

Towards an ontology of modal flavors

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deontic bouletic
abilities
circumstantial external
internal realistic
metaphysical teleological
epistemic

Modal flavors: different perspectives

- Philosophical logic: modal flavors correspond to **accessibility relations** with well-defined properties such as **symmetry**, **transitivity** etc. (e. g. Gamut, 1991; Portner, 2009; Garson, 2016).
- Formal semantics: any contextually salient **set of propositions** may serve as a modal flavor (e. g. Kratzer, 1991, 2012; von Stechow & Heim, 2011).

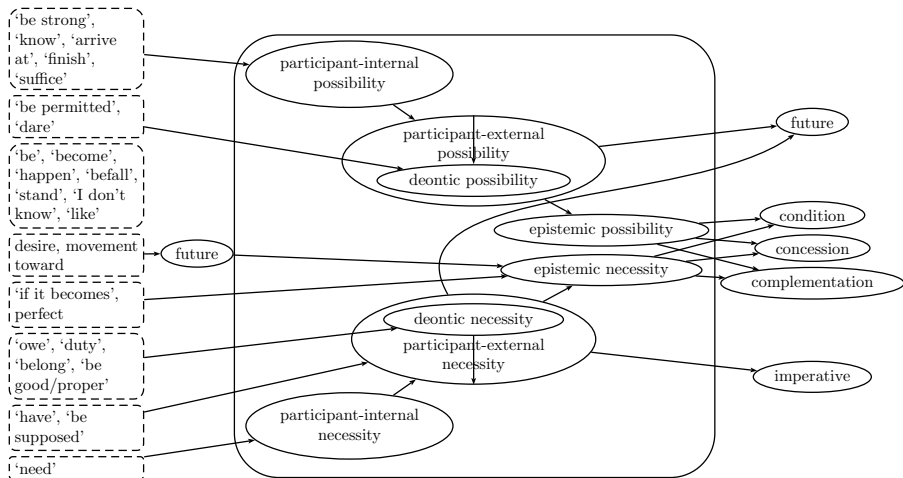
Kratzer (1981, 2012):

circumstantial (\approx root) vs. epistemic



deontic, bouletic, teleological (...)

Relations between flavors: The view from diachrony



(van der Auwera & Plungian, 1998)

Main questions for the workshop

- 1 What are possible candidates for modal flavors?
- 2 Are some of the distinctions between modal flavors based on a difference in syntactic positions, resulting in different interactions with negation and tense/ aspect (as proposed by Cinque 1999, Hacquard 2011 and others)?
- 3 How strict are the boundaries between modal flavors? Are some distinctions more fundamental than others?
- 4 Are the dimensions of force and flavor independent from one another?
- 5 Are the dimensions of force and flavor sufficient to account for all the distinctions we find in natural languages?

Overview of presenters

#	Reference	Subfields	Languages
1.	Rubinstein (2017)	diachrony, syn-sem	Hebrew
2.	Csipak (2017)	acquisition	German
3.	Maché (2017)	syn-sem	German (var. stages)
4.	Hohaus & Vander Klok (2017)	syn-sem, typology	Javanese
5.	Matthewson & Truckenbrodt (2017)	syn-sem	German
6.	Bross & Hole (2017)	syntax	Swabian, Chinese, GSL
7.	Kratochvílová (2017)	contrastive	English, Spanish
8.	Werkmann Horvat (2017)	syn-sem	Croatian
9.	Wolf (2017)	syn-sem	English
10.	Marushak (2017)	semantics	English
11.	Zaefferer (2017)	philosophy	German

What are possible candidates for modal flavors?

Are some distinctions based on difference in syntactic position?

- Several authors try their hand at establishing hierarchical relations between flavors.
- Interestingly, one difference that is commonly assumed to be fundamental in the typological literature (Bybee *et al.* , 1994; van der Auwera & Plungian, 1998; Nuyts, 2006) is not prominently reflected in these hierarchies: the difference between internal and external flavors.

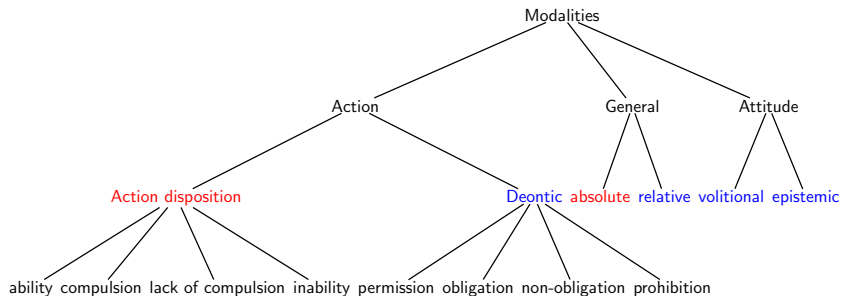
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Are some distinctions based on difference in syntactic position?

