ESSLLI 2008: 'Optimizing the Future - Imperatives between Form and Function'

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1   Unit 1: Clause Types in Grammar and Use

1.1   What is an "imperative"?

- basic distinction between different `clause types` (= `sentential moods`); start out thinking of entire sentences (vs. just the verb)

    (1)   a.   You are staying at the 'Hotel Amsterdam'.   *declarative*
          b.   Are you staying at the 'Hotel Amsterdam'?   *interrogative*
          c.   Stay at the 'Hotel Amsterdam'!   *imperative*

- <u>observation:</u> many languages mark imperatives (Sadock and Zwicky 1985; van der Wurff 2007)

    <u>claim:</u> imperatives are of interest in semantics

- semantics: linguistic units carry literal meanings, are combined according to rules of morphology and/or syntax, (literal) meaning is combined in a systematic (hypothesis: compositional) way

    guideline to literal meaning: truth/falsity - information

- of interest to linguists, philosophers, computer scientists,... (w.r.t.: morphology, syntax, semantics, pragmatics, logic, artificial intelligence, ethics,...)

    Enjoyable and fertile as their relations may have been, linguistics and philosophy are uneasy bedfellows. Nowhere more apparently so than over the matter of imperatives. (Merin 1991:667)

What could be an "imperative"

- **functional individuation:** directive speech act/conduct guiding act in a conversation

    e.g. Hamblin (1987:3) suggests: *not to make a case for any particular use of the word imperative other than what I take to be the usual and natural one*

    (2)   a.   I hereby order you to leave.
          b.   You must leave immediately!
          c.   Could you please leave the room?!
          d.   Out!

no basis for a grammatical (semantic) investigation: huge amount of ambiguity; even indirect speech acts would be treated as ambiguities (for counter-arguments cf. Sadock and Zwicky 1985: (*i*) there is a particular effect of indirectness, (*ii*) no structural operations that disambiguate, (*iii*) not language specific)

- **formal individuation:** a certain form; e.g. English *matrix sentence plus uninflected verb that lacks a subject pronoun*

  problems: how to extend to other languages; why are these forms interesting to begin with (cf. (2))

  but note: interesting correlation root forms - imperatives (cf. `class I imperatives` (morphologically meagre verb form) vs. `class II imperatives` (person, number, tense, aspect oppositions), Rivero and Terzi 1995)

- **form-function-pairs:** clause types in the sense of Bach and Harnish (1979), Sadock and Zwicky (1985)

  clause types induce a partition on the (matrix) sentences of a language

  typological observation: most languages have declaratives, interrogatives, imperatives; many also: exclamatives and further minor types (e.g. permissives, concessives, optatives,...)

  clause types are pairs of form types and the speech act type they are prototypically used for

  notation:

  1. set of form types N (disambiguated, LFs): distinguished by syntax
  2. set of speech act types M: simple moves in a conversation (M = {ASSERT, QUESTION, ORDER, EXPRESS.EMOTIVE.ATTITUDE, PERMIT, CONCEDE,... })
     speech acts change commitments the participants in a conversation have taken on (`epistemic` - what they are taken to believe; `deontic` - what they are obliged to do)

  (3)   Clause Type System

      a.   `declarative`$_{ct}$:= <*declarative*$_{ft}$, ASSERT>

      b.   `interrogative`$_{ct}$:= <*interrogative*$_{ft}$, QUESTION>

      c.   `imperative`$_{ct}$:= <*imperative*$_{ft}$, REQUEST>

      d.   `exclamative`$_{ct}$:= <*exclamative*$_{ft}$, EXPRESS.EMOTIVE.ATTITUDE>

- `imperative`: sentence level form type that is best used for ordering (or requesting): ⟨*imperative clause*,ORDER⟩

  in many languages, the imperative clause type is marked by a particular inflectional form of the verb, the *imperative verb*; I will reserve *imperative* for the clause type or the form type at sentence level

- compare terminology:

  clause types: 'sentential mood' (cf. Lohnstein 2000: 'Satzmodus')

form type at sentence level: 'Satztyp' Lohnstein (2000)

speech act type assigned to an utterance: 'illocutionary mode'/'illocutionary point'

speech act performed with an utterance: 'illocution'

- in an actual conversation, there is a prototypical pairing (sentence uttered belongs to a clause type, i.e., a *form type* with a PROTOTYPICAL FUNCTION) and an actual pairing (linguistic unit uttered in a conversation used for a particular purpose)

  – prototypical function and particular usage need not match, still, the sentence belongs to the clause type it formally belongs to

  – <u>issue:</u> how do we identify prototypical usage?

  – <u>issue:</u> actual pairing vs. indirectness

- <u>observation:</u> even if imperatives are good for ORDERing, we use them for many more things...

  based on Donhauser (1986) for German (cf. also typological studies like Palmer 1986; Bybee, Pagliuca, and Perkins 1994; Xrakovskij 2001; semantic studies like Portner 2005; Portner 2007; Grosz 2008)

(4) a. Lies   das!
         read.IMP this
         'Read this!'   ORDER

     b. Bleib   weg vom   Projektor!
         stay.IMP away from-the projector
         'Stay away from the projector!'   WARNING

     c. Geh   nicht auf diese Party!
         go.IMP not   to this party
         'Don't go to the party!'   PROHIBITION

     d. Hab   viel Spaß auf der Party!
         have.IMP lot fun at the party
         'Have fun at the party!'   WISH

     e. Dreh   bitte   das Licht ab.
         turn.IMP please the light off
         'Turn off the light, please!'   REQUEST

     f. Nimm   den A, wenn du nach Harlem willst.
         take.IMP the A, if   you to   Harlem want
         ' Take the A train if you want to go to Harlem.'[1]   ADVICE

     g. Fahr   zur   Hölle!
         go.IMP to-the hell
         'Go to hell!'   CURSE

(5) a. (Es beginnt um 8, aber) komm   früher, wenn du magst!
         (it starts   at 8, but) come.IMP earlier, if   you like
         '(It starts at eight, but) come earlier if you like!'[2]   PERMISSION

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[1]Billy Strayhorn/via Sæbø (2002).
[2]Example from Hamblin (1987).

       b.   Ok, dann komm   eben nicht! (Wenn du dich   für so schlau
              ok, then come.IMP PRT not   (if   you yourself for so clever
              hältst.)
              take)
              'All right, don't come then! (If you think you are so clever.)'

                                                                             CONCESSIVE

(6)   a.   Komm   pünktlich und du kriegst einen Sitzplatz.
              come.IMP in-time   and you get   a   seat
              'Come in time and you'll get a seat.'   Conditional *and,* (IaD)
     b.   Komm   pünktlich oder du verpaßt den ersten Vortrag!
              come.IMP in-time   or   you miss   the first   slot
              'Come in time, or you'll miss the first slot!' Conditional *or,* (IoD)

(7)   The **Problem of Functional Inhomogeneity (FIP)**
        Cross-linguistically, imperatives get associated with a rather inhomogeneous
        range of speech act types (COMMANDS, WARNINGS, PROHIBITIONS, WISHES,
        REQUEST, ADVICE, CURSES, PERMISSIONS, CONCESSIONS, . . .) and, at
        least in some languages, are even used on a sub-speech act level (namely, as
        conditional antecedents).

- observation: **quantificational inhomogeneity**

  COMMANDS, WARNINGS, PROHIBITIONS, WISHES, REQUEST, ADVICE, CURSES:
  constrain the space of possibilities - associated with universal quantification/necessity

  PERMISSIONS, CONCESSIONS: open up new possibilities - associated with existential
  quantification (btw: adding possibilities is problematic in the standard dynamic view,
  problem about permission, cf. Lewis 1979)

(8)   The **Quantificational Inhomogeneity Problem** (QIP)
        The functional spectrum associated with imperatives in many natural languages
        includes both elements that are normally associated with universal quantifica-
        tion in semantics (COMMANDS, REQUESTS, WISHES,. . .) and elements that
        are usually associated with existential quantification in semantics (PERMISSIONS,
        CONCESSIONS).

- **potential worry 1**, e.g. (4c): imperatives containing negation or prohibitives?

  observation: many languages do not combine 'ordinary/propositional' negation with
  'ordinary' imperative morphology/syntax (cf. van der Auwera 2005; van der Wurff
  2007)

  Italian (Romance): suppletive form of imperative morphology:

(9)   (Non) parli.   - Parla!/Non   parlare!
        (not) speak.2PSGPRESIND - speak.IMP/not speak.INF
        'You (don't) speak. - Speak!/Don't speak!'

  Korean + verbs of negation (from Sells 2003; his (18b,17b,19b))

(10)   a.   ka-ci   anh-nun-ta
           go-COMP NEG-PROCESSIVE-DECL
           '(Someone) doesn't go.'
       b.   ka-ci   mal-ala
           go-COMP IRREALISNEG-IMP
           'Don't go!'
       c.   *ka-ci   anh-ala
           go-COMP NEG-IMP

Tagalog (Austronesian): non-propositional negation:

(11)   (Hindi) kakain   ka. - (huwag/*hindi) kain!
         (not)   eat.FUT you - (not)   call.IMP
         'You (won't) eat. - (Don't) eat!'

Are these different clause types? ($\Rightarrow$ is there a semantic incompatbility between imperatives and negation?)

tendency: syntactic reasons (Rivero and Terzi 1995; Zanuttini 1994; Zeijlstra 2004; Wratil 2005,... ; but cf. Postma and van der Wurff (2007) for a recent combination of syntactic and semantic properties)

1. some languages do allow for interaction with ordinary negation (e.g. German, Slavic languages) and their imperatives are otherwise similar to Italian,...

2. e.g., Zeijlstra (2004): languages with a non-head negative element do allow for ordinary imperative morphology + ordinary/propositional negation (e.g. German)

     (12)   Du gehst   (nicht). - Geh   (nicht)!
             you go.2PSGINDPRES (not).   - go.IMP (not)
             'You (don't) go. - (Don't) go!'

     intervention effects (minimality effects) between the imperative verb (head) and the negation (head)

3. besides PROHIBITIONS, same range of (non-deontic) speech act types as for positive imperatives (e.g. ADVICE, WISH,...), even same behaviour on sub-speech act level (cf. (14))

     (13)   a.   A: I think I'll go to the Rothko exhibition on Sunday.
                  B: Oh no, don't go there on Sunday, it's too full.
            b.   Have fun and don't hurt yourself!

     (14)   **Tell her you love her** and she'll do anything. **Don't tell her** and you won't get very far.

conclusion: imperatives can contain negation; sometimes, such `negative imperatives` have different properties in surface syntax, at LF they look like their non-negated counterparts

open issues: different varieties of negative imperatives

– Tocharic (Indoeuropean, 450-†750): `inhibitives` (*stop!*) vs. `preventives` (*don't bring about!*); livelier candidate: Georgian; (p.c. Michael Job)

– Southern varieties of German might have something like an `inhibitive` (cf. (15); compare to (16))

(15) %Nicht **mach** die Tür auf!
not open.IMP the door VERBPRT
'Don't go open the door, will you!' (*implies*: it's about to happen)

(16) Nicht **dass** er die Tür aufmacht.
not that he the door open.3PSG.IND.PRES
roughly: 'I'm worried he might open the door, which he shouldn't.'

