w)(x)))$.

The two types of conditionals, hypothetical and biscuit conditionals, also differ in terms of whether they allow anaphoric elements in the consequents to refer to the antecedents (and also in terms of the other properties that distinguish aboutness and relevance topics). That is, hypothetical conditionals allow the pro-form *then*, whereas biscuit conditionals do not, as shown in (38a) versus (38b).

(38) a.   *If Peter went shopping, (then) there is pizza in the fridge.*
  b.   *If you are hungry, (*then) there is pizza in the fridge.*

Ebert et al. (2014) analyzes *then* as a variable that restricts the assertion of the consequent proposition, which, in the case of conditionals, picks up the world-referent established by the antecedent. By uttering (38a), the speaker thus commits to the truth of there being pizza in the fridge in the worlds where Peter went shopping, as in (39a). The consequent of biscuit conditionals, which do not allow such pro-forms, only asserts that there is pizza in the fridge in the evaluation world, as in (39b). This captures the fact that the truth of the consequents in biscuit conditionals does not depend on the truth of their antecedents.

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16 Note that in Ebert et al.'s original analysis, ASSERT is represented as an operator in the metalanguage. Here, I illustrate ASSERT as an operator in the object language to keep the representation consistent with my proposal of the REF speech act operator proposed in Section 4.

(39)　a.　Consequent of (38a) $\rightsquigarrow [\![\text{ASSERT}]\!]^c (w_1)(\lambda w.\textbf{pizza} \text{-} \textbf{in} \text{-} \textbf{fridge}(w))$,
　　　　　where w_1 is a variable that refers to a contextually salient world-referent.
　　b.　Consequent of (38b) $\rightsquigarrow [\![\text{ASSERT}]\!]^c (w_c)(\lambda w.\textbf{pizza} \text{-} \textbf{in} \text{-} \textbf{fridge}(w))$.

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