- **Bross & Hole (2017)**: There is a syntactic hierarchy of flavors: epistemic > bouletic/ volitional > deontic > design > circumstantial > root (inherent properties).
- **Werkmann Horvat (2017)**: epistemic > priority (deontic, bouletic, teleological) > pure possibility > ability > disposition;
- Here, *bouletic*, which is usually a subject-oriented/ participant-internal flavor, is grouped with external flavors such as teleological and deontic.

What are possible candidates for modal flavors?

- Zaefferer (2017):



What are possible candidates for modal flavors?

Are some distinctions more fundamental than others?

- **Csipak (2017)**: Root readings of conditionals seem to be acquired earlier than non-root readings (similar to modal verbs).
- **Maché (2017)**: There is a fundamental difference between subject-oriented vs. speaker-oriented modalities.
(This difference is closely related to the distinction between internal and external flavors.)

What are possible candidates for modal flavors?

The nature of epistemic modality

- There have been different and sometimes contradicting characterizations of epistemic modality in the literature (cf. Willer, 2013).
- **Marushak (2017)**: Epistemic modality is not related to notions of knowledge or evidence, but to truth.
- **Wolf (2017)**: The flavor of epistemic modality splits into use-conditional and truth-conditional modalities.

- Are the dimensions of force and flavor independent from one another?
- Are the dimensions of force and flavor sufficient to account for all the distinctions we find in natural languages?

Common empirical dilemma: If one modal expression is somehow weaker than another one, is that due to a difference in force or to a difference in flavor – or to a difference in discourse structure? Several accounts specifically address the relation between forces and flavors.

- Are the dimensions of force and flavor independent from one another?
- What is the relation between modal auxiliaries and verb mood?
- Are the dimensions of force and flavor sufficient to account for all the distinctions we find in natural languages?
- **Rubinstein (2017)**: Force and flavor can co-vary in the diachronic change of a modal meaning.
- **Hohaus & Vander Klok (2017)**: The Javanese suffix *-ne* attaches to modal auxiliaries with the effect of weakening them. It is similar to counterfactual morphology in some languages, but operates differently. *-ne* realizes a secondary ordering source and thereby weakens the force but does not alter the flavor of the modal.

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- **Matthewson & Truckenbrodt (2017)**: Modal force and modal flavors interact in the counterfactual versions of German necessity modals. Combining CF morphology with *müssen* results in weak necessity with epistemic, but not with deontic flavor. The authors propose to build on Rubinstein (2012) by saying that CF morphology on modal auxiliaries may narrow down the range of modal backgrounds or flavors that auxiliary can express.

Modal force and modal flavor

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- Are the dimensions of force and flavor sufficient to account for all the distinctions we find in natural languages?
- **Maché (2017)**: Verb mood in German operates on discourse structure rather than on modal meanings proper. In addition to modal force and conversational backgrounds, the semantics of modal operators must make reference to verbal mood and to the modal source.
- **Kratochvílová (2017)**: Modal meanings are expressed primarily by auxiliaries in English, but by verb mood in Spanish. The different paradigms create differences in semantic oppositions, which the author investigates.

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 - The meanings of modal expressions are lexically underspecified.
 - Different conversational backgrounds determine different interpretations.
- This line of inquiry was further refined by Hacquard (2006) by linking different interpretations to different syntactic positions.
- However, this contextualism of flavors is not without challenges.

Personal motivation: Challenges to the state-of-the-art

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- This means the interpretation of these items is not purely determined by conversational background.
- But, if the best we can do to define the meanings of *can* and *may* is to give a potentially infinite and seemingly arbitrary list of possible interpretations, the unified approach may not in fact be more unified or parsimonious than a polysemy-based approach.

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Meeting the challenge: Deconstructing modal flavours

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- One such component might be person features (compare Maché's *deictic center*, Kratzer's *modal anchor*).

Meeting the challenge: Deconstructing modal flavours

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- One such component might be person features (compare Maché's *deictic center*, Kratzer's *modal anchor*).
- Another component could be modal-temporal domains (in the tradition of Condoravdi (2002); Hacquard (2006); Arregui (2006) and others).

We are looking forward to an inspiring
workshop!

Deconstructing modal flavors with branching times

Personal background motivation for the workshop (von Prince, in prep.; von Prince, 2017): deriving flavors from modal-temporal domain and perspective (plus person features).