- **potential worry 2:** what about non-second person imperatives, suppletive forms, sub-junctive main clauses,. . . ?

<u>assumption</u>: to be resolved case by case; compositional encoding of the imperative semantics opens up the possibility of perfect match at LF (- imperative!) or similarity to any degree (- related clause type!)

imperatives express a relation to the addressee:

(17) a. Get me a beer!
b. You get me a beer!
c. Somebody get me a beer.
d. Nobody move!
e. Don't anybody get up!

(18) Gib mir mal {wer,jemand} einen Stift!
give.IMP me PRT someone a pencil
'Someone give me a pencil!'

in contrast, addressing the first person plural: *hortatives* (rarely grammaticalized to the same degree as imperatives; cross-linguistically rarer)

(19) a. Let's get started now.
b. Fangen wir endlich an!
start.1P.PL we finally VERBPRT
'Let's finally get started!'

German infinitivals are not imperatives, even if they can be used in a very similar way

(20) a. Aufstehen!/Aufstehen?
get-up.INF/get-up.INF
'Get up!'/'Shall I get up?', 'What do you mean "get up"?', 'What about getting up, uh?'
b. Steh auf!/Steh auf?
get.IMP up/get.IMP up
'Get up!'/'What do you mean "get up"?', 'What about getting up,uh?'

- **potential worry 3:** the problem of **indirectness**:

(21)   a.   Close the door, please.   REQUEST
        b.   A: How do I get to Harlem? - B: Take the A train.   ADVICE

(22)   a.   Can you close the door? (. . . Can you get by, or do I have to get up?)
           QUESTION
        b.   Can you close the door, please   REQUEST

<u>hypothesis</u>: indirect speech acts carry a particular effect (e.g. politeness) stemming from the exploitation of another speech act type;

FIP does not rely on an underlying speech act type of ORDERing; e.g., pieces of advice like (21b) evoke no particular effect like (im)politeness,. . .

<u>main goal</u>: take serious the uniformity of the form type picked out as the ORDERing-clause type; this is incompatible with many proposals in the literature

- bad news in general: imperatives do not just express operators of deontic logic (cf. von Wright 1963)

- *intention of the speaker that the addressee takes responsibility for changing the world in a particular way* (van Eijck 2000, p.41)

  problematic: ADVICE,WISH, sub-speech act level

- *actions which the addresse should take* (Portner 2005, who devises a much more favorable semantics in the course of the paper)

  problematic: WISH, stative or negative imperatives, sub-speech act level

- *a syntactically and/or semantically definable class of sentences of which all members share an interpretation of being some kind of instigation from the speaker to the hearer to perform some action* (Mastop 2005, p.10)

  problematic: WISH, sub-speech-act level; 'semantically definable'?

<u>summing up</u>: we are lookig for a semantics of imperatives, hence, (contra Mastop 2005), a **semantic individuation** is not opten to us; in the following, I will give prominence to the form type, unless there are good arguments for ambiguity (i.e., a difference at LF); semantics has to account for the full range of functions in (4) to (6) - <u>challenge</u>: it is hard to identify a uniform element

1.2 Clause types in grammar

- we distinguish declaratives, interrogatives, imperatives, exclamatives and maybe more, because they have a particular syntax and tend to be used differently

- the clause type of a sentence token is independent of its particular use:

actual utterance	clause type	actual speech act type
between friends:"*I will be home by 10.*"	declarative$_{clause-type}$ $\langle$declarative$_{form-type}$,ASSERTION$\rangle$	ASSERTION
mother to 8-year-old: "*I will be home by 10.*"	declarative$_{clause-type}$ $\langle$declarative$_{form-type}$,ASSERTION$\rangle$	PROMISE
mother to kid: "*Get on this train!*"	imperative$_{clause-type}$ $\langle$imperative$_{form-type}$,ORDER$\rangle$	ORDER
official to client: "*Get on this train.*"	imperative$_{clause-type}$ $\langle$imperative$_{form-type}$,ORDER$\rangle$	ADVICE
colonel to sergeant: "*Take an apple!*"	imperative$_{clause-type}$ $\langle$imperative$_{form-type}$,ORDER$\rangle$	COMMAND
between friends: "*Take an apple.*"	imperative$_{clause-type}$ $\langle$imperative$_{form-type}$,ORDER$\rangle$	PERMISSION
between friends: "*Can you open the window?*"	interrogative$_{clause-type}$ $\langle$interrogative$_{form-type}$,QUESTION$\rangle$	QUESTION
between friends: "*Can you open the window*"	interrogative$_{clause-type}$ $\langle$interrogative$_{form-type}$,QUESTION$\rangle$	QUESTION-as--ORDER

- two <u>core issues</u> arise:

1. each form type comes with a particular prototypical function (the pair that constitutes the clause type) - *How are clause types encoded?* (Problem of Clause Type Encoding, PCTE)

    – at what level?

    (23) Question of Modularity (cf. Grewendorf and Zaefferer 1991)
          Are clause types encoded semantically or pragmatically? (= Is sentence mood a semantic or pragmatic phenomenon?)

    ⇒ claim here: **semantics**!

2. each actual realization of a form type in an utterance is assigned a particular function (if all works out, the utterance corresponds to some speech act) - *How are utterances assigned particular speech act types?* (Problem of Assigning Types of Speech Acts, PASTA)

    – What role does the clause type play?
    – How come we can "overwrite" the prototypical function encoded in the clause type?

- possible views on clause types:

  - **sentence radical** view (or: 'parametric view'); cf. Stenius (1967)

(24)	a.	You are quiet.	ASSERTION(*that you are quiet*)
	b.	Are you quiet.	QUESTION(*that you are quiet*)
	c.	Be quiet.	COMMAND(*that you are quiet*)

    Stenius himself: they all contain a common core (sentence radical, a proposition), plus an operator that is to be dealt with in pragmatics

    <u>note</u>: unclear what to do with *wh*-questions, cf. Bäuerle and Zimmermann (1991)

    Dummett (1973): all clause types correspond in Fregean sense (for us: they all denote propositions) + there is a force element to be interpreted in pragmatics

    Frege (1918): picture is correct for (24a) and (24b), but: *We would not wish to deny sense to a command, but this sense is not such that the question of truth can arise for it. Therefore I shall not call the sense of a command a thought. Sentences expressing wishes or requests are ruled out in the same way.* (p.62)

  - alternative: clause types are a semantic issue

    1. picture as in (24), but the element that indicates the clause type (e.g. **clause-type operator**) is to be treated in semantics
    2. there is yet another difference visible to semantics (e.g. Montague 1974; Parsons 1993: similar to truth-conditions for declaratives, semantics derives answerhood-conditions for interrogatives, and compliance conditions for imperatives;...)
       declaratives, interrogatives and imperatives differ in **logical type** (e.g. only declaratives denote propositions,...; cf. Portner 2005; Portner 2007)

- answering the question of modularity: clause types are encoded semantically (decides how to answer PCTE)

  (25)   Mediating Semantics Hypothesis for Sentence Mood (MSHSM)
         Assume that the system of clause types for some language L is the set of ordered pairs $CT_L \subseteq N \times M$ (where N the set of LF-sentence level form types, M the set of speech act types).
         Assume further that $[\![\cdot]\!]$ is an interpretation function for L (assigns intensions to elements of L). Then, for each $a_i \in CT_L, a_i =< n_i, m_i >$, $[\![n_i]\!]$ determines m_i.

- in contrast, we can't answer PASTA in semantics if we want to account for FIP/QIP (else, most imperatives come out as indirect speech acts), hence:

  (26)   the Speech act Assignment Hypothesis (SAH)
         The speech act type of an utterance c_E is determined by interplay of the semantic object $[\![c_d]\!]$ with properties of the utterance context c (to be described in terms of beliefs, desires, obligations, etc. of the participants to the conversation in c).

1.3 Arguments in favor of a semantic encoding of clause types

(for an early list comprising many of these issues, cf. McGinn 1977)

1. robust w.r.t. embedding $\Rightarrow$ semantics

(27) a. John knows that it is raining.   *embedded declarative*
      b. John knows whether it is raining.   *embedded interrogative*

argument is somewhat weak for imperatives which cannot normally be embedded; often replaced by infinitivals (Portner 1997; Parsons 1993 call cases as in (28) embedded imperatives; this contrasts with our form-centered understanding)

(28) a. John told me to go home.
      b. John is to go home.

but there are cases of embedded imperatives after all: Korean (cf. Pak, Portner, and Zanuttini 2004a; Portner 2007); Old Germanic (cf. Rögnvaldsson 1998; Platzack 2007):

(29) Inho-ka   Sooni-ekey cip-ey   ka-la-ko   malha-ess-ta
      Inho-NOM Sooni-to   home-to go-IMP-COMP say-PAST-DEC
      'Inho said to Sooni to go home.'

(30) 'Verða   kann það,' segir Arnkell, "en það vil   eg við þig
      happen.INF can   that says A.   but that want I   with you.ACC
      mæla,   Þòrarinn frændi, **að** Þú **ver**   með mér Þar til   er lýkur
      speak.INF Þòrarinn relative that you be.IMP with me   there until is ended
      málum þessum á nokkurn hátt."
      affair this   in some   mode
      'That may be', said Arnkell, 'but this I want to arrange with you, Cousin
      Þòrarinn, **that you stay with me** until this affair is in some way ended.'
                                                          Old Icelandic, (Eyrbyggjy saga)

certain varieties of Colloquial German (cf. Poschmann and Schwager 2008):

(31) Ich hab dir schon gestern   gesagt, geh   da   heute hin.
      I   have you already yesterday said   go.IMP there today PRT
      'I already told you yesterday that you should go there today.'

embedding under quantifiers:

(32) a. Die meisten Anträge   hat Hans nicht mal gelesen.
          the most   proposals has Hans not   PRT read.PARTPERF
          'For most proposals it is the case that John has not even read them.'
      b. Die meisten Anträge   lies   erst gar nicht.
          the most   proposals read.IMPSG PRT PRT not
          'Most proposals don't even read.'

2. imperatives at a sub-speech act level (*pseudo-imperatives*)

   (33)   Come one step closer and I'll shoot.
           ≈ *If you come one step closer, I will shoot.*

3. FIP: pragmatic encoding would have to assign one common speech act type/list all speech act types that can be assigned (looking at actual utterances only, they all exist on a par)

4. we already have a semantic meaning function; do we really need an additional pragmatic meaning assignment?

5. how can we distinguish indirect speech acts from direct speech acts? usually: it depends on the literal meaning + the speech act it would normally be used to perform - we need an additional layer. If the clause type is already a matter of pragmatics - how can it be overwritten in favor of another speech act type under the effect of indirectness?

