Japanese modality - Possibility and necessity: prioritizing, epistemic, and dynamic

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1   Introducing 'modality'

One of the most fascinating properties that set apart human languages from other systems of communication is their sheer unlimited capacity to abstract away from the actual situation, generally referred to as displacement. Displacement along the temporal dimension allows speakers to talk about circumstances and events obtaining at different times and to relate them to their actual now (see Chapter III.2). Displacement along the modal dimension allows speakers to talk about circumstances and events that need not be part of the actual course of events at all. For this, languages use content words (like *belief* or *seek*), morphological marking (like the Romance subjunctives), functional words (like the English modal auxiliaries), as well as complex constructions. 'Modality' can then be defined as the category of grammatical devices that serve to express displacement along the modal dimension. In the following, we will build on this understanding to present an overview over the relevant expressions and constructions in contemporary Japanese.

While relatively standard in current formal semantic theories (cf. Portner 2009, Hacquard 2011), our understanding of modality is largely orthogonal to the tradition in Japanese linguistics and functional or cognitive approaches in Western linguistics (see Larm 2006; Narrog 2012 for recent overviews in English). In Japanese linguistics, 'modality' is typically defined as the category of linguistic expressions that serve to express the speakers current attitude to a proposition (Nakau 1979, Nitta 1989, Masuoka 1991, 1999). The class of linguistic phenomena this picks out is, on one hand, much broader (encompassing also politeness marking, negation, consecutive complementizers, topic markers, and tense), on the other hand, it excludes any instances of markers in the scope of tense, negation, or in nominalized constructions. In the following, we will stick to the understanding laid out initially as providing us with a semantically more homogeneous class (cf. Narrog 2005 for similar arguments).

Formal semantics standardly employs the tools and techniques of modal logic to capture modal displacement ('Modality has to do with necessity and possibility', Kratzer 1981:39). The interpretation of natural language sentences is investigated against the backdrop of a set of possible worlds representing any conceivable state of affairs, one of them the actual world. In itself, each such world determines the truth value of all atomic (declarative) sentences. Complex sentences differ in whether their truth value, too, is determined by single worlds (sentences formed with the help of just truth-functional connectives like negation and conjunction) or whether their truth at any given world depends on other worlds that stand in particular relations to it.[1,2] In the following, we will identify

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[1]The crucial contribution of modal logic is thus not a fixed inventory of two quantifiers over possible worlds ('narrow down the object of research to two easily identifiable categories' Narrog 2009:8). Rather, the innovation is that the interpretation of certain constructions can depend on the semantic values of expressions at worlds other than the one of evaluation, where these other worlds are related to the world of evaluation as reflecting what is known, believed, permissible, desired, etc. at the world of evaluation.

[2]The assumptions about non-declarative sentences are more varied. See Portner (ta) for an overview and section 5 for clause types in relation to modality.

the proposition of an (atomic or complex) declarative sentence with the set of possible worlds that make it true.

As we hope to show in the following, the formal semantic framework provides the necessary tools to make fine-grained distinctions between expressions within the system of one particular language and also to compare expressions and constructions across different languages. At the same time, our investigation of the modal system of Japanese will allow us to reflect critically on the current state of the framework, providing a better background for the investigation of distinctions that have long been central to the work on modality in Japanese linguistics, but have only rather recently moved into the focus of attention in formal theories (in particular, subjectivity and performativity, see Section 6).

In our discussion of modality in the Japanese language, we adopt a threefold distinction that reflects common assumptions in the formal semantic literature (cf. Portner 2009): **epistemic modality** (i.e., expressions that relate to displacement according to what is known or believed) is opposed to **prioritizing modality** (i.e., expressions that characterize what is permitted, required, or desired) as well as to **dynamic modality** (relating to what courses of events are compatible with a particular body of facts and/or a subjects abilities).

Modal expressions relating to permissions, requirements, and wishes are often grouped together under the label of 'deontic modality'. We reserve **deontic modality** for the narrower notion of modal expressions that relate to rules, laws, or regulations of some sort. Our investigation begins with a brief overview over expressions that are conventionally associated with modality in Japanese. It proceeds with a brief introduction to the formal semantic framework that provides the backdrop for the following discussion. We then turn to particularities of the overall system in Japanese, specifically the use of conditional-like constructions and the highly limited polyfunctionality of modal markers. We investigate sentential mood and finish with a discussion of the notion of subjectivity in various frameworks and across different modal expressions.

2 Modal expressions in Japanese

Unlike English and other Indo-European languages, Japanese does not have a morphologically or syntactically uniform class of expressions devoted to the expression of modality. Yet, a series of lexical items, morphological markers, and syntactic constructions is used characteristically to express notions along these lines, to the point that this connection is standardly considered a matter of semantic meaning. We structure our presentation along the basic semantic distinctions into epistemic, prioritizing, and dynamic modality. One issue that becomes immediately apparent is that Japanese shows little overlap in what markers are used for specific subcategories; this contrasts sharply with modal verbs like English *may* or Italian *puo* that can, among others, be used to express conjectures (epistemic), give permissions (prioritizing), and describe abilities (dynamic). A few exceptions to this will be pointed out in section 4.3. For the discussion of modal markers and constructions, it is useful to keep in mind that Japanese distinguishes two basic tenses, non-past *(r)u* NPST and past (or completed) *ta* PST, as well as a gerundive *te* GER (see e.g. Shibatani 1990 or Martin 1975, for the overall system, relevant allomorphies, and differences in speech style). Throughout, we will be assuming that modal markers combine with propositional expressions, their **prejacent**.[3]

2.1 Expressions of epistemic modality

The expressions *darou*, *hazuda*, *nitigainai*, and *kamosirenai* are conventionally associated with the domain of knowledge and belief, that is, epistemic modality. *darou* (cf. (1), and it's polite form

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[3]A critical discussion of arguments against a uniform treatment of modals as propositional operators is given by Bhatt (1998) and Wurmbrand (1999).

deshou) is considered a modal verb (e.g. Takubo 2015) or particle (Larm 2009) expressing the outcome of an inferential process (Hara 2006). Formally, it differs from *hazu* (originally a noun), which is followed by an inflecting form of the copula (see sect. 4.4 for semantic differences).

(1) Ken wa siken ni ukaru   darou.
     Ken TOP exam DAT pass.NPST EVID
     'I guess Ken will pass the exam.'

(2) Biiru wa imagoro hie-te   i-ru   hazu da.
     beer TOP by.now get.cold-GER be.NPST HAZU COP.NPST
     'The beer ought to be cold by now.'

Syntactically complex *nitigainai* (lit. 'there is no mistake in', Narrog 2009:89) and *kamosirenai* (lit. 'can't know whether') mark their prejacent as entailed and as compatible with what is known, respectively.

(3) Asita   wa ame ga huru   nitigaina-i/kamosirena-i.
     tomorrow TOP rain NOM fall.NPST must-NPST/may-NPST
     'It must/may rain tomorrow.'

Epistemic modality is traditionally distinguished from evidentiality, which is generally reserved for markers that indicate the kind of source for the information by a thus qualified sentence rather than the degree to which it is plausible given an agent's belief. In Section 4.1, we review some of the arguments generally used to motivate a distinction between the two categories in Japanese. Evidentiality is discussed in Chapter V.I of this volume.

2.2 Prioritizing modality

Among the expressions that relate to rules, regulations, or laws (all deontic according to our classification), goals (teleological modality), and wishes (bouletic modality), we find a variety of morphosyntactically diverse constructions. Prominently, Japanese uses conditional(-like) constructions involving evaluative predicates to express that something is permissible or required in view of the relevant rules or goals (see sect. 4.2).

(4) Tabe-te mo ii.
     eat-GER MO good
     'You may eat.'   ('It is good even if you eat', Akatsuka 1992, her 3)

(5) Koukousei   wa osake o   non-de   wa ike-na-i.
     high.school.student TOP alcohol ACC drink-GER TOP go-NEG-NPST
     'High school students must not drink alcohol.' (lit. 'If/when highschool students drink alcohol, it can't go.')

(6) Eiyou   no aru   tabemono o   tabe-nakerebanarana-i.
     nutrition GEN be.NPST food   ACC eat-must-NPST
     '(I) have to have nutritious food.'   (lit. 'If I dont have nutritious food it doesn't become.')

The weaker notion that something is recommendable based on practical considerations (without being outrightly necessary) is often expressed by the comparative construction *hou ga ii* (lit. 'the direction is good').

(7) Eiyou   no aru   tabemono o   tabeta hou   ga ii yo.
     nutrition GEN be.NPST food   ACC eat.PST direction NOM good SFP
     'You should have nutritious food.'

The formal noun *beki* with the copula *da* is semantically similar, but tends to involve a notion of moral or social appropriateness, which can be absent from *hou ga ii* (see Narrog 2009:87).

(8) Nihon wa keizai   taikoku o   koe-te   dou iu   kuni   o
     Japan TOP economy big.nation ACC exceed-GER how say.NPST country ACC
     mezasu   beki-na-no   ka.
     aim.for.NPST BEKI-ADN-NMLZ Q
     'What kind of country should Japan strive to be, going beyond being an economic power?'
     (Mainichi Newspaper 1/1998; Narrog 2009:83, his (53))

Various conditional constructions can convey similar notions and can thus be used to give advice, consider for example *tara ii* in (9).

(9) Koko de yasundara ii   yo.
     here DE rest-TARA good.NPST SFP
     'You should rest here.'

Desires and wishes are often expressed with the verbal affix *-tai* (cf. (51)). Complex constructions that are frequently employed to express slightly weaker desires and wishes include *-te hosii* (cf. (11)), *-te moritai* (which contains *-tai*) and *-ru tumori da* (cf. (12)).

(10) Biiru ga   nomi-tai (desu).
      Beer NOM drink-INT COP.POL.NPST
      'I'd like to drink a beer.'

(11) Tabe-te   hosii (desu).
      Eat-GER want COP.POL.NPST
      'I want you to eat.'

(12) Sin-seiken   ni hatarakikake-ru   tumori   da/desu.
      new-government DAT make.approach-NPST intention COP.NPST/COP.POL.NPST
      'I intend to make approaches to the new government.' (from Kaiser & al., 2001:552)

Finally, imperatives (verbal ending *-e/-yo/-ro*) and *-nasai*, (used with children and for instructions) as well as *-te kudasai* (for polite requests; composed of the gerund followed by a fossilized archaic imperative form *kudasai* 'give for me'), cf. (13), and exhortatives (verbal ending (*y*)*oo*), cf. (14), also express notions of prioritizing modality:

(13) Kore o   {tabe-ro, tabe-nasai, tabe-te   kudasai}!
      this ACC eat-IMP eat-IMP.POL eat-GER please
      'Eat this!/Please eat this!'

(14) Susi o   {tabe-yoo,   tabe-mas-yoo}.
      sushi ACC eat-COHORT eat-POL-COHORT
      'Lets eat sushi.'

These markers are often excluded from the study of modality proper, because they are generally taken to mark sentential form types that together with declarative and interrogative sentences form the paradigm of clause types (or sentential moods). The relationship between clause types and modality will be discussed in Section 5.