I assume a branching-times structure following Thomason (1984):

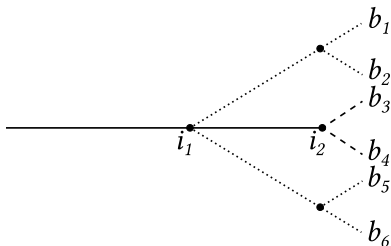
Definition Branching Times

A branching-times frame \mathfrak{A} is a pair $\langle I, < \rangle$, where

- 1 I is a non-empty set of indices i ;
- 2 $<$ is an ordering on I such that if $i_1 < i$ and $i_2 < i$, then either $i_1 = i_2$, or $i_1 < i_2$, or $i_2 < i_1$.
- 3 A **branch** through i is a maximal linearly ordered subset of I containing i .
- 4 An index i_1 is called a **predecessor** of i_2 iff $i_1 < i_2$; it is a **successor** of i_2 iff $i_2 < i_1$

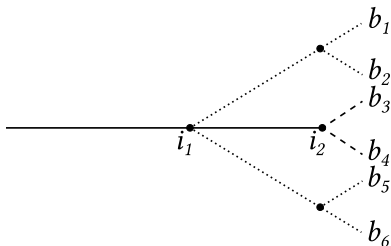
Quantifying over counterfactual indices

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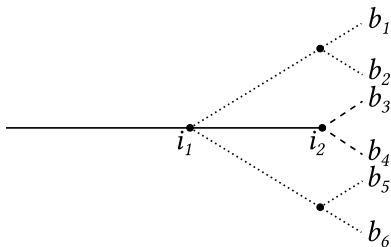
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- Instead, natural language expressions may restrict quantification to various domains.
- This opens up the new option of quantifying exclusively over counterfactual indices.



The actual, the counterfactual and the possible

The precedence relation generates the following three-way distinction:

- (3) a. the actual (past or present): $\{i|i \leq i_c\}$
- b. the counterfactual (past, present or future): $\{i|i \not\leq i_c, i_c \not\leq i\}$
- c. the possible (future): $\{i|i_c < i\}$

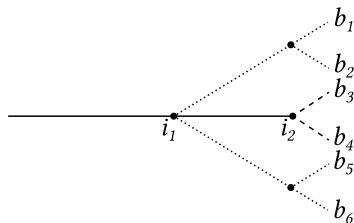
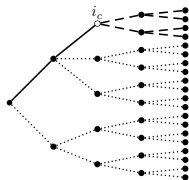


Figure: solid: the actual past and present relative to i_2 ; dotted: the counterfactual past, present and future; dashed: the possible futures;

Deriving flavors from domain of quantification and perspective

- The main idea is very close in spirit to Condoravdi (2002).
- With respect to the past and present, there are three possible domains of quantification:
 - the indices preceding and including the actual present; (actual)
 - the indices that neither precede nor succeed nor include the actual present; (counterfactual)
 - the combination of both these sets; (possible)
- In addition, the last domain can be defined from the perspective of a past reference point or from the present;
- An epistemic interpretation results from quantification over both actual and counterfactual indices from the perspective of the present.



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(ii) *She might have gone outside to smoke.*

Sollen and wollen

- *wollen*, “want”

- bouletic use:

(6) *Maria will nach Oslo gehen.*
“Maria wants to go to Oslo.”

- reportative use:

(7) *Maria will in Oslo gewesen sein.*
“Maria claims to have been in Oslo.”

- *sollen*, “be supposed to”

- deontic use:

(8) *Maria soll nach Oslo gehen.*
“Maria is supposed to go to Oslo.”

- reportative use:

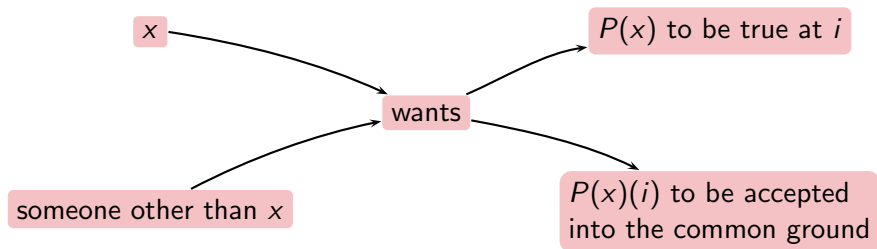
(9) *Maria soll in Oslo gewesen sein.*
“Maria was allegedly in Oslo.”

Complementary meanings

- *sollen*: Someone other than the subject is responsible for the content of the prejacent. [−subject, −speaker]
- *wollen*: The subject is responsible for the content of the prejacent. [+subject]

Speech acts as volitional acts

The suggestion goes back to Zaefferer (2001) and Truckenbrodt (2006):



Deontic modality could be reanalyzed as a volitional act by someone other than the speaker and the subject of a clause.

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