6. non-intentional context: e.g. testing a microphone - clause type is still there and part of what we interpret - yet no (actual) speech act type is associated with the utterance

7. no way for compositional encoding of clause type in syntax, would have to be an extra-layer in syntax that is interpreted only post-semantically by association to some speech act/class of speech act types in pragmatics

- is a semantic answer dangerous?

  comparing the MSHSM to the **literal meaning hypothesis**

  (34)   The literal meaning hypothesis (as ascribed to Searle 1975 by Gazdar 1981):
          For each context c, $c_d \in N$ is the full (syntactic) structural description of the linguistic object c_E uttered in c.
          There exists a function $\mathscr{F} \in M^N$ such that for all $c \in C$,
          $\mathscr{F}(c_d) \in \{m : m$ one of the speech act types performed in c with $c_E\}$.
          If c_d contains a performative prefix, then $\mathscr{F}(c_d) = m'$ where m' is the speech act type named by the performative verb in the prefix. Otherwise:
          $\mathscr{F}(c_d) = \text{QUESTION}$, when c_d is interrogative
          $\mathscr{F}(c_d) = \text{REQUEST}$, when c_d is imperative
          $\mathscr{F}(c_d) = \text{ASSERTION}$, when c_d is declarative

  but: this is an attempt to answer PASTA in semantics; MSHSM addresses PCTE.

- **reconsidering clause types:** can we get rid of them once we have the semantic encoding?

  yes, they are only a heuristic device - it's sufficient to have the correct interpretation $[[\cdot]]$ - the semantic object assigned to the LF of matrix sentences is enough to see what the prototypical function is

no, we need them as a heuristic device - clause-types can differ slightly across languages:

e.g. embedding (cf. above); subject marking (cf. Potsdam 1998; Schwager 2006b); interaction with echo-questions:

(35) a. Mary stand by the door, John scatter the files, and I'll watch the front.
      b. *Maria mach   die Tür zu,   Hans schließ   das Fenster,
          Maria make.IMPSG the door closed, Hans close.IMPSG the window,
          und ich hole   die Post.
          and I   fetch.1PSGPRESIND the mail

(36) a. A: Don't kill yourself! B: Don't kill myself?!
      b. A: Bring dich nicht um! B: *Bring mich nicht um?
            kill   you not PRT   kill   me   not PRT

we cannot rely on a fully language independent semantics of 'the imperative clause' (vs. Mastop 2005)

<u>hypotheses</u>:

- the semantics of imperatives results (compositionally) from a combination of various parameters

- some of these parameters may differ cross-linguistically; yet...

- the overlap is big enough to speak of one and the same clause-type across languages

- <u>in particular</u>: imperatives are particular modalized propositions that express which possible course of events is best w.r.t. a contextually specified parameter; the latter may, but need not, be deontic (obligations)

1.4   Imperatives and various grammatical phenomena

imperatives and embedding reported speech, quantifiers that take wide scope

imperatives and subjects person restriction, quantificational subjects

(37) a. Somebody get me a beer!
      b. Nobody move!
      c. Don't anybody get up!

(38) Gib   mir mal {wer,jemand} einen Stift!
      give.IMP me PRT someone   a   pencil
      'Someone give me a pencil!'

imperatives and tense temporal adverbials and quantifiers, past imperatives, present perfect imperatives

(39) Bitte hab   nicht noch eine Vase zerbrochen!
      please have.IMP not   Prt   a   vase broken
      'Please, don't have broken another vase!'

(40) Bitte hab 1990 noch in Tübingen gewohnt
      please have 1990 still in Tübingen lived
      'I hope you were still living in Tübingen in 1990, *else I've lost my bet*'

future orientation - yes, but...

(41) a. You must call him.
      b. Don't call the ESSLLI desk more than three times. ($\neq$ from now on,
          don't call the ESSLLI desk more than three times)

optimizing the future is sensitive to what has happened so far

imperatives and conditionals all kinds of conditionals possible

(42) a. If you get lost, call me.
      b. If Verena is at the party, tell her to bring some wine.
      c. Verena might bring some wine. Put it into the fridge.

pseudo-imperatives conditional readings with *and/or*

(43) a. Be in time and you'll get a seat.   IaD
      b. If you are in time, you will get a seat.

(44) a. Be in time or you'll miss the first slot.   IoD
      b. If you are not in time, you will miss the first slot.

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2 Unit 2: Semantic Approaches to Imperatives and Clause Types in General

2.1 Strategies for determining the meaning of natural language expressions and their problems with imperatives

- starting point: imperatives are particular form types at sentence level that are easily used for ordering (in a null-context)

  imperative$_{clause-type}$ = $\langle imperative_{form-type}, \textsc{Order} \rangle$

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we are looking for the semantic object the interpretation function $[\![\cdot]\!]$ should assign to a matrix clause like *Read Ede's article on context dependence*, which

1. is responsible for why this can easily be used to order someone to read Ede's article on context dependence (PCTE), and

2. in, a particular utterance context, can be used for a maybe entirely different speech act type without the effect of indirectness (ORDER, SUGGESTION, ADVICE, PERMISSION, CONCESSION,...) (PASTA)

- How do we know what (literal, semantic) meaning to assign to a linguistic object in general?

  truth conditions: *To know the meaning of a sentence means to know the circumstances under which it is true* (Wittgenstein's *Tractus Logico-Philosophicus*; Carnap); Tarski (1936): *T scheme*

  (45) a. *Snow is white* is true iff snow is white.
        b. The sentence "..." is true if and only if " ...".

  $\Rightarrow$ useful for a linguistic object A if A can be described as true

  for sub-sentential components: find out what it contributes to such a T-scheme:

  (46) **Context Principle** (Frege)
        The meaning of an expression is determined by the meaning of the sentences in which it occurs and the meanings of the other parts of the sentences.

  $\Rightarrow$ useful to find out the meaning of C if there are A and B, such that A = [B C], and:

  $$\overbrace{\text{known: } [\![A]\!]}$$
  $$[\ \underbrace{[\![B]\!]}_{\text{known}} \qquad \underbrace{[\![C]\!]}_{\text{unknown}} \ ]$$
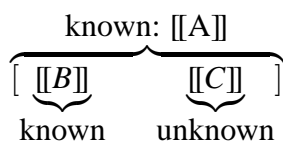
  application to imperatives fails: (*i*) truth doesn't seem to apply to imperatives, hence, (45b) is not helpful; (*ii*) imperatives do not normally occur as parts of larger units, hence, (46) is not helpful

  ad (*ii*): appearance of imperatives in conjunctions and disjunctions, but...

  (47) a. Read the letter and burn the envelope.
        b. Read the letter and you'll understand.

  Ross' paradox (cf. Ross 1944)

  (48) Post the letter! $\not\rightarrow$ Post the letter or burn it!
        (invalid reasoning: *I've been told to post the letter, so I've been told to post the letter or to burn the letter.*)

- compare interrogatives:

  embedded interrogatives allow for a resort to (*ii*):

(49)   I asked/knew who had a cocktail at the ESSLLI party.

possible/true answers allows to draw on (*i*) (cf. Hamblin 1958; Karttunen 1974):

(50)   a.   Did you have a cocktail at the ESSLLI party? - You had a cocktail at the ESSLLI party, you did not have a cocktail at the ESSLLI party.
        b.   Who had a cocktail at the ESSLLI party? - Sarah had a cocktail at the ESSLLI party, Felix had a cocktail at the ESSLLI party, Jelle had a cocktail at the ESSLLI party, I had a cocktail at the ESSLLI party.

- various semantic approaches to imperatives:

    1. propositional reduction
    2. importing pragmatic concepts as semantic denotata (*static*)
        (a) denoting speech acts (Krifka)
    3. importing pragmatic concepts as semantic denotata (*dynamic*)
        (a) denoting update functions (van Rooy, van Eijck, Zarnic)
        (b) creating facts (Asher & Lascarides)
    4. core semantic-objects that induce constraints on their own use
        (a) scheduling actions (Mastop)
        (b) properties (Portner)
        (c) here: modalized propositions plus restrictions on parameters

2.1.1 Propositional Reductions

- <u>claim:</u> imperatives denote propositions after all (for an overview, cf. Hamblin 1987; Mastop 2005)

  (51)   a.   [[Go home!]]= [[You will go home.]]   `you will-reduction`
             b.   [[Go home!]]= [[You should go home.]]   `you should-reduction`
             c.   [[Go home!]]= [[I order you to go home.]]

                                            `performative hypothesis`

  syntactic and **semantic variants**: are the elements present already in syntax, or added by interpretation (of a mood morpheme/an operator/. . .)

  - main problem: truth value

  - **performative hypothesis**: syntactic variant (early transformational grammar; cf. footnote in Katz and Postal 1964; Ross 1967; Ross 1970; Sadock 1974) - criticism: Grewendorf 1972; Gazdar 1979)

    semantic variant: footnote in Lewis (1970) (criticism: Grewendorf 1979; Grewendorf 2002; w.r.t. imperatives Hamblin 1987; Mastop 2005)

    criticism: truth value; FIP - *order* cannot be right. . .

  - **you will-reduction** (cf. (51a)): proposed in Chomsky (1975, Katz and Postal (1964); evidence: tagging

    (52)   Go home, will you?/*should you?/*must you?/*don't I?

    modern semantic variants: Truckenbrodt (2005); dynamic twist: Asher and Lascarides (2003a); criticism cf. Hamblin (1987:101-112)

  - **you should-reduction**: influential in philosophy, mostly in connection with functional individuations; less influential in linguistics; Mastop (2005) for criticism.
    $\rightarrow$ to be worked out and defended.

2.1.2 Importing pragmatic objects as semantic denotata: static

Speech act algebra

- clause types are dealt with in semantics, but: the realm of denotata includes pragmatic concepts (e.g. speech act types, etc.)

- Krifka: `speech act algebra` (maybe also Han 1998's directive feature)

  Fregean/Stenius picture is strictly layered: ACTS($\underbrace{thoughts}_{\text{semantics}}$)

  <u>observation:</u> overlap between expressions used for naming actions and for executing actions (*(to) thank (someone)*); regularities in phenomena that apply above clause type/speech act-distinctions (non-Boolean behaviour)

  (53)   `Krifka's speech act embedding hypothesis`
          recursive semantics does not stop at the level of the sentence radical.

resulting picture:

(54) $\underbrace{Acts(content-object))}_{semantics}$,

         where the content object could be different for various clause types

(no explicit proposal what the content object of an imperative is)

new set of objects: D_a, logical type a - can be conjoined freely, disjunctions are harder to express:

(55)   a.   What did Jiro eat? And what did Verena drink?
         b.   #Who was late? Or, who did show up at all?
                $\not\approx$ 'I'm either asking you who was later, or I'm asking you who showed up at all.'

in addition to logical types formed from s, e, t, we have speech acts a as semantic objects with a non-Boolean behavior

(56)   The `Speech Act Algebra`:
         $< D_a, + >$ forms an algebraic structure, D_a the set of speech acts, and for any $A, A' \in D_a$ (that is, of type a), and any commitment state s, $[A+A'](s) = A'(A(s))$

example: embedded questions vs. question acts

(57)   a.   Which dish did every guest bring?
                'For each guest x, I ask you which dish did x bring?'
         b.   Which dish did most guests bring?
                out: 'For most guests x, I ask you which dish did x bring?'

two types of embedding predicates: (*i*) cognitive factives like *find out, know, remember* can be outscoped by quantifiers; (*ii*) interrogative predicates like *wonder, ask, investigate* behave like matrix questions (cf. (57)): wide scope for *every*, but not for *most*:

(58)   a.   Ede knows which book every student liked.
                [ok]'For every student x, Ede knows which book x liked.'
         b.   Ede knows which book most students liked.
                [ok]'For most students x, Ede knows which book x liked.'