2.3 Dynamic modality

In contrast to epistemic modality and prioritizing modality, dynamic modality relates to the abilities, skills, and inherent properties of individuals ('participant-internal modality', van der Auwera & Plun-

gian 1998), but can also take into account facts about the larger situation. This gives rise to a main distinction between ability modality (referring to acquired skills and inherent design) and circumstantial modality (which can further be distinguished into capacity and opportunity). Japanese has two expressions which are reserved for dynamic modality: the allomorphic verbal suffixes *eru* and *-rareru*, and the analytical expression *koto ga dekiru* (lit. 'thing NOM be possible'). Moreover, some of the conditional(-like) constructions used for prioritizing modality can be used for circumstantial modality as well. (15) and (16) are examples of ability modality. In contrast to other languages (e.g. German, Kratzer 1981), Japanese does not distinguish according to the origin of an ability (learned, innate, or acquired otherwise): *-eru/-rareru* or *-koto ga dekiru* can be used throughout.[4]

(15) John wa tagarogugo o   {hanas-e-ru,   hanasu   koto-ga-deki-ru}.
      John TOP Tagalog   ACC speak-POTEN-NPST speak-NPST can-NPST
      'John can speak Tagalog.'   [context: learned ability]

(16) Watasi no   musume wa yuurei to {hanas-e-ru,   hanasu koto-ga-deki-ru}.
      I   GEN daughter TOP ghost with speak-POTEN-NPST speak   can-NPST
      'My daughter can speak with ghosts.'   [context: innate ability]

-eru/-rareru and *koto ga dekiru* can also express what an individual is able to do in view of his or her endowment together with other aspects of the world (capacities and opportunities):

(17) Kanemoti nanode, biru   o   marugoto {ka-e-ru,   kau koto ga deki-ru}.
      rich   because building ACC whole   buy.POTEN-NPST buy can-NPST
      Because she is rich, she can buy a whole building.

(18) Kyoo wa hare-te   i-ru   kara kirei-na shasin o {tor-e-ta,   toru
      today TOP clear-GER be-NPST because beautiful picture ACC take-POTEN-PST take
      koto ga deki-ta}.
      can-PST
      'Since the sky is clear today, we/one can take beautiful pictures.'

The fact that the markers *-eru/-rareru* and *koto ga dekiru* can be used to express both what an agent is able to do in principle, and what he or she can do in view of the current circumstances is brought out most clearly by examples that contrast these two interpretations (cf. (20)):

(19) Watasi wa piano o   hik-e-ru.   Sikasi, ima wa yubi o
      I   TOP piano ACC play-POTEN-NPST but   now TOP finger ACC
      itame-tei-ru-node   hik-e-na-i.
      hurt-PROG-NPST-because play-POTEN-NEG-NPST
      '(In general) I can play the piano. But currently since my finger is hurt, I can't play.'

In order to express what is inevitable according to the internal endowment of an organism or to the relevant circumstances, Japanese resorts to complex constructions like *sikata ga nai* (lit: 'there is no alternative'), *zaruoenai* (lit: 'not doing it is not a possibility'), or *-nakereba naranai* (lit: 'if not . . . it doesn't become').

(20) Kaze o   hi-te   i-ru   de, watasi wa hana o   {kam.a-zaru o
      cold ACC catch-GER be-NPST with, I   TOP nose ACC blow-NEG   ACC

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[4]Narrog (2008) observes that the use of simple non-past for general abilities is less natural in Japanese than it is in English or German, for instance:

(i)   Kono erebeetaa wa   800kiro made {hakob-e-ru,   hakobu kotogadeki-ru, ??hakobu}.
      this elevator TOP 800kg up.to carry-POTEN-NPST carry can-NPST   carry.NPST
      'This elevator can carry up to 800 kg.'/'This elevator carries up to 800kg.'

e-na-i,   kama-na.k-ereba   nara-na-i}.
able-NEG-NPST blow-NEG-COND become-NEG-NPST
'Since I have a cold, I had to blow my nose'

-nakereba naranai is typically associated with the expression of prioritizing modality (cf. Sect. 2.2), and is thus one of the expressions that can be used across the major category boundaries (see Sect. 4.2 for references and further discussion).

3   Modality in formal semantics

Given a careful description of the association between specific constructions and their characteristic conversational functions, formal semantic theories aim to predict such associations from the semantic properties of the expression in connection with an explicit model of the contextual settings. Moreover, they seek to explore the relations between different expressions, as for example which sentences are compatible with each other or entail each other, and how changes in other grammatical parameters (e.g. person or tense) affect the semantic meaning and therefore the functional potential of an expression. The investigation of modal expressions in formal semantics builds largely on the work of Angelika Kratzer (1981, 1991, 2012, a.o.). From its original focus on modals in English and German the framework has been extended to address modality in an increasing number of typologically unrelated languages, giving rise to extensions and modifications some of which will be discussed in later sections.

Kratzer's analysis relies on basic assumptions from modal logic. Modal verbs like *must* and *may* are taken to express universal or existential quantification over a suitable set of possible worlds (understood as complete specifications of hypothetical or actual states of affairs) that conform to a particular body of information. They thereby reflect what is known (epistemic modality), what is commanded (deontic modality), what is necessary to reach one's goals (teleological modality), what is compatible with the circumstances or abilities (dynamic modality), or what is desired (bouletic modality). For each expression, we can distinguish between its **modal force** (existential vs. universal quantification) and its **modal flavor** (the nature of the relevant body of information). Kratzer observes that one and the same expression can come with different modal flavors, and she proposes to treat this as an instance of context dependence rather than lexical ambiguity. To capture this, in the simplest form, a modal combines with a parameter A that represents the relevant body of information relative to the world of evaluation w (for instance, the set of propositions that in w are known to the speaker). Specifically, Kratzer employs **conversational backgrounds**, which are functions from worlds to sets of propositions that describe what is known to an agent, what is desired by an agent, what the law says, etc. Modal expressions can then be interpreted as quantifiers over the sets of possible worlds compatible with such a background (i.e. the intersection of the set of propositions that the conversational background assigns to the world of evaluation):

(21)   '*must ϕ*' is true w.r.t. w and A iff ϕ is true at all worlds v in the set $\bigcap A(w)$.

(22)   '*may ϕ*' is true w.r.t. w and A iff ϕ is true at some world v in the set $\bigcap A(w)$.

The modal flavor of *must* and *may* results from what conversational background A is contextually salient. But upon closer investigation, having one such body of information fails to account for the distinction between inviolable background information (knowledge, facts) and mere preferences, stereotypes, rules, etc. Kratzer points out that such a difference is reflected in how we speak about what is best given the more or less perfect circumstances, what is most plausible among all courses of events compatible with what we know, and also in speakers' intuitions regarding to what should follow from conflicting laws or desires. Therefore, she proposes to individuate the domain of quantification via two conversational backgrounds that play different roles: one serves as the **modal base**

that records what is known or what the relevant facts are; the other one serves as the **ordering source** and determines which of the worlds compatible with these relevant facts are more plausible, morally better, realize more of an agents goals, etc. Technically, the ordering source (represented as g) induces an ordering on the set of possible worlds (23), which is used to single out the highest ranked ones among the ones compatible with the modal base (represented as f): $O(f,g,w)$ are those worlds in $\bigcap f(w)$ such that no other worlds in $\bigcap f(w)$ are strictly better according to $g(w)$, cf. (24).[5]

(23) $u \leq_{g(w)} v$ iff$_{def}$ $\{p \in \bigcap g(w) \wedge v \in p\} \subseteq \{p \in \bigcap g(w) \wedge u \in p\}$

(24) $O(f,g,w) =_{def} \{u \in \bigcap f(w) \mid \forall v \in \bigcap f(w) \, [v \leq_{g(w)} u \rightarrow u \leq_{g(w)} v]\}$

With this distinction between background facts and a ranking of the possible worlds compatible with them in place, the English modal verbs *must* and *may* can be analyzed as in (25) and (26).

(25)   '*must* ϕ' is true w.r.t. a world w, a modal base f, and an ordering source g iff ϕ is true at all worlds v in $O(f,g,w)$.

(26)   '*may* ϕ' is true w.r.t. a world w, a modal base f, and an ordering source g iff there exists a world v in $O(f,g,w)$ such that ϕ is true at v.

Traditionally, conditional clauses like (27) were often treated as expressing material implication (cf. (28)).

(27)   *If Jon is in his office, the lights are on.*

(28)   Sentence (29) is true at w iff it is not the case that Jon is in his office in w and the lights are off in w.

In contrast, the currently prevalent view in linguistic (formal) semantics sees conditionals as a complex modal construction. It is pointed out that sentences like (29) have a reading on which the modal *must* does not seem to contribute anything over and above what is expressed by the conditional construction as such (i.e., (29) is interpreted roughly like (27)). The truth conditions of the entire construction can be captured if we assume that the proposition expressed by the antecedent is added to the modal base f with respect to which the modal verb in the consequent is evaluated (noted as '$f + p$' where p is the proposition expressed by the antecedent; cf. Kratzer 1991).

(29)   *If Jon is in his office, the lights must be on.*

(30)   Sentence (29) is true at w iff 'must [the lights be working]' is true at w w.r.t. modal base f + 'Jon is in his office' and ordering source g. Hence, (29) is true at w iff 'the lights are working' is true at all worlds v in O(f + 'Jon is in his office', g,w).

If the speaker's knowledge is used as the modal base f and the speaker's stereotypical assumptions are used as the ordering source g, this predicts the following: (29) is true iff, among the worlds that are compatible with the speaker's knowledge and at which Jon is at his office, the ones that are most plausible according to the speaker's stereotypes (Jon doesn't like to sit in the dark, Jon replaces his lights when they break,...) are such that the lights are on. Conditional clauses like (27) that do not contain an overt modal verb in the consequent are generally taken to contain a covert version of the overt epistemic *must* in (29).[6]

In the following we will aim to show that, even though developed originally against the backdrop of languages like English and German, Kratzer's framework is very useful for the study of the

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[5]Resorting to a set of best worlds (**Limit Assumption**, Lewis 1973) is a simplification of Kratzer's original proposal that delivers equivalent results at least for all ordering sources that assign only finite sets of propositions (see Kaufmann and Kaufmann 2015 for discussion).

[6]See Kaufmann and Kaufmann (2015) for extensive discussion of conditionals in this particular framework and related accounts.

radically different modal system in Japanese as well.