(59)   a.   Ede wonders which book every student liked.
                [ok]'For every student x, Ede wonders which book x liked.'
         b.   Ede wonders which book most students liked.
                out: 'For most students x, Ede wonders which book x liked.'

proposal: content object of interrogatives is an index dependent proposition (cf. Groenendijk and Stokhof 1984), type $\langle s, st \rangle$:

(60) a. Did it rain?
b. Which dish did John bring?

(61) a. $\lambda v \lambda w.[\text{rain}(v) = \text{rain}(w)]$
b. $\lambda v \lambda w.[\lambda x.\text{dish}(x)(v) \,\&\, \text{bring}(j,x,v) = \lambda x.\text{dish}(x)(w) \,\&\, \text{bring}(j,x,w)]$

in matrix interrogatives and embedded under speech act forming operator QUEST (type $\langle s, st, a \rangle$) (function from commitment states to commitment states)

embedded questions can be:

(62) *who came to the party*
a. type *a* (speech acts, under *wonder, ask,...*)
b. type $\langle s, st \rangle$ (index dependent propositions, under *know, find out, remember,...*)

problem 1: FIP/QIP: no common change of commitments across imperatives

(63) a. A: Can I have an apple? - B: Sure, take one.   PERMISSION
b. Take an apple.   ORDER

problem 2: no evidence for uniform speech act algebra

(64) a. Which dish did most guests bring?   *no wide scope*
b. Confiscate most bottles of alcohol you can find!   *no wide scope*

(65) a. Don't even look at most of these proposals!   *wide scope*
b. Which books did most of these guests read?   *still no wide scope*

2.1.3 Importing pragmatic objects as semantic denotata (*dynamic*

Prerequisite: context and the dynamic twist

(66) The meaning of sentence " ... " is the relation ... of pairs $< c_i, c_o > \subseteq C \times C$, such that c_i the input context and c_o the output context.

motivation: (*i*) anaphora and donkey sentences (cf. Heim 1982: *file change semantics*/Kamp and Reyle 1993: DRT; Brasoveanu 2007), (*ii*) presuppositions (cf. Heim 1992), (*iii*) evidentiality (subjective probabilities, cf. McCready and Ogata 2006)

- needed: a formal handle on utterance contexts

a very simple reference-framework for the semantics-pragmatics interface (drawing on Stalnaker 1999b; Stalnaker 1978; Kaplan 1989; overview: Zimmermann 1991)

(67) there is...
a. a set of `possible worlds` W (maximally consistent states of affairs with their entire histories, past and future)
b. a set of individuals D_e (not bound to a particular world)

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c. a set of temporal intervals T

(68) The set of contexts C is the set of quadruples $< c_S, c_A, c_T, c_W > \in (D_e \times D_e \times T \times W)$, such that c_S is speaking to c_A at c_T in c_W.

note: each context c also determines what individuals are salient, what has been talked about, etc.; this can be modelled as a partial function s (interprets free variables; needed for anaphora, e.g. pronouns)

How can we use this technical notion of contexts to model how content and utterance context influence each other in actual communication? (cf. Stalnaker 1999a:4)

(69) The `Discourse Set` (*DS*) in a context c:
$DS(c) = \{c' \in C \mid$ the mutual joint beliefs of c_S and c_A at c_T in c_W cannot distinguish c' from $c\}$

simplification: uncertainty only w.r.t. c_W

(70) The `Common Ground` of a context c:
$CG(c) = \{w \in W \mid$ the mutual joint beliefs of c_S and c_A do not allow them to distinguish w from $c_W\}$

rough sketch for ASSERTION as a relation between utterance contexts:

(71) a sucessful ASSERTION(ϕ) is a transition
from $c = < c_S, c_A, c_T, c_W >$ to $c' = < c_S, c_A, c_T', c_W >$, such that
$CG(c') \subseteq CG(c) \cap [[\phi]]^c$
(the proposition expressed by ϕ in c is rendered mututal joint belief)
metalinguistic information:
$\overline{CG(c')} \subseteq$ 'c_S uttered something with the intention to make an assertion'
felicity conditions: speaker knew ϕ at c, addressee did not know ϕ at c

- moves like COMMAND and PERMISSION involve changes not only in mutual joint belief, but also in what one is permitted or obliged to do;

Lewis 1979: second set of worlds to keep track of in a conversation - the **Permissibility Sphere** *PS* of a context (for commanding/permitting as a language game between master and slave)

note: if $PS(c)$ is given by what is known to be commanded, $PS(c)$ can be read off from $CG(c)$: at an arbitrary moment t, each world w determines for each individual x what x's obligations are;
given a function f_t that maps each world w to the set of worlds where everyone meets his/her obligations at t in w, we interpret:

(72) a. $[[\text{is commanded}]](w) = \lambda p. f_t(w) \subseteq p.$
b. $[[\text{is permitted}]](w) = \lambda p. f_t(w) \cap p \neq \emptyset.$

(73) $PS(c) = \bigcap\{p \subseteq W \mid (\forall w \in CG(c))[f_t(w) \subseteq p]\}$

Lewis:

- ASSERTION(ϕ) restricts $CG(c)$ to ϕ-worlds
- COMMAND(ϕ) restrict $PS(c)$ to ϕ-worlds
- PERMISSION(ϕ) adds to $PS(c)$ some ϕ-worlds

Lewis (1979) points out the **Problem about Permission**: which ϕ-worlds have to be added by PERMISSION(ϕ); cf. van Rooy (2000) for a solution in terms of similarity.

(74)   a.   You can use my car tonight.
       b.   You may drink 6 pints of beer tonight and then use my car to drive home.

imperatives: we might consider that they denote something inherently dynamic and modify $PS(c)$ directly (cannot be reduced to truth at particular points within $CG(c)$)

Denoting deontic update functions

- descriptive information (truth): eliminate all those points (possible worlds) in an information state at which the sentence is not true

  ASSERTION(*You are obliged to read Lewis.*):

(75)   [[you are obliged to read Lewis]] $< c, c' >$ iff
       $CG(\text{c'}) = \{w \in CG(c) \mid f_t(w) \subseteq \{w \in W \mid \text{the addressee reads Lewis in } w\}\}$

(eliminates from $CG(c)$ worlds at which it is not commanded that the addressee reads Lewis)

- van Rooy 2000 for modalized declaratives that behave non-propositionally (**performative modal verbs**):

(76)   a.   You must read Lewis.
       b.   You may read Lewis.

(77)   a.   [[you must read Lewis]] $< c, c' >$ iff
            $PS(c') = PS(c) \cap \{w \in W \mid \text{the addressee reads Lewis in } w\}$
       b.   [[you may read Lewis]] $< c, c' >$ iff
            $PS(c') = PS(c) \cup \{w \in W \mid \text{the addressee reads Lewis in } w \ \& \ w \text{ is as close to } PS(c) \text{ as possible}\}$

note: there has to be a reflex on the Common Ground which encodes that we also know that you are obliged to read Lewis (compare metalinguistic information with assertion)

- application to imperatives:

(78)   [[Read Lewis!]] $\langle c, c' \rangle$ where $PS(c') = PS(c) \cap \{w \in W \mid \text{you read Lewis in } w\}$

spelt out in detail: Zarnic (2002)

problem 1: this has the effect of *must* built into its semantics; what about imperatives that have the effect of a PERMISSION?

(79) Nimm   dir   ruhig einen Apfel.
       take.IMP yourself PRT   an   apple

(80) Take an apple if you like!
      a. $\not\to$ you are now obliged to take an apple
      b. $\not\to$ if you like to take an apple, you are obliged to take an apple

problem 2: ADVICE or WISH have nothing to do with the permissibility sphere

Creating facts: a dynamic *you will*-theory

- Asher and Lascarides (2003b): creating facts - a dynamic version of the *you will*-theory

  evidence: sometimes we proceed after an imperative as if it had been made true

  (81) Go to the traffic lights. There's a roundabout to your right.

  action terms (cf. Segerberg 1990): *see to it that p*

  SDRT: clauses are translated to DRSs which relate elements $\langle w, f \rangle$ (pairs of worlds w and variable assignments f) in an input state I to elements $\langle w', g \rangle$ in an output state O

  (82) a. If K is a DRS, then δK is an action term.
        b. $\langle w, f \rangle P_M(\delta K) \langle w', g \rangle$ iff $\langle w', f \rangle P_M(K) \langle w', g \rangle$.

  roughly δK is the relation that holds between $\langle w, f \rangle$ and $\langle w', g \rangle$ iff w can be changed to w' s.t. K is true in w' w.r.t. g, and g extends f as usually

  problems:

    – change needs to be made minimal
    – the "as if" examples can be replicated with declaratives:

      (83) You have to go to the traffic lights. There's a roundabout to your right.

      like modal subordination (cf. Roberts 1989), but usually indicatives do not subordinate

      (84) A thief might break in. There {would be/$^{\#}$is} a car waiting for him outside.

    – weak answers:

      (85) Come tomorrow for lunch!
            a. Okay!

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  b. Okay, I'll try to.

 – non-commanded imperatives: attachment via non-veridical discourse relations

  (86) a. A: How does one make lasagne?
     b. B: Chop onions, and fry with mince and tomatoes, boil the pasta, make a cheese sauce, assemble it, and bake in the oven for 30 minutes.

  (87) a. A: What should I do now?
     b. B: Own up to the police.

 both cases: indirect question answer pairs (resolution of question is possible only via inference, not directly)

 – actually issued, but not commanded:

  (88) a. Get well soon!
     b. Have fun at the party!

 – the discourse effects of imperatives could very often be achieved by modalized declaratives, too - doubling of discourse relations

summing up: approaches that import pragmatic concepts or effects on the utterance context into semantics are either too strong to account for PASTA (underspecification? - and, if so, can we still account for PCTE?)

2.1.4 Core Semantic Objects Constraining what they can be used for

- <u>credo:</u> imperatives have semantic denotata that are independent of speech acts and changes of commitments (properly semantic objects); but: by their very nature, these objects constrain what can be done with them in conversation

Scheduling actions: Mastop (2005)

- imperatives

 1. are inherently performative (no truth value!) - action terms

 2. expand the plans of an agent (constringing the set of future courses of events)

 3. are individuated semantically (e.g., certain WISHES are semantically independent - clause type: optative)

 4. imperatives are inherently linked to agentivity, if not lexically: coercion

  (89) a. Close the door.
     b. #Be blond.
     c. Be waiting at the gate when he arrives.