4 Particularities of the Japanese modal system

4.1 Epistemic modality and evidentiality

In contrast to epistemic markers, which qualify the plausibility of a proposition according to the beliefs of an agent, evidential markers indicate the source of information for the sentence they modify.[7] But this distinction is not always easy to draw for actual elements, and it is in fact a matter of ongoing debate if it is possible to draw a clear-cut line between these two notions at all. Some authors argue that epistemic modals even in languages like English or German should be treated as evidentials. Other authors argue that only certain elements combine both aspects (for Japanese, McCready and Ogata 2006). In Japanese, the markers standardly classified as epistemic modality (*darou*-class) and those classified as evidentials (*youda*-class) have been argued to pattern differently on at least the following parameters (list from Narrog 2009:118;123, see further references there). Firstly, they differ in terms of what adverbs they can combine with (*darou*-like markers cannot combine with *doumo/douyara*, Morimoto 1994; *kitto/tabun/hyottosuruto* cannot occur with *youda*, Takubo 2006) and in how other adverbs are interpreted (*imagoro* 'around this time', Takubo 2006, 2009). Secondly, the two classes are argued to differ in their inferential behavior: *darou*-like elements are used for deduction (reasoning to results), whereas *youda*-like elements are used for abduction (reasoning to causes) or induction (Takubo 2009). Thirdly, *darou*-like but not *youda*-like elements can be embedded under *omou* 'think'. Fourthly, the two classes are supposed to differ in their scope taking behavior with respect to other quantificational operators.

Unfortunately, these criteria fail to neatly divide the respective markers into two categories. For instance, *hazu da* and *nitigainai* are generally considered epistemic modals and pattern with *darou* on three of the four criteria. Yet, *nitigainai* patterns with the evidentials in allowing inferences to reasons (abduction), whereas *hazu da* does not. Narrog (2009:102) exemplifies this with the following example from Okabe (2004):

(31) Karada ga   daru-i.   Kaze o hii-ta   ni   tigai   na-i./?hazu
      body   NOM languid-NPST. cold ACC catch-PST DAT mistake not.be-NPS/?HAZU
      da.
      COP.NPST
      'I feel listless. I must have caught a cold.'

To the best of our knowledge, neither the list of characteristics nor the exceptions observed have been accounted for in the literature, and we currently have nothing to add to that. The contrasts mentioned above provide enough of an empirical motivation to retain the traditional distinction, though, and evidentials are accordingly discussed separately in Chapter V.1 of this handbook.

4.2 Conventionalized evaluative conditional constructions

In contrast to the better studied modal systems of Indo-European languages, which build largely on auxiliary verbs, at least for prioritizing modality, the Japanese system makes heavy use of conditionalized evaluative constructions (CECs). Formally, they look like conditional clauses with (just) an evaluative predicate in the consequent.

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[7]Aikhenvald (2005) supports a particularly strong notion of evidentiality that applies only to languages in which source of evidence is encoded obligatorily. This is not the case in Japanese – absence of evidentiality marking in tensed sentences is generally not seen as committing the speaker to being in the possession of direct evidence. See Chapter V.1 for discussion.

CECs are commonly used to express what is obligatory, wanted, or a necessary means to achieve ones goals, and to express compatibility with what is permissible, desirable, or planned, compare (4)–(6) from Section 2.2.

(4) Tabe-te mo ii.
     eat-GER MO good
     'You can eat.' (lit.: '(Even/also) if you eat it is good.')

(5) Koukousei   wa osake o   non-de   wa ik-e-na-i.
     high.school.student TOP alcohol ACC drink-GER TOP go-POT-NEG-NPST
     'High school students must not drink alcohol.' (lit.: 'If high school students drink alcohol it can't go.')

(6) Eiyou no aru   tabemono o   tabe-nakereba-nara-na-i.
     nutrition GEN be.NPST food   ACC eat-COND-become-NEG-NPST
     '(I) have to have nutritious food.' (lit.: 'If (I) don't have nutritious food it doesn't become.')

As these complex constructions serve for similar speech acts, and are translated naturally, as sentences with modal verbs in English, it is tempting to analyze the material attached to the apparent conditional antecedent as atomic expressions that are interpreted roughly like their English equivalents. Indeed, *-te mo ii* and *-nakereba naranai* are routinely glossed as 'must' and 'may' in English (see for instance Johnson 1994; Larm 2006).[8] But even if such constructions are conventionalized to a high degree, it is far from clear that they should be treated as idioms.[9]

Throughout this discussion, we need to distinguish carefully the question of whether or not an item is an atomic chunk morphosyntactically and should thus correspond to a single lexical entry from whether or not an expression's interpretation is equivalent to the one of its closest translation into English.

At least three morphosyntactic or semantic aspects shed doubt on an analysis of CECs as lexical elements.

Firstly, Japanese has a large class of different conditional markers (cf. Chapter IV.1). Most of them can be used for CECs, that is, to express necessity or possibility along the lines of what is exemplified in (4) to (6).[10] In this, each marker displays the same morphophonological properties (contractions, dialectal variations) as in ordinary conditionals. Secondly, for each choice of a particular conditional marker, there is a large and possibly open class of expressions that can appear in the consequent position. Following Akatsuka (1992:4), the general schema for CECs can be given as in (32), with a variety of different lexical instantiations for GOOD and BAD.[11]

(32)   'IF p, (Not) GOOD/BAD', where GOOD/BAD is the speaker's evaluation.

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[8]Note that it is not always clear to what extent the authors commit themselves to the position that these strings constitute semantically opaque units that are interpreted as their English counterparts. Specifically, Johnson (1994:64) writes that *ni-chigai-nai* 'is interpreted as the English modal "must." One difference, however, is that *ni-chigai-nai* does not express logical necessity in Japanese.'

[9]In the Japanese literature, the issue is discussed in Hanazono (1999), who argues that, for instance, *-nakereba naranai* 'if ...not, BAD$_1$' behaves more like a unit syntactically than the more colloquial *-nakereba dame* 'if ...not, BAD$_2$'.

[10]The conditional marker *nara* constitutes a notable exception.

[11]The situation is further complicated by the fact that, in some conditional constructions, the evaluative predicate can be replaced by an interrogative (cf. (i); see Staniak 2012 for discussion):

(i) Mou sukosi yasun-dara dou desu   ka?
     more a.little.bit rest-COND how COP.POL.NPST Q
     Why dont you rest a little more? (lit. If you rested a little more, how would that be? (Staniak 2012:91, her (93))

In some cases, the evaluative consequent can be omitted, with the conditional marker itself specifying the evaluation as either GOOD or BAD (see Fujii 2004; Larm 2006).

    a.   GOOD: ii,   uresii, yoroshii, daizyoubu, kamawanai,...
                 good, happy, fine,   all   right,   not to mind
    b.   BAD: ikenai, dame   da,   iyada, zannen da, komaru,   tae-rare-nai,
              can't go, is not good, dislike, sorry, terrible,   can't bear,...

Thirdly, following ideas in Hanazono (1999), Kaufmann (tab) constructs an argument at the syntax-semantics interface. She assumes that an atomic modal operator *-nakerebanaranai* should take scope like other operators in that position, specifically the negation *-nai*. She thus compares the behavior of quantifiers embedded in the part 'p' of Akatsuka's schema (32) to the behavior of quantifiers in antecedents of regular conditionals and in mono-clausal structures with negated predicates. From this, she tentatively concludes that CECs behave more like conditionals than like modal operators.

    In the end, independently of whether CECs are lexical atoms or full-fledged bi-clausal structures, semantic theory has to assign a suitable interpretation to these expressions. Still, the morphosyntactic status impacts the theoretical choices of how we interpret an expression, and insights into the actual interpretation can possibly provide feedback about the morphosyntactic status. Unless an expression is fully lexicalized, formal semantic theories typically impose **compositionality** as a desideratum on the interpretation process; that is, we expect the meaning of a complex expression to be determined by the meaning of its immediate parts (and, possibly, their mode of combination).[12] Therefore, if CECs were shown to be interpreted in a way that cannot reasonably be related to the meanings of their–thus, just apparent–parts, we would obtain indirect evidence that they are atomic. In contrast, if their overall interpretation is compatible with what could be derived from their parts no evidence has been gained regarding their morphosyntactic nature.

    Rather than providing a semantic interpretation for the constructions in question, most of the previous literature classifies CECs directly in terms of 'obligation', 'permission', etc., that is, in terms of the speech acts they are typically used to perform (e.g. Akatsuka 1992; Narrog 2009; Fujii 2004).Kaufmann (tab) argues that this association cannot be primitive but should be derived from the expression's semantic interpretation (as for other clauses).[13] Firstly, CECs are more flexible in use than what is suggested by these labels (see also discussion in Sect. 4.3). Secondly, changes in person, the presence or absence of negation, and differences in clause type (declarative vs. interrogative) all give rise to predictable changes in functional potential. For instance, *-te mo ii* 'it's (also) ok if' is often associated with 'permission', but a change from non-first to first person subject makes use as an offer more natural (cf. (33)). Similarly, transforming (34-a) into an interrogative turns what is naturally used as a permission into what will typically constitute a request for permssion (cf. (34)).

(33)   a.   It-te   mo ii.
               go-GER also good
               lit.:'If you go it's also good.' ($\approx$ 'You can go.')
    b.   Watasi-ga it-te   mo ii   desu.
               I-NOM   go-GER also good.NPST POL
               lit.: 'It's ok if I go.' ($\approx$ 'I can go.', 'I don't mind going.')
                                     (Narrog 2009; Larm 2005:217, his example)

(34)   a.   It-te   mo ii.
               go-GER also good
               lit.:'If (you) go it's also good.' ($\approx$ 'You can go.')
    b.   It-te   mo ii   desu ka?
               go-GER also good POL QUEST
               lit.: 'Is it also good if (I) go?' ($\approx$ 'May I go?')

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[12]For discussion, see Zimmermann (2011).

[13]Fujii (2004) also argues in favor of a compositional interpretation but does not herself develop one, see discussion below.

Both effects are ideally reduced to a change in semantic interpretation and are explained by a theory about the interface between semantic interpretation and conversational functions (a baseline being classical speech act theory, Austin 1962; Searle 1969). For instance, the content of a permission is typically required to describe a course of events that involves the addressee as an agent (Searle 1969), whereas propositions described with the speaker in the role of the agent can be the content of an offer. Specifying the subject as first person thus effects a change in canonical function. Moreover, (34) shows that the functional profile of CECs is affected by changes in clause-type marking: the distinction between declarative, interrogative, imperative, and possibly more sentence types is generally taken as one of the core indicators of conversational function.[14] Interrogative marking canonically indicates questioning and appears to be incompatible with giving permission in any direct sense.[15] In connection with its influence on the source of evaluation (see Sect. 6.2), the most natural use for (34-b) becomes thus a question about what is permissible (or possibly a request for permission).

Finally, associating CECs with conversational functions directly is also problematic because many of them can occur in embedded positions; consider for instance (35) for *-te mo ii* (Larm 2006, his (158) and (160)):

(35)   a.   Kodomo no   toki koohii o   non-de   mo yokat-ta.
             child   GEN time coffee ACC drink-GER even good-PAST
             'When (I) was a child I was allowed to drink coffee.'
    b.   Taka-ku   hyooka   shi-te   mo   ii   hito   da.
             high-INFIN evaluation do-GER even good.NPAST person COP.NPAST
             '(S/he) is a person who one may think highly of.'

A functionally underspecified interpretation (similar to, or different from what is assigned to the English modal verbs, cf. Sect. 3) avoids the problems that result from a direct link to a conversational function.