- cognitive states I of agents x:

$I = \{\langle s, \pi \rangle \mid s$ is a situation description that compatible with what the agent knows, π is a schedule compatible with actions the addressee has to/intends to take$\}$

- basic ontological dualism:

    - set of events E: all participants encluded

    - set of actions A: E from which the agent is missing (yet: saturated object)

- actions can be anchored to a time in the schedule, events are described as taking place at a certain time:

  s is a subset of $((E \times T) \times \{$TRUE, FALSE$\})$

  π assigns to each agent x a subset of $((A \times T) \times \{$DO, DON'T$\})$ (T is the (standardly) structured domain of durations)

  if e is known to happen at τ: all possibilities σ in the information state are associated with $((e, \tau), TRUE)$; if it is known to be false at τ, all possibilities contain $((e, \tau), FALSE)$;
  for an agent x, if action a is known to be commanded, all possibilities contain $((a, \tau), DO)$, if forbidden, $((a, \tau), DON'T)$

  update functions:

  (90) $\uparrow$ adds $((e, \tau), TRUE))$ to s, or $((a, \tau), DO)$ to π
   $\downarrow$ adds $((e, \tau), FALSE))$ to s, or $((a, \tau), DON'T)$ to π

- problems:

    - uniformity of form type is given up

    - schedules contain both things that are commanded, or needed in order to achieve something (teleological necessities)

    - coercion to agentivity - how does it work, is it correct?

      (91)   a.   Be warned: those candy bars can kill you.
       b.   Undergo an operation.
       c.   Please, be blond!!! (*on one's way to a blind date*)
       d.   Werd   mal   selber   von einem Haifisch gebissen, bevor
       become once/PRT yourself by a   shark   bitten   before
       du   hier so groß redest.
       you here so big   talk.2P.SG.IND
       (roughly) 'Be bitten by a shark yourself before you talk so presumptuously.'

    - in contrast to possible worlds, partial objects are notoriously problematic w.r.t. negation (avoided here by the dual update functions) and temporal quantification:

      (92)   Never write to me again.

    - question/answer pairs are indirect:

      (93)   A: What shall I do tonight? - B: Go to bed early.

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– situation descriptions are modified only up to reference time, schdules are modified only starting with reference time

(94)   Don't call the ESSLLI emergency hotline more than three times.

Imperatives as properties in converstation

- imperatives as **properties** 'thrown into the conversation': Portner (2005) (partly joint work with Raffaella Zanuttini, Miok Pak, Simon Mauck; Portner 2007 elaborates on/changes the proposal)

  goal: Portner (2005) tries to account for a universal inventory of clause types: *declarative, interrogative, imperative* (flanked by less frequent types, most frequently *promissives, permissives, exclamatives*) (in contrast, Portner 2007 defines an explicit update function for imperatives)

  mediated solely through truth-conditional, compositional semantics

  logical type of semantic object determines its effecton the discourse:

  1. *declarative*: proposition $\langle s, t \rangle$
  2. *interrogative*: set of propositions $\langle s, st \rangle$
  3. *imperative*: property $\langle s, et \rangle$ (cf. also Hausser 1980)

     (95)   [[Read Ede's article!]] $= \lambda w \lambda x : x = c_A . x$ reads Ede's article in w

  conversation keeps track of:

  – **Common Ground**: set of propositions (*vs. before!*),
  – **Question Set**: set of sets of propositions,
  – **To-Do-List-Function**: associates each participant to the conversation with a set of properties

(96)   Generalized update function F: [Portner 2005]
  a.   The generalized update function F adds a semantic object ϕ to that set in discourse that has the same logical type (and possibly further properties) as F.
  b.   No other update function is universal, and F is the preferred update function in the sense that if F can be used to establish the force of a sentence, it must be (note: (b) takes care of the difference between exclamatives and interrogatives)

for each participant, the To-Do-List measures rationality:

(97)   Partial Ordering of Worlds $<_i$ (Portner (2005:(12))):
        For any $w_1, w_2 \in \bigcap CG, w_1 <_i w_2$ iff for some $P \in \text{TDL}(i), P(w_2)(i) = 1$ and $P(w_1)(i) = 0$, and for all $Q \in \text{TDL}(i)$, if $Q(w_1)(i) = 1$, then $Q(w_2)(i) = 1$.[3]

---

[3]Note that $<$ intuitively means the opposite as in Lewis 1973 and Kratzer 1991; $u <_i w$ means that i has more of the properties in i's To-Do-List in w, than i has in u. That is, w is "better" according to TDL(i) than u.

(98)   `Agent's commitment` (Portner 2005(13)):
For any agent i, the participants in the conversation mutually agree to deem i's actions rational and cooperative to the extent that those actions in any worlds $w_1 \in \bigcap CG$ tend to make it more likely that there is no $w_2 \in \bigcap CG$ such that $w_1 <_i w_2$.

comments:

- strong point: imperatives don't have a truth value

- needed: a mechanism to keep track of the question list and To-Do-Lists in the Common Ground; like meta-linguistic information

- problem with the Portner 2005-version: semantic type determines the effect a linguistic object has on the discourse
  other expressions that - most likely express the same object don't have this effect (cf. Bierwisch 1980 against hausser80)

  (99)   Geh!
          go.IMP
          'Go!'

  (100)   du sein   und gehen
          you be.INF and go.INF
          'to be identical to you and to go'

- unmodalized object - no scopal amiguities:

  (101)   a.   to read most books
            b.   Don't even look at most of these proposals.

- conditionals: material implication?

  (102)   Say hi to Carl if you see him at the reception.
          $\lambda w \lambda x : x = c_A.x$ says hi to Carl in $w \lor$ or x does not see Carl at the reception.

- rationality check fares better than what "To Do List" suggests.

  (103)   a.   A: How do I get to Harlem? - B: Take the A-train.
            b.   Get well soon!
            c.   Please, be blond!   *blind date*
            d.   A: How do I make lasagne. - B: Chop onions, fry mince, . . .

  fine: ORDER, ADVICE; okay WISH (for (103b), indeed: more rational not do do anything against getting well a.s.a.p., debatable: (103c)); tricky: (217) - requires some sort of embedding under a conditional antecedent (-?)

- problematic: PERMISSIONS, CONCESSIONS

- separation of imperative and declarative information:

(104)   a.   Du mußt die Blumen gießen   und die Katzen füttern.
you must the flowers water.IMPSG and the cats   feed.INF.
Und bitte   leer   den Postkasten.
And please empty.IMPSG the mailbox
'You must water the flowers and feed the cats. And please empty the mailbox.'

    b. $CG' = CG \cup \{$*According to Natalie, Magda has to water the flowers, According to Natalie, Magda has to feed the cats*$\}$, $QS' = QS$, $TDL'($magda$) = TDL($magda$) \cup \{\lambda w \lambda x{:}$magda $= x.x$ empties the mailbox-empty in $w\}$

note: Portner (2007) works out the interaction with (descriptive) modal verbs; the ingredients are very similar to what I am using.

I will first introduce Kratzer 1991's theory of graded modality (used by Portner 2007 as well, and then address what I consider a problem with that part of his theory.

- ultimately: I will use a similar ordering semantics, but as part of the semantic object

2.2   First sketch: presuppositional *you should*

- modal verbs - `descriptive` and `performative` usages

(105)   a.   You must do the shopping today (as far as I know).
    b.   Peter may come tomorrow. (The hostess said it was no problem.)

(106)   a.   You must call me.
    b.   Okay, you may come at 11. (Are you content now?)

claim I: Imperatives denote the same object as is associated with a performative modal verb.

modals in performative vs. in descriptive contexts:

Schulz (2003, Kamp (1978): uniform treatment; Kamp (1973): non-uniform one of the main arguments against a uniform semantics for descriptive and performative modal verbs: different behaviour w.r.t. disjunction

(107)   a.   You can ask Cécile or you can email to Patrick.
        $\rightarrow$ You can ask Cécile. And you can email to Patrick.
    b.   You can ask Cécile or you can email to Patrick, I forgot which.
        $\nrightarrow$ You can ask Cécile. And you can email to Patrick.

but: (*i*) not unique to performative usages (epistemic free choice disjunction), (*ii*) does not pertain to all performative usages

(108)   The book might be on the table or I might have left it at home.
        $\rightarrow$ It might be the case that the book is on the table, and it might be the case that I have left it at home.

(109)   You may go to Shoal Creek, or you may go to Shingle Creek, but stay away
         from the dangerous one.
         $\nrightarrow$ You may go to Shoal Creek, and you may go to Shingle Creek.

claim II: uniform treatment of modal verbs

- main problem for this type of analysis: imperatives can never be used descriptively

  I agree: semantics of imperatives cannot consist in a proposition alone; idea: add a presuppositional meaning component

  <u>core:</u>

  - Performatively and descriptively used modal verbs correspond to the same semantic object, and yield propositions.
  - Under certain contextual constellations, modalized declaratives evoke a non-assertoric effect, in particular, they serve to give a command or a permission:
    1. the speaker has to count as an authority on the issue in question
    2. the speaker must not be known to consider the proposition said to be necessary/possible an epistemic necessity (and tlikewise for the complement of the proposition)
    3. it is a particular sort of modality (non-epistemic, not ability; Portner 2007: `priority`)
    4. the speaker has to be known to agree with the source of necessity/possibility
  - Imperatives: (*i*) denote the same **propositional object** as *You must p./You should p.*; type $<s,t>$,

    and (*ii*) additional **presuppositional meaning component** that constrains them to usage in contexts in which a modalized declarative of the form *you must/should* ϕ would achieve a non-assertoric, performative effect; that is, they cannot be felicitously interpreted in a context where the corresponding declarative would achieve a descriptive reading (modulo: presuppositions may trigger accommodation).

- semantics/pragmatics interface:

  (110)   A universal function *J* is defined for semantic objects *p* of type $<st>$ and *q* of type $<s,st>$, and adds them to the context under minimal amendments, such that *p* is true of *CG* afterwards, and *q* partitions *CG*.This is governed by the following principles:
           a.   Intersect/Partition *CG* with *p/q* if this does not give $\emptyset/\{\emptyset\}$.
           b.   Accommodate *CG* if intersection is impossible.

  speech acts correspond to particular properties sequences of contexts have, a `theory of speech acts` has to classify transitions in the sense of (71), where the update by *J* (plus the meta-linguistic information) defines the change on *CG* from pre- to postcontext

- imperatives and declaratives: type $\langle s,t \rangle$, interrogatives: $\langle s,st \rangle$

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– direct answers:

(111)   a.   Q: Is it raining?
              A: Yes, it is raining.
        b.   Q: Who came to the party?
              A: Verena, Magda and Hong came to the party.

(112)   a.   Q: What shall I do tonight?
              A: Go to the movies.
              A': You should go to the movies.
        b.   Shall I go to the reception?
              A: Don't go.
              A': You should not.

(113)   a.   Q: Was soll   ich machen?
              what   shall I   do.INF
              'What shall I do?'
        b.   A: Ruf   deine Schwester an!
              call.IMP your sister   PRT
              'Call your sister!'
        c.   A': (Du solltest) deine Schwester anrufen.
              (you   should) your sister   call.INF
              '(You should) call your sister.'

– (in)stable discourse states: ASSERTION (uttering of declaratives): leads to stable information state vs. QUESTION (uttering of interrogatives): instable imperatives: depends on speech act type: COMMAND instable, to be resolved by action; WISHES, answers to questions: stable

– insincerety: imperatives pattern with declaratives (vs. interrogatives) intuitively, wrong piece of advice violates Grice's first maxime of quality:

(114)   A. How do I get to Harlem?
        S: Take the B train.
        S': To go to Harlem, it is best to take the B train.