The question is thus what semantic interpretation to assign. In the absence of compelling evidence for an atomic status of CECs, we assume that it is obtained compositionally. Given the conditional structure of CECs, we might attempt to apply a standard analysis of conditionals (cf. Sect. 3). Roughly, we would derive that all the more plausible courses of events such that, for instance, you do not eat, are such that the consequent is true there. But, what does it mean for a consequent like *ii* 'good' or *naranai* 'doesn't work' to be true? Given that Japanese readily employs null-arguments, it is not immediately obvious what is evaluated and what the exact semantics should be. Intuitively, it cannot be the overall state of affairs. Consider for instance, *-te mo ii* 'even/also if..., GOOD': ϕ-*te mo ii* can be used felicitly even if the speaker cannot rule out that the addressee will be doing something else in addition to ϕ that is not good in the relevant sense; in such a case at least some of the epistemically most plausible courses of events in which the antecedent (what, intuitively, is being permitted by the speaker) is realized are definitely not good from the speaker's perspective. Evaluating all epistemically plausible $\phi-$courses of events as good would thus make wrong predictions.[16]

Following Heim's (1994) influential analysis of desire predicates like *wish*, an obvious way around this would be to let *ii* 'good' compare any conceivable situation in the nearer future at which you eat to the closest possible one at which you don't, saying that for each such pair of hypothetical situations the eating one is at least as good as the non-eating one (see also von Fintel 1999 and Lassiter 2011 for extensive discussion).

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[14]Bierwisch 1980 calls grammatical markers along these lines illocutionary force indicators. Some discussion of clause type marking in Japanese and its relation to modality can be found in Sect. 5 below.

[15]**Indirect speech acts** constitute an independent factor that complicates the discussion, see Searle (1975) for discussion.

[16]Note that we are considering an interpretation on which all (plausible enough) ϕ-courses of events are evaluated as 'good' (leaving open the possibility that some non-ϕ courses of events might also be evaluated as 'good'). This is crucially different from the standard interpretation of necessity markers, which says that all plausible enough courses of events that are good are such that ϕ happens.

But maybe a different solution is called for. Williams (1974) observes that English conditionals like (36) appear to have two different readings as reflected in the paraphrases in (36-a) and (36-b).

(36)   *I would be glad if you came.*
        a.   'If you came I would be glad about something.'
        b.   'If you came I would be glad about the fact that you came.'

While (36-a) is the standard reading obtained from any standard treatment of hypothecal conditionals, (36-b) appears to use the *if*-clause twice: as the antecedent of a standard conditional, but also as filling a clausal argument position of the evaluative predicate *be glad*. The subsequent literature argues that the reading sketched in (36-b) is indeed an independent one resulting from an underlyingly different syntactic structure. This construal of sentences like (36) is called **non-logical conditionals**. It is argued that, in these cases, the *if*-clause syntactically constitutes an argument of the evaluative predicate and patterns with other complement clauses in failing to license NPIs and allowing for *wh*-extraction (Pullum 1987; Rocchi 2010; Grosz 2012). Independently of this discussion of non-logical conditionals, Fujii (2004) suggests a logical structure along these lines for Japanese CECs. [17]

Intuitively, an interpretation along these lines offers a good starting point for deriving the actual functions of utterances of CECs with their specific lexical content in any given utterance context in a sufficiently specific formal theory of conversational function (see discussion in Kaufmann 2016). This focus on a computational semantic interpretation fails, however, to explain various aspects of conventionalization. Some aspects can be captured by independent properties of the different conditional markers. For instance, even in full-fledged conditionals, *-te wa* can only occur with consequents that express courses of events that are contextually evaluated as negative, cf. (37), and similarly *-te wa* can not instantiate Akatsuka's schema (32) with a form of GOOD in its consequent, cf. (38).

(37)   Ikashite oi-te wa nani o shaberareru ka wakaranai./#nanika no yaku ni tatsu daroo.
        'If we let him live, there's no telling what he might say/he may be useful.'

<div align="right">Akatsuka and Sohn (1994), their (1a)</div>

(38)   #Tabe-te wa ii.
        eat-GER TOP GOOD
        intended: 'It's good if you eat./You should eat.'

Other restrictions, however, seem to be specific to CECs. These regard, on the one hand, differences in modal flavor and strength. For instance, *-te mo ii* (lit. '-GER also/even good') is typically used for permissions (deontic possibility), whereas *-te ii* (lit. '-GER good') is used for recommendations (teleological weak necessity). On the other hand, possible instantiations of Akatsuka's schema (32) are constrained by syntactic polarity. For instance, ϕ-*reba naranai* with the conditional marker *(re)ba* and the consequent *naranai* (lit. 'doesn't become') can be used to express that ϕ is necessary only if ϕ is syntactically negative. Consider (39) in a context where the addressee is about to draw a number

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[17]An additional complexity is encountered with the possibility-like construction *-te mo ii* (li. '-GER even/also GOOD'), which is often translated as 'it is good even if', in analogy to the use of *-te mo* for concessive conditionals. Fujii (1994) emphasizes that regular conditionals of this type need not express that the antecedent describes the most unlikely constellation for the consequent to be true as would result from interpreting *mo* as *even* (concessive). The CEC *-te mo ii*, too, need not express that its prejacent is the most unlikely course of events to be 'good', but typically involves a merely additive interpretation for *mo* as in (i):

(i)   Watashi mo paati ni   ikimasu.
        I   MO party DAT come.NPST.POL
        'I will also come to the party.'

An analysis along these lines predicts that, thanks to a presupposition of additivity, ϕ-*te mo ii*, unlike English *may* ϕ, should entail (rather than conversationally implicate) that ϕ is not necessary (and that, hence, *must* ϕ is false). This prediction turns out to be surprisingly hard to test and will thus be left for further research.

and will only be able to continue the game if they draw an even number:

(39) a. *Kisuo hikeba naranai.
odd.number draw-REBA become-NEG-NPST
intended: 'If you draw an odd number, it doesn't work.'/'You must draw an even number.'

b. Gusuo hikanakereba naranai.
even.number draw-NEG-REBA become-NEG-NPST
'If you don't draw an even number it doesn't work.'/'You must draw an even number.'

Intuitively, in this context, the two antecedents express the exact same proposition, which makes it hard for a functional or cognitive account to explain the difference in felicity. Relying on a more general cognitive effect of the presence of negation is problematic in view of the conditionals in the English translations: these are equally unidiomatic, but also equally felicitous. Kaufmann (tab) hypothesizes a special connective *-nakereba* which in contrast to its positive counterpart *-(re)ba* can only occur with positive evaluations or in logical conditionals. If *naranai* (and also variants like *ikenai*) cannot serve as full-fledged conditional consequents, the infelicity of (39-a) is accounted for.

An alternative to this attempt of encoding the restrictions in the lexical entries of the conditional markers has been proposed by Fujii (2004). She assumes that knowledge of Japanese is best modelled as encompassing a layer of **construction types** and **construction schemes**, which represent the conventional association of CECs with typical effects (conversational implicatures) observed with certain occurrences of full-fledged conditionals.[18] An account along these lines, however, faces the challenge of how exactly this additional layer interacts with the compositional semantic interpretation (argued to be necessary to capture grammatical variation and freedom of combination, see discussion above) to predict the actual infelicity of sentences like (39-a).

Further aspects about systematic gaps in the paradigm of actually occurring CECs remain equally mysterious from the perspective of formal semantics and from the perspective of construction grammar approach.

For instance, in contrast to the productive use of concessive conditional-like constructions to convey possibility (*-te mo ii*), there is no systematic use of 'only if'-conditionals to convey necessity.[19]

(40) nakama-to kyouryoku site koso/(?)nomi/?dake seikou dekiru.
partner-with cooperate do.GER KOSO/only/only success can
'You will success only if you cooperate with your partners.'

(41) *Atarasii kuruma-o katte koso/nomi/dake naru/ii.
new car-ACC buy-GER KOSO/only/only becomes/is.good
Intended: 'It is/will be good only if you buy a new car.'/'You must/should buy a new car.'

Another problematic aspect is an asymmetry in what modal flavors are expressed by conditional

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[18]Fujii (2004) argues that her account can also capture the existence of **reduced CECs**, that is, instantiations of (32) in which the evaluative predicate is omitted but is interpreted reliably as either GOOD or BAD. A systematic discussion of when this is possible can be found in Larm (2006).

[19]'only if' conditionals are often expressed more naturally with a temporal connective *toki*. These constructions cannot serve as the basis of CECs, either.

(i) Kanozyo-wa tasukete hosii toki dake/nomi denwa-o kakete kuru.
she-TOP help-GER want.PRES time only phone-ACC call come.PRES
'She'll call (me) only if she wants help.'

(ii) *Atarasii kuruma-o kau toki/baai nomi/dake naru/ii
new car-ACC buy.PRES time/case only/only becomes/is.good
Intended: 'It is/will be good only if you buy a new car.'/'You must/should buy a new car.'

constructions to begin with: while some of the constructions discussed in this section seem to have epistemic readings in addition to the well-known prioritizing and dynamic ones, and while at least some of the conditional constructions allow for specific epistemically flavored evaluative terms (see section 4.3), the predominant markers associated with the expression of epistemic modality are non-conditional (*daroo, hazu*, and *kamosirenai*, see Sect. 2). It is, however, perfectly conceivable to express the notion of something being an epistemic possibility (roughly, *kamosirenai*) by saying that it is unsurprising if it occurs. And, in fact, (42) is not entirely unidomatic.

(42)   Ame ga   fut-te   mo okasiku-na-i.
       rain NOM fall-GER MO surprising-NEG-NPST
       'It's not surprising if it rains.' (≈: 'It might rain.')

Still, *te mo okasikunai* is not normally discussed as an expression of epistemic modality, which has to be motivated by independent criteria of grammaticalization (see Narrog 2012).

It remains to be seen to what degree formal approaches to natural language semantics (or generative grammars, more generally) can make room for idiomatic restrictions that do not pertain to fixed, semantically opaque sequences (idioms), as well as for patterns in what constructions become conventionalized in the aforementioned sense to begin with. Japanese CECs offer themselves as interesting testing grounds for this enterprise.

4.3 Specifically flavored

In contrast to the flexibility in modal flavor that is well-known for the modal expressions of the Indo-European languages, the modal expressions of Japanese tend to be restricted to either epistemic or prioritizing or dynamic flavors. At the same time, just like the Indo-European ones, Japanese modal espressions are lexically specified for modal force, which distinguishes Japanese from languages like Salish with modals that are lexically specified for modal flavor but are variable in modal force (Rullmann, Matthewson, and Davis 2008).

Flexibility in modal flavor was more widespread at earlier stages of Japanese: some expressions have lost readings available to them at earlier stages. For example, the precursors *besi* of *beki* (now exclusively deontic) and *-mu* of exhortative *-(y)oo* (now exclusively prioritizing) both had epistemic readings in Old Japanese, and for *-(y)oo*, epistemic uses are still to be found in early Modern Japanese (Horie 1997).[20]

To what extent, if at all, modern Japanese modal markers can be used for different modal flavors, is disputed. Adverbial expresssions like *kanarazu* 'necessarily, by all means' can occur both with epistemic as with non-epistemic modals. However, they seem to be unable to express modal notions by themselves, and rely on a co-occurring modal expression as listed in Section 2 (cf. Narrog 2009:75). Among those that are considered genuinely modal, the primarily epistemic marker *hazu da* has uses that suggest an analysis in terms of deontic modality (cf. Narrog 2009 for discussion, but also Sect. 4.4).

Moreover, as we have already seen in Section 2, while predominantly prioritizing, the CECs -*nakereba naranai* and -*nakute wa naranai* can also express dynamic modality. They have, in addition, been claimed to marginally express epistemic modality. Yet, intuitions are not always entirely clear-cut. An example from Narrog (2008) (his (24)) is given in (43).

(43)   Daawin sinka-ron   ga   zettaiteki ni tadasii to   suru-nara, sinka   wa
       Darwin evolution-theory NOM absolute DAT right   COMP do-COND evolution TOP

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[20]Moriya and Horie (2009) (fn. 5) point out that *beki* also has an adnominal use in which it still allows for both deontic and epistemic usages as in *kuru beki hito* 'a person who (morally) should come' or 'a person who is (epistemically) supposed to come'.

ima sinkou-tyuu   de nake-reba   nara-na-i.
now progress-during in NEG-COND become-NEG-NPST
'If Darwins theory of evolution is absolutely right, then evolution must be in progress now.'

While some of the putatively epistemic examples with *-nakereba naranai* could also be analyzed as involving circumstantial necessity, this is hard to maintain for (43), which suggests that *must* depends on the contents of Darwin's theory (together with the assumption that it is correct). The contents of a theory constitute an epistemic and not a circumstantial conversational background.[21]

The only markers that seem to uncontroversially express both prioritizing and epistemic notions in themselves in modern Japanese are the CECs *-te ikenai* and *-te mo ii*. In addition to their more widely known prioritizing or dynamic uses, Larm (2006) cites and confirms the following examples from Adachi and al. (2003).

(44) Nijikan mae ni   shuppatsu shi-ta   no   nara, moo toochaku si-te
     two   hours before departure do-PAST NML if   already arrival do-GER
     i-na-kute   wa   ik-e-na-i.
     be-NEG-GER TOP go-POT-NEG-NPAST
     'If (s/he) departed two hours ago, then (s/he) must have arrived by now.'   (Larm 2006:210, his (110))

(45) Tanaka san   wa, nijikan mae ni   ie   o   de-te   i-ru   soo
     Mr   Tanaka TOP two   hours before house ACC leave-GER be-NPAST QUOT
     dakara, sorosoro kochira ni   toochaku shi-te mo   ii/   suru
     therefore soon   here   DAT arrival do-GER even good.NPAST/ do.NPAST
     kamoshirena-i.
     SPEC-NPAST
     'I hear that Mr Tanaka left the house two hours ago, so he may be here soon.'

According to Adachi and al. (2003) and Larm (2006), *ikenai* in (44) can be replaced by *naranai* but not the more colloquial *dame da* 'it's no good'. The felicitous variants are reported to express a notion similar to *hazu da*. For (45), *-te mo ii* is considered similar to epistemic *kamosirenai* (Larm 2006:217).

To the best of our knowledge, a satisfactory account for the crosslinguistic presence or absence of polyfunctuality across the boundary of epistemic, prioritizing and dynamic modality still remains to be given. Yet, it is suggestive to relate this finding to the heavy use of largely semantically transparent complex constructions, and one might expect that, with the course of semantic bleaching as occurring in the process of grammaticalization, the dividing line between the three main types of modal flavors would get weakened. The present status of *nakereba naranai* (possibly in contrast to *nakereba dame*), *te mo ii*, and *te wa ikenai*, with relatively unspecific evaluative predicates and as some of the most conventionalized conditional constructions might constitute evidence in favor of such a development (see Moriya and Horie 2009 for similar considerations).

4.4 Weak and strong modality

The standard version of Kratzer's graded modality theory as introduced in Section 3 above distinguishes possibility and necessity modals and hence captures satisfactorily their behavior in conjunctions with contradictory prejacents.

(46) a. *You can/may leave, and you can/may stay.*

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[21]A good test, of course, would be to replace *nakereba naranai* in (43) with a marker like *zaruenai* that unambiguously selects for circumstantial and not epistemic necessity and to see if the reading remains the same. Unfortunately, *zaruenai* requires the presence of a lexical verb and cannot be used with *sinkou tyou*.

b. #*You have to/must/should/ought leave, and you have to/must/should/ought stay.*

By this test, *nitigainai, hazu da, beki* and *nakereba naranai* can be established to be necessity items, whereas *kamosirenai* behaves like a possibility modal.[22] Still, as described informally in Section 2, even for a given modal flavor, single expressions with one and the same modal force differ considerably. Inspired mostly by von Fintel and Iatridou (2008), the recent formal semantic literature contrasts for example **weak necessity modals** (like *ought* and *should*) with **strong necessity modals** (like *must* and *have to*). The distinction in strenght is motivated by two types of contrasts.[23] Firstly, strong necessity modals can reinforce weak ones, but not the other way round (cf. (47) from von Fintel and Iatridou 2008). Secondly, weak necessity modals are compatible with the negation of strong necessity modals, but not the other way round (cf. (48) from von Fintel and Iatridou 2008 vs. (48-b)).

(47) a. *You ought to wash your hands in fact, you have to.*   their (5a)
      b. ??*You have to wash your hands in fact, you ought to.*   their (5b)

(48) a. *You ought to do the dishes but you don't have to.*   their (3)
      b. ??*You have to do the dishes but you oughtn't.*

The literature on Japanese modals suggests that a similar contrast obtains between *beki da* and -*nakereba naranai/ikenai* in the deontic domain, and *hazu da* and *nitigainai* in the epistemic domain (see Narrog 2009; Larm 2006). A contrast similar to (47) is illustrated in (49), where what is given as best (*beki*) for all animals can at the same time be called necessary for the lions (-*nakereba naranai*); exchanging the modals results in an infelicitous sequence.[24]

(49) *Zuu zi   made ni   subete no   doubuu ni   esa o   yaru beki   da   kedo*,
      10 o'clock until DAT all   GEN animals DAT food ACC give BEKI COP.NPST but,
      [?](*mosi zikan ga   naku-te-mo*,)   *raion ni   wa   zuu zi   made ni   esa o*
      (if   time   NOM not.be-GER-MO) lion   DAT TOP 10 o'clock until DAT food ACC
      yara-nake-reba   narana-i
      give-NEG-COND become-NEG-NPST
      'You should feed all animals before ten, but (even if you are short of time), the lions you have to feed before 10.'

In the epistemic realm, Okano and Mori (2014) observe that *hazu* patterns with the weak necessity modal *should* rather than the strong necessity modals *must* or *have to* in allowing for the prejacent to be false (see Copley 2005 for discussion of the English data).

(50) The beer { should, #has to , #must} be cold by now, but it isn't.

(51) Biiru wa   imagoro hie-te   i-ru   {hazu da/nitigaina-i}   ga
      beer TOP by.now   get.cold-GER BE-NPST HAZU COP.NPST/NITIGAINAI NOM

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[22]An independent problems arises for *darou* as it cannot be embedded under a conjunction marker. The equivalent of the conjunction test for -*te mo ii*, which was argued to be a transparently evaluative construction, is construed as in (i), following regular alternative concessive conditionals like (ii) from **??**:

(i)   Tabe-te mo tabe-naku-te   mo ii.
      eat-GER MO eat-NEG-GER MO GOOD.
      'Whether or not you it, it's ok/good.' (roughly: 'You can eat and you can also not eat.')

(ii) Nai-te   mo wara-tte   mo happyoo   made ato   itiniti da.
      cry-GER MO laugh-GER MO announcement until   one-day
      'Whether (you) cry or laugh, there is only one day before the announcement.'   her (7)

[23]The data in (47) and (48) are not entirely uncontroversial, see Yanovich (2014) for critical discussion.
[24]Related contrasts concerning *beki* and *hou ga ii* are established in so far unpublished work by Carla DiGirolamo (p.c. with first author).

hie-te   i-na-i.
get.cold-GER BE-NEG-NPST
'The beer should/#must be cold by now, but it isn't.'

Further research will be needed to determine the extent of the parallelism.[25]   From a theoretical perspective, the distinction between weak and strong modality is subject to on-going research (see von Fintel and Iatridou 2008; Lassiter 2011; Rubinstein 2012; Portner and Rubinstein 2016, a.o.).

5   Modality and clause types

5.1   Clause types and verbal inflections

Defining modality as the category of grammatical markers that express displacement from the actual situation raises the question of how the notion relates to sentential mood (or, sentence types) and the morphological markers that indicate sentential mood. Sadock and Zwicky (1985) understand sentence types as sentential form types that are conventionally associated with a particular speech act type. They observe that most languages of the world distinguish **declaratives** (canonically used for assertions), **interrogatives** (canonically used for yes-no questions), and **imperatives** (canonically used to 'indicate the speakers desire to influence future events'), and that many languages mark additional minor types.[26]   Studies that define modality as the class of expressions and constructions that convey the speaker's attitude to the propositional content expressed by an utterance typically include the discussion of sentence types. In contrast, the formal semantic literature tends to treat modality as part of the propositional content expressed by an utterance. Diffenrences in sentence type are reflected either at a separate layer of pragmatic (e.g., Stenius 1967) or semantic meaning (e.g., Bierwisch 1980), or else amount to a type-theoretical distinction (e.g., Hamblin 1973 identifies the denotation of an interrogative clause with the set of propositions that constitute possible answers). Imperatives have recently been argued to belong to modality proper, in that a modal operator similar to *must* or *should* is responsible for their conventional link to directive speech acts (Han 1999; Schwager 2006; Grosz 2009; Medeiros 2013, a.o.; Portner 2007 for a non-modal alternative). The minor clause types of optatives and exhortatives have received less attention but might be similarly related to subtypes of prioritizing modality. The relation between sentence types and modality is particularly complicated in Japanese, which does not display a formally uniform system of clause types. In the following, we will briefly consider imperative clauses and exhortatives.[27]

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[25]Note for instance (i) from Narrog (2009) (his (91)), which displays a use of *hazu da* that is impossible for weak necessity modals in English:

(i)   Zenkai no toki ni o-kotowari si-te   oi-ta   hazu yo.Kekkon aite-gurai   zibun de
       last.time GEN time DAT HON-decline do-GER put-PST HAZU YOmarriage partner-about self   LOC
       mituke-ru.
       find-NPST
       'I presume I [already] declined the other day. I can find a partner for marriage by myself.'

Narrog observes that 'For the speaker, it is a fact that she declined to be introduced to prospective marriage partners. She only rhetorically presentes this as a suppostion.' (p. 102) Neither *ought* nor *should* can be used in this way.

[26]Of course, expressions of any form type can be used for basically any function, which can be explained as Searlean indirect speech acts (Sadock and Zwicky 1985) or via a functionally underspecified layer of semantic meaning (Portner 2007; Kaufmann 2012).