– clause types are mutually exclusive; imperative verbs in rhetorical questions in certain variants of colloquial German (cf. Poschmann and Schwager 2008); rhetorical effect follows from authority condition

(115)   (speaking to a child who is carrying around a flower pot it should actually be able to put into the right place):
        a.   Na komm,   du weißt es doch. Wo   stell   den
              PRT come.IMP, you know it PRT. Where put.IMP the
              Blumentopf hin?
              flower-pot   to
              'Come on, you know it. Where do you have to put the flower pot?'

(116)   There are a couple of books around one could potentially read for the exam. The professor would of course be able to tell from the answers which book a

student had studied. The authors are Mayer, Müller and Schmidt. Schmidt's books contains a couple of mistakes, but he has just written an article together with the professor the addressee wants to take the exam with; Müller's book is quite good, but a bit expensive. Mayer's book is actually quite good, but the addressee's professor is known to really hate him. After having elaborated on all this at lengths, the speaker asks the addressee:

    a.   Also was lies   auf keinen Fall?
            so   what read.IMP in   no   case
            'So whose book is it that you really shouldn't read?'

imperative verbs carry a propositional semantics that can be embedded within an interrogative, but the result cannot be an information seeking question

3 Unit 3, A: Modality in Possible Worlds Semantics

- <u>framework:</u> developed and improved by Lewis, Kratzer, van Fraassen, von Stechow, van Rooy, von Fintel and many others

  reason: has been used in detailed studies of modality in natural language

3.1 Simple (impersonal) modality

- Kratzer (1978), etc.: most modal expressions are context dependent:

  (117)   a.   Cécile **kann** in Rüsselsheim sein.
                   C.   may in R.   be.
                   'Cécile may be in Rüsselsheim.'   *given what we know*
          b.   Melli kann **heute** daheim arbeiten.
                   M.   can today at.home work
                   'Melli can work at home today'   *given what her boss says*

  (118)   a.   Cécile **muss** in Rüsselsheim sein.
                   C.   must in R.   be.
                   'Cécile must be in Rüsselsheim.'   *given what we know*
          b.   Melli **muss** heute daheim arbeiten.
                   M.   must today at.home work
                   'Melli must work at home today'   *given what her boss says*

  wide range (cf. von Stechow 2004):

  a. epistemic: what I know, what we know, what Ede knows, . . .

  b. circumstantial: the relevant facts, . . .

  c. dispositional: Joost's dispositions, the program code of Emacs,. . .

  d. physical: the laws of nature, . . .

  e. deontic: what the law says, god's will, . . .

  f. doxastic: what I believe, what people say, what Rick believes, . . .

g. `teleological`: our tasks, . . .

h. `buletic`: what I want, what Elena wants, . . .

i. `stereotypical`: the normal course of events, . . .

some modal expressions are picky, e.g.:

– only epistemic

(119)   He might be there.

– only circumstantial:

(120)   Das ist machbar.
         that is doable
         'It's doable.'

– *dürfen*: only denotic, volitional or teleological background:

(121)   a.   Du darfst dir einen Apfel nehmen.
               you may take an apple! (PERMISSION)
         b.   Du darfst mich nicht allein lassen.
               You cannot leave me alone.
         c.   Wenn du rechtzeitig kommen willst, darfst du nicht erst eine Vier-
               telstunde vorher losfahren.
               If you want to be on time you can't just leave a quarter before it
               starts.
         d.   *John darf in der Mensa sein.
               John might be in the university cafeteria.

subjunctive *dürfte*: only weak epistemic possiblity (unless occurring in a condi-
tional)

(122)   John dürfte in der Mensa sein.
         John might be in the university cafeteria.

– subjective vs. objective possibilities: impersonal constructions vs. adverbials

(123)   a.   Es   ist wahrscheinlich, daß das Schiff sinkt.
               EXPL is probable   that   the   ship   sinks
               'It is probable that the ship will sink.'
         b.   Das Schiff wird wahrscheinlich sinken.
               the ship   will probably   sink
               'The ship will probably sink.'

- <u>solution</u> (*to be refined*): context dependent element

    – compare pronouns like *he* -index (variable) indicates what the pronoun is sup-
    posed to (co)refer to, plus presupposition: male
    context c determines a variable assignment s which interprets free variables

(124) $[[he_i]]^c = s(i)$ if $s(i)$ is male, else undefined.

– modal expressions combine with a parameter f which is a "pronoun" for a background (the **modal base**)

this modal base parameter f assigns to each world w a set of propositions; depending on how f is interpreted in the particular context (just like *he*), this can be the set of all propositions that, at w, are known to the speaker (*speaker epistemic*), or the set of all propositions that, at w are relevant facts (*circumstantial*), etc.

(125) $[[f]]^c = s(f)$ (= henceforth, in italics: f), a function of type $\langle s, \langle st, t \rangle \rangle$

(126) a. $[[must]] = \lambda f \lambda p \lambda w.(\forall v \in \cap f(w))[v \in p]$
       b. $[[can]] = \lambda f \lambda p \lambda w.(\exists v \in \cap f(w))[v \in p]$

simple example (for syntactic assumptions, cf. von Stechow 2004), modal base is circumstantial *with respect to the relevant circumstances*:

(127) a. Magda can go to Maribel's workshop.
       b.
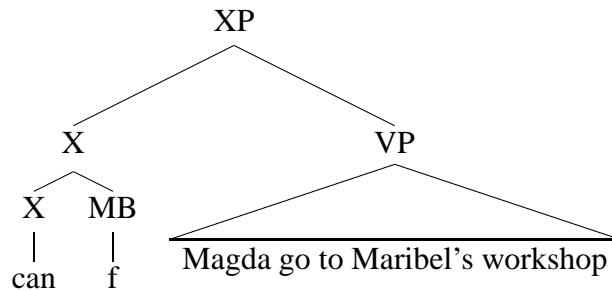
       c. $[[[[\text{can } f][\text{Magda go to Maribel's workshop}]]]]^c(w) = 1$ iff
           $\exists w' \in \cap f(w)$: Magda goes to Maribel's workshop in w',
           where f $(= s(f))$ = *what the relevant circumstances are*.

           This is true if e.g. $f(w) = \{p, p \vee q, r\}$,
           $p = \lambda w.$Magda's handouts are finished in w.
           $q = \lambda w.$Magda works in the afternoon in w.
           $r = \lambda w.$Maribel's workshop is in the afternoon in w.

3.2 Graded Modality

• nice, but not good enough for inconsistent information, graded necessity/possibility, and practical inferences

• example: practical inferences

(128) In w, all you want is a fee waiver for ESSLLI 2009.
       In w, you get a fee waiver only if you submit a course.
       Therefore: Given the relevant circumstances and your wishes, in w it is necessary that you submit a lecture proposal for ESSLLI 2009.

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modal base seems to have two components:

bouletic, *what you want* (f_1); circumstantial, *what the relevant circumstances are* (f_2)

$f_1(w) = \{\lambda v.\text{you obtain a fee waiver for ESSLLI 2009 in } v\}$,
$f_2(w) = \{\lambda v.\text{you submit a course in } v \text{ or you don't get a fee waiver in } v\}$

$f_1(w) \cup f_2(w) = \{\lambda v.\text{you obtain a fee waiver for ESSLLI 2009 in } v, \lambda v.\text{you submit a course in } v \text{ or you don't get a fee waiver in } v\}$

$\bigcap(f_1(w) \cup f_2(w)) \subseteq \{v \in W \mid \text{you submit a course for ESSLLI 2009 in } v\}$

- assume, in addition to the premises in (128), you're also lazy...

  (129)   In u, you want is a fee waiver for ESSLLI 2009.
  In u, you don't want to work too much (course proposals! - *yikes*)
  In u, you get a fee waiver only if you submit a course proposal.
  <u>Therefore:</u> ... ?

modal base (bouletic information, f_1 + circumstantial information, f_2):

$f_1(u) = \{\lambda v.\text{you obtain a fee waiver for ESSLLI 2009 in } v, \lambda v.\text{you don't submit a proposal in } v\}$
$f_2(u) = \{\lambda v.\text{you submit a course in } v \text{ or you don't get a fee waiver in } v\}$

$f_1(u) \cup f_2(u) = \{\lambda v.\text{you obtain a fee waiver for ESSLLI 2009 in } v, \lambda v.\text{you don't submit a course in } v, \lambda v.\text{you submit a course in } v \text{ or you don't get a fee waiver in } v\}$

$\bigcap(f_1(u) \cup f_2(u)) = \emptyset$

  (130)   Considering the relevant circumstances and what I want,
  a.   I must kill someone.
  b.   I must drink a lot of Alsterbräu.
  c.   It is necessary that I submit a proposal for ESSLLI 2009.
  d.   I can submit a proposal for ESSLLI 2009.
  e.   It is possible that I don't submit a proposal for ESSLLI 2009.

set of best worlds is empty - all necessity statements are trivially true, all possibility statements are false - :(!

- <u>way out</u>: distinguish between facts (**modal base** f) and preferences (**ordering source** g) (both: conversational backgrounds, $\langle s, \langle st, t \rangle \rangle$

  among the worlds you fetched (by modal base f), only look at the best ones according to the ordering source g

  (131)   ordering relation $\leq_{g(w)}$:
  $\forall v, z \in W : v \leq_{g(w)} z$ iff
  $\{p : p \in g(w) \,\&\, z \in p\} \subseteq \{p : p \in g(w) \,\&\, v \in p\}$

  (132) $O(f, g, w) = \{v \in \cap f(w) \mid \forall z \in \cap f(w): \text{ if } z \leq_{g(w)} v \text{ then } v \leq_{g(w)} z\}$

<u>side remark:</u> I exclude neurotic cases of infinite approximation (cf. Kratzer 1991 for a definition of that can deal with it):

(133)   The `Limit Assumption` (cf. Lewis 1973, p.19ff)
$\forall f, g, w : \cap f(w) \neq \emptyset \to O(f, g, w) \neq \emptyset.$

(134)   a. $[[\text{must }]]^c = \lambda f \lambda g \lambda p \lambda w.(\forall v \in O(f, g, w))[v \in p]$
         b. $[[\text{can}]]^c = \lambda f \lambda g \lambda p \lambda w.(\exists v \in O(f, g, w))[v \in p]$

(135)   Considering the relevant circumstances and what you want,
         a. $[[\text{You must kill someone.}]]^c(u) = 1$ iff
               $(\forall w' \in O(f, g, u))[\text{you kill someone at } w'].$
         b. $[[\text{You must submit a course proposal for ESSLLI 2009.}]]^c(u) = 1$ iff
               $(\forall w' \in O(f, g, u))[\text{you submit a course at } w'].$
         c. $[[\text{It is necessary that you don't submit a course proposal for ESSLLI 2009.}]]^c(u) = 1$ iff
               $(\forall w' \in O(f, g, u))[\text{you don't submit a course at } w'].$
         d. $[[\text{You can submit a proposal for ESSLLI 2009.}]]^c(u) = 1$ iff
               $(\exists w' \in O(f, g, u))[\text{you submit a course at } w'].$
         e. $[[\text{It is possible that you don't submit a course proposal to ESSLLI 2009.}]]^c(u) = 1$ iff
               $(\exists w' \in O(f, g, u))[\text{you don't submit a course at } w'].$

if the ordering source is empty, simple and graded necessity/possiblity collapse

4   Unit 3, B: Imperatives as Graded Modals

- somewhere in their syntactic structure, imperatives contain a modal operator OP_{Imp} (for the moment, we ignore tense, aspect, and the subject)

(136) $[[\text{OP}_{imp}]]^c = \lambda f \lambda g \lambda p \lambda w.(\forall w' \in O(f, g, w))[p(w')]$
         (treatment of modal base f will be refined)

- deriving the interpretations:

(137)   a.   Get up!   ORDER, *single occasion*
               Given what I order, it is necessary that you get up (now).
         b.   Be nice to your grandmother!   ORDER, *long term*
               Given what I order, it is necessary that you are (always) nice to your grandmother
         c.   Stay away from cigarettes!   ORDER, *long term*
               Given what I order you to do, it is necessary that you stay away from cigarettes

(138)   Don't budge an inch!   PROHIBITION, *single occasion*
         Given what I order you to do, it is necessary that you don't budge an inch.