[27]Another construction that merits investigation in this connection but has to await future research is optative *yoo ni*. For a recent treatment of optative clauses in formal semantics, see Grosz (2011).

5.2 Imperative clauses

We use 'imperative markers' for verbal morphology or particles that mark a clause as belonging to the imperative clause type of a given language, that is, a sentence form, whose canonical use is to command or order (Kaufmann 2012).[28] In Japanese, the inflectional ending *-e* (with allomorphs *-yo/-ro* depending on verbal inflection class), *-nasai*, and *-te kudasai* can be considered subtypes of the imperative clause type. They differ slightly in canonical function: *e/yo/ro* is used for direct commands, *nasai* is used with children and for instructions, and *-te kudasai* is used for polite requests.

(52) Kono hon o   yom-e/ yomi-nasai/   yon-de   kudasai.
      this   book ACC read-IMP/ read-IMP.HON/ read-GER please
      '(Please) Read this book.'   direct command/instruction/polite request

As in many (though by far not all) languages, the morphological markers do not co-occur with sentential negation, instead, in the plain style, the non-past form followed by *na* is used, cf. (53). In contrast, the polite construction *-te kudasai* can be formed from the negated form of the verb as well, cf. (54).

(53) Kono hon o   yomu   na!
      this   book ACC read.NPS PART.NEG.IMP
      'Dont read this book.'

(54) Kono hon o   yoma-nai-de   kudasai.
      this   book ACC read-NEG-V.GER please
      'Please don't read this book.'

Following a cross-linguistically stable generalization (Han 2000), the semantic contribution of the imperative marking cannot appear in the semantic scope of clausemate negation: (53) and (54) express orders, requests, advice, etc. to not act in the way described.

Like many other languages, the subject of Japanese imperatives can be realized by a second person pronoun or be left out, resulting in a difference in information structure only. Similarly to German or English, subjects other than second person are generally ungrammatical (Nitta 1991:241, Narrog 2009:1999), but quantifiers over a plural addressee (see Zanuttini 2008; Kaufmann 2012), specific to Japanese, proper names referring to the addressee are acceptable as subjects, rather than vocatives (compare English translation). These findings support the assumption of a propositional prejacent to whatever is responsible for the imperative meaning.

(55) Anata ga/   *kare ga   ugok-e.
      you   NOM/ he   NOM move-IMP
      'YOU move.'/ intended: 'He move'

(56) Dare ka/ Minna/ Takeshi-san ga   ugok-e.
      someone/ everyone/ Takeshi-Mr. NOM move-IMP
      Somebody/everybody/You, Takeshi, move!

(57) Daremo ugoku na.
      anyone move PART.NEG.IMP
      [lit.]Anybody dont move! = Nobody move!

Similarly to what is familiar from other languages, depending on issues of politeness, imperatives can be used naturally (and without signs of indirectness, cf. Kaufmann 2012 for discussion) for a variety of speech acts other than orders or commands, too. A series of different accounts in the recent formal literature tend to capture this in terms of the relation between imperative clauses and

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[28]For a recent discussion of Japanese imperatives see also Svahn (2016), which we have not been able to take into account in this section.

modality: imperative clauses either contain modal operators or even express modalized propositions similar to 'You should φ' (see Kaufmann 2012 for details), or update the parameters with respect to which a subsequent prioritizing modal is interpreted (Portner 2007). This means that, in addition to deontic modality, they can also express teleological or bouletic modality, as long as a modal flavor is considered to guide the addressees choice of action or express the speaker's wishes (Kaufmann 2012). While imperatives invariably express that their prejacent is true in the best courses of events according to the respective modal flavor, their use for instructions or advice shows that the speaker need not have an actual desire for this to come about.

(58)   A: *How do I get to the station?*
        B: *Take bus number 17.*

On their more canonical uses, imperatives require the addressee to have control over the state of affairs described in the prejacent. Imperatives of non-agentive predicates are consequently marked. In English, they are acceptable in contexts of coercion (e.g. *Be blond!* to 'see to it that your hair is blond (for a specific occasion)') or as wishes uttered in soliloquy (imagining a specific addressee). Also, imperatives from stativized predicates are fine if a specific reference time is salient or indicated overtly (see Chapter III.2). In Japanese, these pragmatic restrictions on imperatives of stative predicates are reflected more strongly in actual grammatical restrictions: imperatives cannot be formed from stative predicates other than *iru* '(animate) to be, to exist. Apart from that, things are similar to English: (59) provides an example for use in soliloquy, (60) a case where the reference time is specified explicitly:

(59)   Kono heya ni   iro/inasai/i-te   kudasai.
        that   room DAT be.IMP/be.IMP.POL/be-GER please
        'Please be in there!' (hoping that the missing sister has returned and will be in her room) [29]

(60)   Zyousi ga   toutyaku-suru toki wa genkan-de   mat-te   iro/inasai.
        boss   NOM arrive-do.NPST time TOP entrance-LOC wait-GER be.IMP/be.IMP.HON
        'Be waiting at the gate when your boss arrives.'

While most languages impose strong restrictions on imperatives in embedded contexts (to the point of banning them altogether), Japanese allows imperative markers in *to*-marked complements of speech reporting predicates. While *to* can, in principle, introduce both direct speech (quotational constructions) and indirect speech, Kuno (1988) adduces examples where the behavior of indexicals like *kanozyo* 'her' refutes an analysis as direct speech (his (4.1)).

(61)   Hanako ga   [kanozyo no   ie   ni   sugu   koi]   to   denwa   o
        Hanako NOM her   GEN house DAT immediately come.IMP that telephone ACC
        kakete   kita.
        place-GER come.PST
        'Hanako called me up and said that I should come to her house immediately.'

Kuno regards such examples as instances of 'blended discourse' that integrate quotational pieces into an indirect speech complement. But as Kuno himself acknoweldges, even the allegedly quotational parts need not be literal quotes and are, for instance, subject to the ban on polite verbal froms from embedded clauses. In view of this and in line with more recent findings of embedded imperatives in other languages, the relevant constructions are now generelly considered bona fide examples of indirect speech (Oshima 2006; Schwager 2006; Fujii 2006; Saito 2012; Kaufmann 2012; Saito 2016).[30]

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[29]Our Japanese rendering of the English original as occurring in Mary Higgins-Clark's novel *Daddys Girl*.

[30]Masahiro Yamada (p.c. to first author) points out that Japanese might also allow for embedded imperatives in certain types of relative clauses:

5.3 Exhortative clauses

Predicates carrying the verbal affix *-(y)oo* (attaching to both the plain and the polite form) are generally considered to mark the sentential form of an exhortative clause. They are canonically used in suggestions for joint action.

(62) a. Asita   kaimono-ni ik-oo.
            tomorrow shopping-to go-COHORT
            'Lets go shopping tomorrow.'
      b. Maturi-de wa kimono o   ki-yoo.
            festival-at TOP kimono ACC wear-COHORT
            'Lets wear kimono at the festival.'

Under particular pragmatic constellations, *-(y)oo* can also be used to express one's willingness to do something for the benefit of the addressee, which is why the form type is sometimes considered ambiguous with the cross-linguistically even rarer type of a promissive clause (see Zanuttini, Pak, and Portner 2012 for clause types in Korean).

(63)   Obasan o-tetudai si-mas-yoo.
        Auntie, HON-help do-POL-COHORT
        'Auntie, let me help you!'   (Higuchi 1992:182)

Narrog (2009:154f) argues that such examples are pragmatically marked and should thus not be seen as evidence in favor of a genuine promissive reading. Interestingly, *-(y)oo* can occur in indirect speech and alternates there between an exhortative and a promissive reading depending only on the syntactic and semantic properties of the embedding construction (Fujii 2006, his (15b,c)).

(64)   Yoko wa boku no   beeguru o   tabe-yoo   to   keikaku sita   (yoo
        Yoko TOP I   GEN bagel   ACC eat-COHORT COMP plan   do.PST EVID
        da)
        COP.NPST
        '(It seems that) Yoko planned to eat my bagel.'

(65)   Yoko wa Hirosi ni boku no   beeguru o   tabe-yoo   to   teian   sita
        Yoko TOP Hiroshi DAT I   GEN bagel   ACC eat-COHORT COMP propose do.PST
        (yoo da)
        EVID COP.NPST
        '(It seems that) Yoko proposed to Hiroshi to eat my bagel.'

In line with the modal theories for imperatives, this behavior of *(y)oo* could be taken to indicate that it expresses a more general notion of necessity according to a modal flavor that reflects the joint interests of speaker and hearer. This assumption might shed light on a crucial difference between imperatives and exhortatives: the latter, but not the former, can appear in the scope of the interrogative particle *ka*, and express suggestions that await confirmation, cf. (66). Semantically, we could capture this as a polar question about whether it is best for the group of conversational participants to follow a

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(i)   a. kanarazu yome   teki na hon
           certainly read.IMP TEKI NA book
           'the book you should read in any case'   [colloquial]
    b. kanarazu yom-e   mitai na hon
           certainly read-IMP like   NA book
           'the book you should read in any case'   [normal]

Imperatives embedded in restrictive relative clauses are crosslinguistically rare, see in particular Medeiros (2013) for instances in Ancient Greek and Stegovec and Kaufmann (2015) for Slovenian.

certain course of events or not, reflecting the compositional interpretation of the interrogative marker outscoping a suitably flavored necessity modal.

(66)   A: Tabe-mas-yoo   ka? — B: Hai, tabe-mas-yoo.
          eat-POL-COHORT Q   yes,   eat-POL-COHORT
        'Shall we eat?' — 'Yes, lets eat.'

While the embedding of *(y)oo* under the interrogative particle *ka* can be taken to indicate lack of subjectivity (see discussion in Larm 2006), on the view sketched below, the particular modal flavor *(y)oo* expresses displays subjectivity in the semantic and pragmatic sense: it expresses an evaluation according to joint preferences or goals of speaker or hearer (either of the actual utterance context or of a context introduced by a verbum dicendi) (see Sect. 6 for details).

6   The notion of subjectivity

6.1   Pragmatic versus lexico-grammatical conception

Works in Japanese linguistics as well as general cognitive and functional studies of modality have long drawn attention to a complex of phenomena that the formal semantic framework introduced in Section 3 has turned to only recently. The phenomena in question are generally subsumed under the notions of **subjectivity** and/or **performativity**, and relate to the observation that certain modal expressions 'subjectively express the speaker's state of mind at the time of the utterance' (Kindaichi 1953:, translation of Larm 2009:62) or serve the 'locutionary agent's (the speaker's, or writer's, the utterer's) expression of himself or herself in the act of utterance' (Lyons 1995:337). Often, this is related to Austin's (1962) notion of performative utterances in opposition to constative ones (Verstraete 2001; Larm 2009). While the phenomenon as such, as well as the assumption that it eludes a purely truth-conditional explanation, is broadly acknowledged, there is considerable disagreement about a scientifically viable definition; intuitions also differ widely in whether subjectivity should be contrasted with objectivity, intersubjectivity, or both (see for instance Nuyts 2008, Portner 2009:122-129, Narrog 2012:23-46). Authors disagree specifically on whether the distinction is to be drawn between linguistic expressions (**strict lexico-grammatical conception**, e.g. Kindaichi 1953, Larm 2009, Langacker 1985,2002) or between occurrences of linguistic expressions (**pragmatic conception**, Traugott and Dasher 2002, Lyons 1977),—a crucial point for semantic theory building. To exemplify the two positions, on the pragmatic view, *-te mo ii* is subjective in (67), but not in (68); on the strict lexico-grammatical conception, examples like (68) (from Larm 2006, his (158)) prove that *-te mo ii* is not subjective.[31]

(67)   Tabe-te mo ii   desu   yo!
        eat-GER MO good COP.POL.NPST SFP
        'Its alright if you eat'/'You can eat!'

(68)   Kodomo no   toki koohii o   non-de   mo yokat-ta.
        child   GEN time coffee ACC drink-GER even good-PAST
        'When (I) was I child I was allowed to drink coffee.'

   In view of such findings, more recent proponents of the strict lexico-grammatical position maintain that subjectivity is a gradual concept, and can be defined by a series of grammatical properties which an expression may exemplify only partially. For Japanese, Larm (2006, 2009) builds on

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[31]The maintainer of the strict lexico-grammatical position could of course assume that the construction (or a relevant part of it, depending on its morphosyntactic status, cf. Sect. 2.2) is ambiguous. This would result in a most likely unmotivated proliferation of ambiguity and, as the occurrence of relevantly self-expressing and non-self expressing usages does not seem to be random, it would call for a theory of what contrains their respective appearances.

Kindaichi's work to determine whether modal markers belong to the class of expressions with **Maximum, High, Intermediate, Low**, or **Zero Subjectivity**. He employs the following criteria: inability to occur (i) in the scope of past tense, (ii) in the scope of negation, (iii) in an adnominalization, (iv) in the scope of an objective modal, (v) in the antecedent of a conditional, (vi) under an attitude predicate like *know*, (vii) under *node* 'because', and inability to (viii) be questioned; lastly, (ix) subjective modality may be expressed only once (although possibly in more than one place, Lyons 1977:808).[32] For Larm, subjectivity is a matter of degree in that a given element may come with only a subset of these properties, and he points out that a characterization along these lines involves testable criteria rather than the researcher's intuitions.

While we fully agree with Larm in the last respect, this graded lexico-grammatical approach is not unproblematic, either. First of all, it is not entirely clear if scope is understood semantically or syntactically–while these two coincide for the compositional interpretation of regular truth-conditional at-issue meaning (at least if an abstract syntactic representation possibly different from the surface order is assumed), the two notions of scope can easily come apart for other layers of conventional meaning. Consider specifically expressive meaning as conveyed by the English noun *bastard*. The negative evaluation conveyed is subjective in the sense of Lyons (1995) (self-expression of the speaker in the here and now of the utterance), but it can be freely embedded in arbitrary syntactic depth, consider (69):

(69)   a.   *If that bastard shows up here once more, I'll call the police.*
         b.   *I haven't seen that bastard in a long time.*

Apparently, expressions like *bastard* can occur freely for instance in the antecedents of conditionals or under tense and negation, but contribute expressive meaning that (semantically/pragmatically) 'escapes' the morphosyntactically encoded embedding construction.[33] Secondly, as evidenced in the above discussion of imperatives and exhortatives (cf. Sect. 5), not even the markers with maximum subjectivity display the full-range of subjectivity properties (independently of whether 'scope' is understood syntactically or semantically): both can appear in speech reports, exhortative *-(y)oo* can occur in interrogatives, and imperatives may be able to occur in relative clauses. Thirdly, in order for it to be fully satisfactory, one would want to know if the division into five classes of subjectivity follows an implicational hierarchy regarding the properties that are being established by this class, and if so: does one level of subjectivity/combination of particular properties corresponds to a single underlying property an expression has? Fourthly, the gradable notion fails to shed light on the observation that many expressions identified as having zero or low subjectivity (e.g., *-te mo ii*) still display a strong tendency for being anchored to the perspective of the speaker in matrix declaratives (in the cross-linguistic picture, compare also the mixed behavior of items like English *must* as discussed in 6.2).

The pragmatic account avoids many of the issues that remain problematic even for the graded lexico-grammatical position. However, in its strict form, it fails to explain why expressions differ in what contexts allow for a non-subjective use, and why a subjective interpretation seems to be inevitable for certain constructions.

We conclude that the actual subjective or non-subjective use of an expression results from an interplay between its conventional meaning and the conversational settings (similarly, Narrog 2012) and that an expression's tendency to be used subjectively or non-subjectively in particular linguistic and non-linguistic contexts has to be explained by its conventional meaning. Additionally, items may come with syntactic restrictions on possible contexts of embedding. As it stands, this suggests genuine independence between syntactic and semantic restrictions, which fails to reflect obvious con-

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[32]Larm's classification is a more fine-grained version of Hengeveld's (1988), who relies on (i,ii,v,viii) in addition to 'the possibility of questioning the source of modal judgment' (see Narrog 2012:31f for discussion).

[33]Potts (2005) treats such aspects of conventionally encoded meaning as **conventional implicatures** and offers a compositional treatment on a layer parallel to the regular at-issue meaning; see also Tonhauser, Beaver, Roberts, and Simons for a general discussion of **projective meaning**.

nections: markers that tend to be used subjectively in unembedded contexts often underly restrictions against embedding (e.g., imperatives, exhortatives, Japanese *darou*; or, as a preference for wide-scope interpretations, English *might*). While, as shown above (cf. (69)), intuitively subjective markers can occur in the absence of syntactic restrictions, these two aspects should not be treated as completely unrelated either. In fact, formal theories of the syntax-semantics interface are aiming to identify linguistic structures that account for the syntactic restrictions and encode the aspects of subjectivity observed with the items in question (see Sect. 6.3 and Portner 2009).

6.2 Subjectivity effects relating to modals from the formal semantic perspective

In view of the findings in the previous section, we maintain that there is an aspect to Lyon's classification of 'subjectivity' as the self-expression of the speaker in the here and now of the utterance that has to be understood at the lexico-grammatical level, but also that existing lexico-grammatical theories of subjectivity are not entirely satisfactory. Instead, we will advocate the following **weak lexico-grammatical understanding of subjectivity**:

(70)   Subjectivity is a property of a linguistic expression α (a lexical item or a construction); it means that the meaning or use of the expression α in syntactically unembedded position cannot be captured correctly without making reference to the actual speaker in his/her actual here and now, [34] and that α displays *some sort of obstinacy* against this dependence being manipulated, where manipulation can be achieved (i) pragmatically, through changes of the contextual setting of the utterance, or (ii) grammatically, through syntactic embedding under a scope taking operator.[35]

A couple of comments are in order regarding (70). This definition is kept deliberately general to cover what we take to be a range of underlyingly different phenomena that all fall under Lyon's characterization and should thus not be considered in complete isolation. Different phenomena falling under this umbrella may, however, have quite different properties and may thus require quite different analyses.[36] 'Some sort of obstinacy' is meant as a cover term for a range of phenomena discussed in the literature (see below for specific examples), in particular, obstinacy against grammatical manipulation covers both restrictions against an expression's appearance in the syntactic scope of other expressions *and* semantic/pragmatic restrictions against an expression being interpreted in its syntactic position (as evidenced above with conventional implicatures, cf. (69)). The definition leaves room for discussion as to whether or not a particular phenomenon constitutes 'obstinacy' in the relevant sense, but we are positive that there are enough clear-cut cases to get the discussion started. Finally, it may be worth pointing out that, subjectivity thus understood does not require a positively defined counterpart— expressions simply do not have the property if their meaning can be captured without reference to speaker/here/now of the actual conversation and if it interacts according to standard assumptions of compositional semantics with its surrounding linguistic contexts in arbitrary depth of embedding.

While our definition remains silent as to whether subjectivity has to be encoded syntactically, classes of items in which it systematically co-occurs with syntactic restrictions against syntactic embedding, strongly suggest a treatment in terms of structural properties (e.g., Speas and Tenny 2003; Truckenbrodt 2006, see also Sect. 6.3).

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[34] See Zimmermann (2012) for standard conceptions of the utterance context.

[35] Note that we are using 'manipulated' rather than the more intuitive 'shifted' in order for the definition to extend to negation.

[36] While it does not presuppose it, this view is perfectly compatible with hierarchical implications between different degrees of subjectivity.

Work in formal semantics oftentimes does not address the issue of subjectivity as such, but there is a considerable body of literature that addresses in detail specific linguistic phenomena that are related more or less directly to specificity as pertaining to modality (in Japanese and elsewhere). A common characteristics of all these discussions is that propositional meaning alone fails to capture specifics of discourse behavior and an inherent notion of **perspective**.

Consider first the work on modal verbs and adverbials of Indo-European languages. According to the Kratzer-style framework as outlined in 3, we would expect for them to be interpreted with respect to arbitrary conversational backgrounds, thus reflecting the beliefs of the speaker or of any other salient individual, or, for deontic modality, the rules or goals of the speaker just as well as of any other individual. There are, however, systematic restrictions fitting right into the picture of what we have called subjectivity (see Kratzer 1981; Portner 2009). Epistemic modals occurring in main clause declaratives, for instance, will normally relate to the belief state of the speaker (Kratzer 1986), although it is well-known that a strictly solipsistic interpretation will make wrong predictions in many cases (see von Fintel and Gillies 2007 for discussion). Epistemic modals are sometimes also claimed to take widest scope with respect to clause-mate operators (Drubig 2001; von Fintel and Iatridou 2003) or to at least strongly prefer to do so, and they can be hard to interpret in embedded positions like for instance conditional antecedents (cf. (71-b) from Papafragou 2006, her (8a,b)). We consider these patterns 'obstinacy' enough to consider epistemic modals in English as displaying subjectivity.

(71)   a.   *#It might be raining but I don't think that it is raining.*
          b.   *?If May must/may be lonely, his wife will be worried.*

Provided enough context, *might* can, however, express compatibility with a salient belief state/source of information different from the one of the speaker. Consider (72) from Egan, Hawthorne, and Weatherson (2005), which John can use to explain Ann's otherwise surprising behavior to his fellow on-looker Bill. When plausible enough, salience of another belief state/information can render otherwise infelicitous occurrences as in conditional antecedents fully acceptable, consider (73) (from von Fintel and Gillies 2007, their (11)).

(72)   (Context: Chris sees Ann hide behind the bushes as a bus arrives and asks Bill why she is behaving so weirdly. Bill replies:)
          I might be on that bus.