(139) Have fun!   WISH
       Given what my wishes are, it is necessary that you have fun.

(140) Please, don't have broken another vase!   WISH, *past*
       Given what my wishes are, it is necessary that you are not in the post state
       of having broken another vase

speaker-disinterested imperatives (WARNING, ADVICE)

(141) Run (...there's an avalanche approaching)!   WARNING
       Given what your goals are, it is necessary that you run.

(142) A: How do I get to Rüsselsheim tonight?   ADVICE
       B: Take the S8, it's more regular than the S9.
       Given what you goals are, it is necessary that you take the S8.

- <u>find out:</u> what do the *given...*-parts have in common? what distinguishes them from
  e.g.

(143) a. You must have had too many cocktails at the ESSLLI party.
       b. *Given what I infer from your facial expression*, you must have had too
           many cocktails at the ESSLLI party.
       c. #Have had too many cocktails at the ESSLLI party.

(144) a. You'll get soaked on your way home!
       b. *Given what I take to be most plausible*, it is necessary that you'll get
           soaked on your way home.
       c. Get soaked on your way home!

(145) a. You have to remove your car. But I don't care if you do it.
       b. *Given what the regulations of this hotel say,* it is necessary that you
           remove your car.
       c. Remove your car! (#But I don't care if you do it.)

- <u>modal base:</u> imperatives take into account what are taken to be possible continuations
  with respect to the (relevant) known facts (Common Ground) - 'optimizing the future'

  <u>assumption:</u> the modal base is always (a subset of) the Common Ground (*given what
  we know the world/our situation to be like*)

(146) $[\![OP_{imp}]\!]^c = \lambda f \lambda g \lambda p \lambda w.(\forall w' \in O(cg_F, g, w))[p(w')]$,
                where cg_F describes the Common Ground of c.

cg_F is short for $F(c)$, where $F : C \to (W \to pow(pow(W)))$, s.t.
$(\forall c \in C)(\forall w \in W)[F(c)(w) = \{CG(c)\}]$

g: some *ideal* the future is to conform to (= ordering source), e.g. *what I the speaker
want, what your goals are, what general goals are,...*

ORDER: (for the moment: $[\![IMPPRO]\!]^c = c_A$)

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(147) $[[[[OP_{Imp} \text{ f g}] [\text{IMPPRO get up}]]]]^c =$
$\lambda w.(\forall w' \in O(cg_F, g, w))[c_A \text{ gets up in } w']],$
where $g = \{\textit{what the speaker orders at } w\}$

<u>effect on the discourse:</u>

– modal base: no information gained:
$(\forall c \in C)(\forall w \in CG(c))[cg_F(w) = CG(c)]$
$\Rightarrow$ new information is about what propositions are picked out by the contextually given ordering source *g*

– imperative (147) eliminates from the *CG(c)* all worlds *w*, s.t. *what the speaker orders in w* assigns a set of propositions that picks out as best worlds in *CG(c)* worlds where the addressee does not get up

• if *c* assigns a different value to g:

(148) $[[[[OP_{Imp} \text{ f g}] [\text{IMPPRO have fun at the party}]]]]^c =$ WISH
$\lambda w.(\forall w' \in O(cg_F, g, w))[c_A \text{ has fun at the party in } w'],$
$g = \{\textit{what the speaker wishes at } w\}$

$\Rightarrow$ we learn something about the speaker's wishes

• internal make-up of the complement proposition does not matter (*add tense and aspect*)

(149)   a.   Kiss her before every meeting.
         b.   Stay away from cigarettes.

(150) $[[[[OP_{Imp} \text{ f g}] [\text{not} [\text{IMPPRO move}]]]]]^c =$ PROHIBITION
$\lambda w.(\forall w' \in O(cg_F, g, w))[c_A \text{ gets up in } w']],$
where $g = \{\textit{what the speaker orders at } w\}$

PROHIBITION: apart from syntactic restrictions, there can also be semantic restrictions on negation that are sensitive to conversational backgrounds, not to differences in clause types:

Korean: negation by *an* (NEG) vs. *mal* (IRNEG) (cf. unit 1) depends on deontic vs. non-deontic ordering source (cf. Pak, Portner, and Zanuttini 2004b for data, their (15a,b), and discussion of maybe even more fine-grained distinctions):

(151)   a.   Nayil   phati-ey ka-ci   **mal**-ayakeyss-ta
               tomorrow party-to go-NMLZ IRNEG-should-DEC
               'I should not go to the party tomorrow.'
         b.   Nayil   phati-ey ka-ci   **mal**-kkayo?
               Tomorrow party-to go-NMLZ IRNEG-INT
               'Should I go to the party tomorrow?'

• ADVICE requires an addition to the modal base:

(152)   A *asks an official B*:
How do I get to the fair?   ADVICE
B: Take the U4.
Given your goal of getting to the fair, given your wishes, it is necessary that
you take the U4.

– teleological modality (cf. also `anankastic conditionals`, von Fintel and Ia-
  tridou 2005): add a designated goal to the modal base (should not be overwritten
  by other preferences, etc.) - here: temporarily added to $CG(c)$
  on all worlds w in $CG(c)$: $g(w) = \{c_A$ goes to the fair, c_A doesn't spend too much
  money, c_A gets there in a reasonable amount of time, c_A has a pleasant journey$\}$

– c_A knows what his goals are, and he normally knows what his wishes are
  new information comes in as an addition to the modal base (inviolable):

(153)   *Given what your goal is,* **given what the facts are about public trans-
        portation in Frankfurt,** *and given what your wishes are,* it is necessary
        that you take the U4.

f can bring in an additional body of information:

(154) $[[\text{OP}_{imp}]] = \lambda f \lambda g \lambda p \lambda w.(\forall w' \in O(cg_F \cup f, g, w))[p(w')],$
        where $(f \cup f')(w) = (f(w) \cup f'(w))$.

• constraining contextual values for f and g:

recall: modal elements can be picky with respect to what ordering sources and modal
bases they accept/other effects...

– German *sollen* and *müssen* in that only the latter can have an empty ordering
  source - in other words: *müssen* but not *sollen* can express impersonal deontic
  modality

(155)   a.   Sie   müssen 500 Euro zahlen.
             you.2PFORM must   500 euros pay
             'You have to pay 500 Euros.'
        b.   Sie   sollen 500 Euro zahlen.
             you.2PFORM shall   500 euros pay
             '(according to their rules) you shall pay 500 Euros.'

– similarly, we have seen that imperatives require non-empty ordering sources,
  hence the cannot be used for impersonal deontic necessity (a judge announcing
  a verdict could well use (156a), but not (156b)):

(156)   a.   Sie   müssen 500 Euro zahlen.
             you.2PFORM must   500 euros pay.INF
             'You have to pay 500 Euros.'
        b.   Zahlen   Sie   500 Euro.
             pay.IMP.FORM you.2PFORM 500 euros
             'Pay 500 Euros!'

- goal: let's restrict imperatives to those cases in which modal verbs would be used performatively

  (157)   a.   A: Ask Melli about it!
  B: #That's true./#That's not true!
      b.   A: It is my wish that you ask Melli about it.
  B: That's true./That's not true.

  performative usages of modal verbs: equally weird, but: we can always coerce them into a non-performative reading

  (158)   a.   A: You have to go now. - B: #That's not true, I don't./or, A is reinterpreted
      b.   A: I hereby promise you to leave. - B: #That's not true, you don't.

- modals that are resistent against a descriptive reinterpretation: subjunctive of *sollen* (ignore independent PAST reading)

  (159)   a.   A: Du solltest jetzt Melli anrufen!
  you should now melli call.INF
  'Now, you should call Melli.'

      b.   B: #Das ist nicht wahr.
  that is not true
  # 'That's not true.'

Ninan (2005) suggests the same for English *must*; for performative modal expressions, he observes incompatibility with a follow-up negation of the prejacent (= the propositional argument of the modal) (his (4),(11)):

(160)   a.   #Sam must go to confession, but he's not going to.
    b.   #Go to confession! #But you are not going to.

despite its resistance against negation, *solltest* doesn't show incompatibility with prejacent-negation; a counterfactual interpretation saves (161) from ungrammaticality:

(161)   Du solltest jetzt Melli anrufen. Aber du wirst es nicht machen.
you should now Melli call. but you will it not do
'You should call Melli now. But you won't.'

try another test for performativity: blocking free choice disjunction by *I forgot which*:

(i) #You must clean the bathroom, or you must do the shopping, but I forgot which.
(ii) #Du solltest das Badezimmer putzen, oder du solltest einkaufen gehen, aber ich hab vergessen, welches von den beiden.
only: PAST, - according to what he said yesterday, you are under an obligation to

to checked: *A: You must go now. B: That's not true.*

- how can we constrain possible values for modal base and ordering source? - note that we have introduced them as pronouns (free variables in the syntax); values of pronouns in general are constrained by presuppositions

(162) $[[he_i]]^c = s(i)$ if $s(i)$ is male, else undefined.

what exactly are the conditions on modal base and ordering source in imperatives?

1. social or rational authority: modelled as perfect knowledge (cf. Groenendijk and Stokhof 1984, exhaustive knowledge)

   (163)   (*ignoring temporality*)

   a. y is an `Authority on a property` P:
        $(\forall w \in Bel(y)(c_W))(\forall x)[w \in P(x) \leftrightarrow c_W \in P(x)]$

   b.   `Authoritative Conversational Backgrounds` of x in c:
        x is an authority on a conversational background f in c iff
        $(\forall w \in Bel(x)(c_W))(\forall p)[p \in f(w) \leftrightarrow p \in f(c_W)]$

   c. $AUTH(x)(c) = \{f : W \rightarrow pow(pow(W)) \mid$
        $(\forall w \in Bel(x)(c_W))[(\forall p)[p \in f(w) \leftrightarrow p \in f(c_W)]]\}$

   modification (47')

   a. y is an `Authority on a property` P:
   $(\forall w \in CG(c))(\forall w' \in Bel(y)(w))(\forall x)[w' \in P(x) \leftrightarrow w \in P(x)]$

   b. `Authoritative Conversational Backgrounds` of x in c:
   x is an authority on a conversational background f in c iff
   $(\forall w \in CG(c))(\forall w' \in Bel(x)(w))(\forall p)[p \in f(w') \leftrightarrow p \in f(w)]$

   c. $AUTH(x)(c) = \{f : W \rightarrow pow(pow(W)) \mid$
      $(\forall w \in CG(c))(\forall w' \in Bel(x)(w))[(\forall p)[p \in f(w') \leftrightarrow p \in f(w)]]\}$

   end of modification

   speaker issues a necessity that depends only on parameters he is presupposed to be an authority on; truth of an imperative is trivial; falsity violates a presupposition
   can be filtered by conditional antecedents:

   (164)   a.   Wenn ich hier noch etwas zu sagen habe, ruf ihn an.
                 if I here still something to say have, call.IMPSG him PRT
                 'If I am still in a position to say something, call him.'
            b.   Wenn ich dir etwas raten darf, komm nicht noch mal zu spät.
                 if I you something give-advice.INF may, come.IMPSG not again
                 QPRT too late
                 'If I may give you a piece of advice, don't be late another time.'