(73)   *If there might have been a mistake, the editor will have to reread the manuscript.*

might is perfectly felicitous in attitude ascriptions, where, in the absence of strong contextual clues, it receives a **harmonic interpretation**, that is, it is interpreted with respect to the belief state described in the matrix sentence, cf. (74-a). In interrogatives, epistemic modals like *might* seem to be anchored to the belief state of the addressee again, **perspective shift** (Mitchell 1986) or **interrogative flip** (Tenny and Speas 2004):

(74)   a.   *John thinks that it might be raining.*
          b.   *Might he be in Boston?*

For prioritizing modals, subjectivity effects are often linked to **performativity** (following Austin's distinction between performative and constative utterances) as speakers often use them to change what is permissible rather than describe such a state of affairs (see also the discussion of CECs above). This combines two aspects, however: (i) an actual change in what is permissible, and (ii) use of a modal flavor that has its source with the speaker (for instance, the speaker's rules) or is endorsed by them as guiding decisions (for instance, when giving advice). For imperatives in particular, Kaufmann (2016) argues that what is crucial is the second aspect, with performative modality encompassing not only permissions (inducing changes in the content of the relevant rules), but also advice or wishes. Building on observations by Frank (1996), Kaufmann (taa) uses constructions as

in (75-a) to show that speakers are committed to endorsing the modality expressed by imperatives or certain modals. Relatedly, Ninan (2005) argues that performative uses of necessity modals cannot be conjoined felicitously with the claim that prejacent will not come true, and he observes that *must* is inherently performative–in contrast to *have to*, for instance, which can be used descriptively, too (cf. (75-b)).

(75) a. *Go to Paris, #but I don't want you to.*
      b. *Sam {has to/#must} go to confession, but he won't.*

Japanese imperatives trigger similar effects like (75-a). The CEC markers of prioritizing necessity, in contrast, seem to behave like *have to* in lacking subjectivity effects along these lines. *-nakereba naranai* allows the speaker to continue with an assertion that the prejacent will not be met (cf. (76)), or according to them does not have to be met (cf. (77)). *-te mo ii* can be used to describe a set of rules independent of the speaker and comment on them (for instance, when studying the guidelines). In such cases, the rules exist independently of the speaker and are not changed by them.

(76) *Zirou wa asita   ronbun o dasa-nake-reba nara-na-i.   Demo,*
      Zirou TOP tomorrow paper   ACC hand.in-NEG-IF become-NEG-NPST. But,
      dasi-mas-en.
      hand.in-POL-NEG
      'Zirou has to hand in his paper tomorrow. But he won't.'

(77) *Asita   ronbun o dasa-nake-reba   nara-na-i.   Monku   o*
      tomorrow paper   ACC hand.in-NEG-COND become-NEG-NPST. complaint ACC
      iwareru   made...
      bring.forth-NPST until
      'You have to hand in the paper tomorrow. But as long as they don't complain... [intended: 'I wouldn't worry about trying to finish up.]'

(78) *MIT de   wa cotyado ni paku si-te   mo ii desu.   Bakageta kimari*
      MIT LOC TOP courtyard LOC park do-GER MO ok COP.POL.NPST. Stupid   rule
      desu   ne.
      cop.POL.NPST DISC.PART
      'At MIT, one can park in the courtyard. That's a stupid rule.'

CECs are particularly interesting in that they can also be related to subjectivity effects as observed with **taste predicates** (e.g. *fun, tasty, good*,...), which—like modal verbs—appear on the list of expressions that Speas and Tenny (2003) individuate as depending on a **source of evaluation**. Like epistemic modals, in the unembedded case, taste predicates typically depend on the speaker (cf. (79-a)), but undergo interrogative flip when appearing in matrix interrogatives (cf. (79-b)):

(79) a. *Natto is tasty.*
      b. *Is natto tasty?*

The same effect is observed for CECs, which, in the absence of a highly salient other set of rules (as in (78)), are anchored to the speaker in declaratives, and to the hearer in interrogatives, giving rise to the flip between permissions and requests for permissions (cf. Sect. 4.2) A similar shift is also observed with the morphological bouletic marker *-tai*, which (in the absence of evidential marking) depends on the speaker in main clause declaratives but shifts to the addressee in interrogatives:

(80) Biiru o   nom-i-tai desu.
      beer ACC drink-INT COP.POL.NPST
      'I want to drink a beer.'

(81)   Biiru o   nom-i-tai desu   ka?
          beer   ACC drink-INT COP.POL.NPST Q
          'Do you want to drink beer?'

Stephenson (2007a) points out that taste predicates and modals differ in the ease with which they can be anchored to sources other than the actual speaker: in this respect, Japanese CECs behave more like taste predicates, for which this is relatively easy.

6.3   Brief overview over types of formal semantic approaches

Indexicals like the English first person pronoun *I* and its Japanese equivalents *watasi, boku, ore,…* (differing in formality and gender identification) normally refer to the utterance speaker, independently of the depth of their syntactic embedding (Kaplan 1978). They are thus considered a prime case of subjectivity on many understandings of the term (Benveniste 1971; Iwasaki 1993; Lyons 1995). Following Kaplan (1978), it is standardly assumed that natural language expressions have two dimensions of meaning, where the first (the **character**) results in the usual **content** (e.g., the proposition expressed by a declarative sentence) as soon as the values of all indexicals have been filled in with the corresponding parameters of the utterance context. Subjectivity effects as described for modals above are sometimes captured as a form of indexicality (**contextualist account**): like *I*, they relate to the speaker and possibly further parameters of the utterance context (e.g., Kratzer 1981; Papafragou 2006 for epistemic modality, Kaufmann 2012 for imperatives). In contrast to *I* or *watasi*, which will refer to the actual speaker even if embedded in a speech report, modals like *might* or *darou*, and similarly deontic modals or imperatives have been shown to have a harmonic interpretation and be anchored to the modality described by the embedding attitude predicate. At first glance, this may look like strong evidence against a treatment as indexicals. This problem vanishes, however, in view of the relatively recent findings that many languages have indexical expressions that, while invariably anchored to a speaker, this can also be the speaker of a context that is being described in the matrix clause of a speech or attitude report (Schlenker 2011). Hara (2006) argues specifically that *darou* is a shiftable indexical and can be anchored to the speaker of a non-actual context, but, unlike English *might*, cannot be shifted to the agent of a reasoning process (cf. (72)). Shiftable indexicality is also attributed to imperatives in Slovenian by Stegovec and Kaufmann (2015) for embedded imperatives in Slovenian and (in within a non-modal account of imperatives) in Korean by Pak, Portner, and Zanuttini (2008). McCready (2007) treats Japanese taste predicates as shiftable indexicals. Note that for any expression that (unlike imperatives, for instance, or Japanese *darou*) can undergo interrogative flip the relevant parameter of the utterance context cannot be the speaker. Instead, it could be a different paramer reflecting who counts as source of evaluation or source of knowledge in the given context (Speas and Tenny (2003)), and which, by default is probably identical to the speaker.

Against contextualist accounts, Lasersohn (2005) argues that, for taste predicates, a treatment as indexicals fails to capture patterns of felicitous disagreement: while *No, it isn't* is perfectly fine in reply to (79-a), it is rather awkard in response to (82), which, according to Lasersohn is a way of paraphrasing the contextualist account:

(82)   *Natto is tasty for me.*

He proposes a **relativist account**, on which the content of a sentence (i.e., once all contextual parameters are filled in) is evaluated for truth not only at a world and a time, but at a world, a time, and a **judge**. Two speakers uttering (79-a) thus express the exact same content (the basis for felicitous disagreement), but their utterance is evaluated at different points of evaluation (so, the sentence can indeed be true for the one and false for the other, **flawless disagreement**). Stephenson (2007b) extends this account to epistemic modals. A different kind of relativist account for epistemic modals is offered by Yalcin (2007). He assumes that epistemic modals are evaluated with respect to a world,

a time, and the belief state relevant to the on-going conversation. To capture interrogative flip and harmonic interpretations in attitude reports, relativist theories can analyse the relevant grammatical constructions as shifting the additional third parameter of evaluation (the judge or the belief state).

The third main type of approaches assumes that the relation between perspective and illocutionary force of a sentence is **syntactically encoded**. An early account along these lines is Ross's **Performative Hypothesis** (Ross 1970), which assumes that any sentence is headed by a covert projection representing the speech act that is to be carried out (*I claim that*, *I order you to*, *I promise you that*,...). Speas and Tenny (2003) point out that grammatical structures cannot be specified for particular speech acts. Instead, sentences should be taken to constrain what speech acts they can be used for by delimiting general roles of speaker and addressee, similar to $\theta-$roles as assigned to the arguments of lexical predicates. They assume that sentences contain a speech act projection and a sentience projection, which determine how speaker and hearer relate to **point of view**, **source of knowledge**, and **pivot**. While their rich representations have been criticized on a number of syntactic and semantic aspects (e.g., Gärtner and Steinbach 2006), the recent literature emphasizes a series of findings that speak in favor of a syntactic treatment. Differences in clause type correlate not only with differences in perspective or source of evaluation, but co-vary also with what look like syntactic phenomena like verbal agreement (**conjunct-disjunct marking**, Hale 1980; Zu 2015), **obviation effects** (Schlenker 2005; Zu 2015) and obligatory self-ascription in control-constructions (**de se**-reports, Chierchia 1987). Pearson (2012, 2013), for instance, treats sentential meanings as properties and adopts speech act operators ASSERT and QUESTION that encode self-ascription to the speaker or the hearer, respectively. Stegovec (2016) extends her account to capture restrictions on the person parameter in embedded imperatives and directive subjunctives in Slovenian as a form of obviation effect.

While formal semantic and morphosyntactic approaches do thus not typically present themselves as trying to address the overarching question of subjectivity, from the brief sketch above, it should be obvious that there are a large number of recent theories for various types of phenomena relating to this concept that, when taken together result in a relatively clear picture of how subjectivity can be approached in such frameworks and what insights can be gained from the predictions made by different types of accounts. The fact that linguistic markers have been shown to differ in what linguistic or non-linguistic factors can induce perspective shift and the ease with which it occurs (Hara 2006; Stephenson 2007a) and that, moreover, different markers in one and the same sentence can depend on different perspectives constitutes strong evidence that these accounts are not in strict competition but that a combination may be needed to achieve fully accurate predictions.

7 Conclusions

In this paper, we have offered a brief overview over items and constructions of Japanese that express displacement of the actual here and now and are, according to some relevant criteria considered part of the grammatical system of the language, and we have aimed to relate it to the state of the art in formal semantic and pragmatic theories. From the mismatch between the shortness of this paper and the large range of both the empirical and the theoretical domain we were aiming to address, it should be obvious that we could only give a glimpse of what is there to be discovered, and we have by no means been able to do full justice to the existing literature. We hope, however, to have offered a fresh take, highlighting both fascinating observations and investigations that address the Japanese system in particular, as well as the specific strong points of formal semantics (and formal pragmatics).

We began with a short overview over the relevant items used in Japanese and have then aimed to capture a couple of particularities, specifically the absence of polyfunctionality across modal flavors, and the use of conditional evaluative constructions in the realm of prioritizing modality. We have complemented these predominantly descriptive sections with a brief introduction to the formal

semantic literature on modality in general, and we have tried to apply, or at least show options for applying, this framework throughout. This has informed in particular our discussion of conditional evaluative constructions (CECs), a brief section on weak vs. strong modality, a section on clause types, and our discussion of various manifestations of subjectivity.

Acknowledgments

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