   (165)   The `Authority Condition` as a presupposition on OP_{Imp}:

$$[[OP_{Imp}]] = \lambda f \lambda g \lambda P \lambda w.(\forall w' \in O(cg_F \cup f, g, w))[P(w')],$$
defined only for $f, g \in AUTH(x)(c)$

2. ordering source has to be a of a particular type: deontic, bouletic, teleological - preference related; Portner 2007: **priority backgrounds** (vs. epistemic, doxastic, dynamic (= ability)) - `preference related`; rules out:

(166) a. Be home at 5!
       b. Those alternatives that are *most plausible according to what I take to be the usual course of events*, are such that you are at home at 5.

(167) `Ordering Source-Restriction`
$$[[OP_{Imp}]]^c = \lambda f \lambda g \lambda p \lambda w.(\forall w' \in O(cg_F \cup f, g, w))[p(w')],$$
is defined only if g is a preference related conversational background.

3. in contrast to modals that can be used descriptively, imperatives are infelicitous if the proposition is known to come true/hold impossible

(168) a. Ich weiß, daß du das auf jeden Fall tun   wirst, und du
          I   know that you that in any   case do.INF will, and you
          sollst   es auch tun.
          should it too do.INF
          'I know that you are at any rate going to do this, and you should do it.'
       b. #Ich weiß, daß du das auf jeden Fall tun   wirst, also
          I   know that you that in any   case do.INF will, so
          tu's   auch.
          do.IMP-it too
          #'I know that you are at any way going to do this, so do it also.'

(169) `Epistemic Uncertainty Constraint (EUC)` on imperatives:
$$[[OP_{Imp}]] = \lambda f \lambda g \lambda p \lambda w.(\forall w' \in O(cg_F \cup f, g, w))[p(w')],$$
is defined only if
$$CG(c) \subseteq$$
$$\lambda w.(\exists w' \in Bel_{c_S}(w))(\exists w'' \in Bel_{c_S}(w))[\neg p(w') \ \& \ p(w'')]$$
(= *the speaker is taken to believe that both $\neg p$ and p are possible*).

4. to ensure the performative effect:

(170) Get yourself an ice cream! #But I don't want you to take one.
       Given what your wishes are, it is necessary that you take an ice-cream.

(171) a. #Call Melli! #But I don't think it's a good idea!
          Given what your wishes are, it is necessary that you call Melli.
       b. Okay, then go ahead and call her! But I don't think it's a good idea!   CONCESSION

(172) `Ordering source affirmation-principle (OSA)`

The speaker affirms the ordering source. (Therefore, he considers it to be better (sometimes with respect to a contextually salient goal) that the proposition modalized by the imperative operator comes out true.)

note: This last (and unsatisfactorily informal) constraint is needed only if we allow for ordering sources like *what the hearer wants*; *what the speaker wants*, *what the speaker orders* are inherently specified for the hearer to want them to be taken into account (note that, even in the case of where the speaker is giving orders in a military scenario and may hence not care for these orders to be complied with personally, he is committed to "want" his orders to be complied with in the official sense; but this is a fact about ordering, no matter what signs can be used to achieve an order, e.g., if raising one's arm is a sign for the addressee to stop, this sign can't be followed by an assertion like *but I don't want you to stop*.

idea: the four conditions are trivially fulfilled by g = *what I order you to do*; this explains why the form type we have identified as the imperative is prototypically used for ORDERing

the performative effect as a particular speech act type is predicted, if we make the following assumptions about (co-operative) communication and how the particular moves are to be classified:

(173) A **theory of speech act types** classifies (minimal) sequences of precontext c_1, intermediate context c_2, and postcontext c_3, such that at c_2, the speaker (tries to) update the Common Ground of c_2 with a linguistic object $[[c_E]]^c$ (a proposition; or an index dependent proposition s, st).

note: The only thing relevant to semantics is the (attempted) update of $CG(c_2)+p/CG(c_2)+q$.

(174) Update and c_S-belief:
If a speaker attempts to update $CG(c_2)$ with a propostion p, $CG(c_2)$ entails "the speaker believes p".

(175) minimal description of ORDER(ϕ)
c_1: ϕ does not follow from what c_A is ordered to do by c_S
c_2: $CG(c_2)$ is updated with a linguistic object $[[c_E]]^{c2}$
c_3: ϕ follows from what c_A is ordered to do by c_S

4.1 Detailed example: imperative used for ORDERing

an imperative that is used as an order gives rise to a picture as in figure 1 (the presentation has benefited a lot from comments and suggestions by Michael Franke and Sven Lauer)

- at t_1, c_S and c_A take it to be possible that - all things being equal so far - may utter *Leave!*, which at the given context (thanks to the interpretation $[[g]]^c$) would express the proposition $\lambda w. (\forall v \in O(cg_F, g, w))[c_A$ leaves in $v]$, where g = '*what is ordered by c_S*'. Other courses of events are taken to be equally possible.

t$_1$ t$_2$

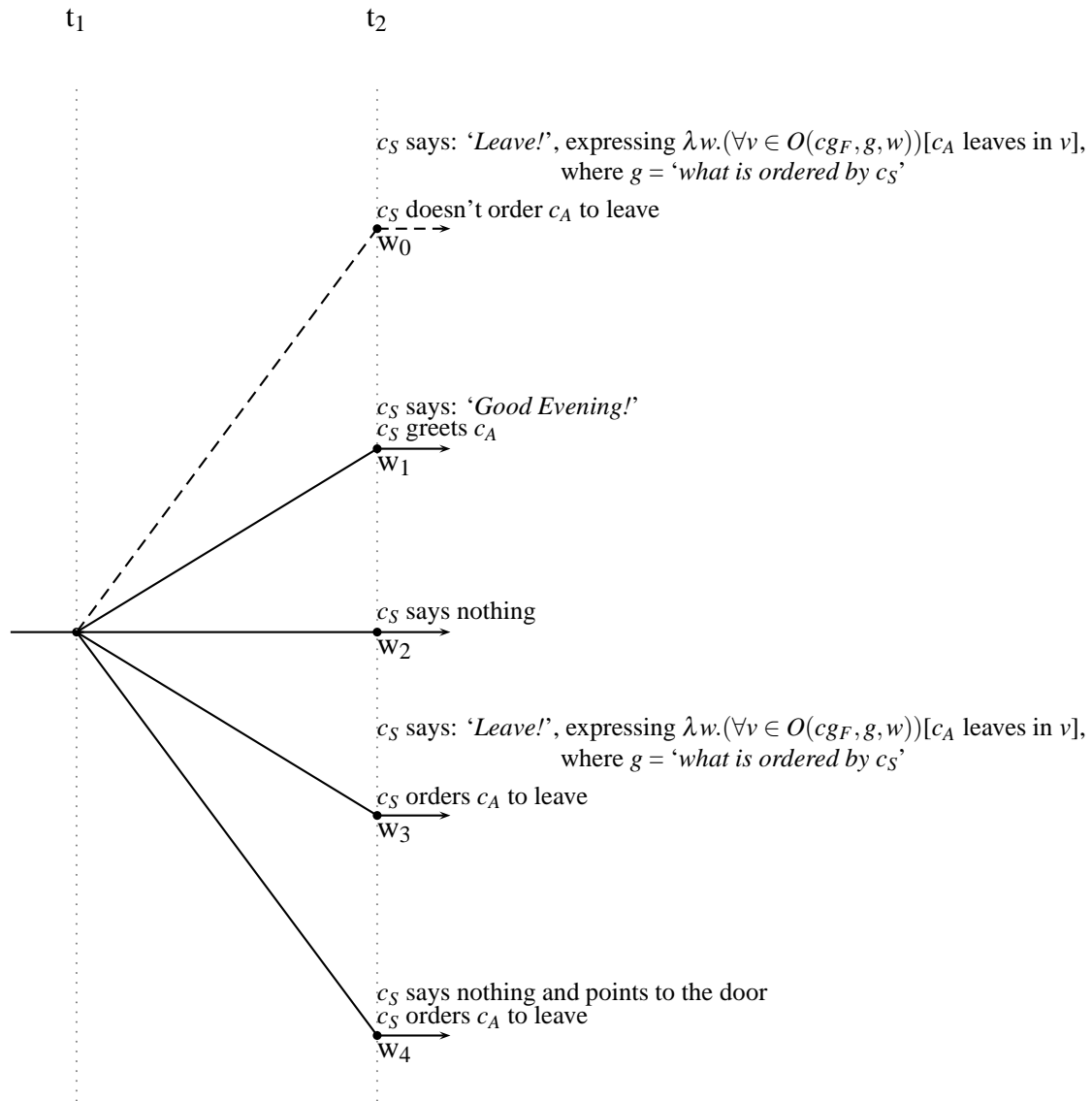c_S says: '*Leave!*', expressing $\lambda w.(\forall v \in O(cg_F, g, w))[c_A$ leaves in $v]$,
where g = '*what is ordered by c_S*'

c_S doesn't order c_A to leave
w_0

c_S says: '*Good Evening!*'
c_S greets c_A
w_1

c_S says nothing
w_2

c_S says: '*Leave!*', expressing $\lambda w.(\forall v \in O(cg_F, g, w))[c_A$ leaves in $v]$,
where g = '*what is ordered by c_S*'

c_S orders c_A to leave
w_3

c_S says nothing and points to the door
c_S orders c_A to leave
w_4

Figure 1: *'Leave!'* (in a context where the speaker's orders are salient as a potential ordering source)

- in principle, expressing this proposition could amount to being given an order (as in w_3, or not, as in w_0).

- by (174), at w_0 the speaker has to believe that he is giving an order; since he is not actually doing it, though, the existence of w_0 is incompatible with the authority principle (165) - hence, interpreting the imperative amounts to a presupposition failure if $w_0 \in CG(c)$

- at t_2, if c_S utters *Leave!*, worlds w_1, w_2, w_4 are eliminated automatically thanks to obvious meta-linguistic information (they do not match the obvious course of events)

- if no presupposition failure occurs, worlds in $CG(c)$ are all like w_3 in that uttering the imperative matches an act in the world that consists in c_S ordering c_A to leave

4.2 Summing up

- does the theory answer PCTE? - the semantic value is highly underspecified, but OR-
  DERS are the prototypical usages for imperatives because an ordering source like *what
  the speaker orders* at each context fulfills both the authority principle and the ordering
  source affirmation principle.

- does it answer PASTA? - particular values for modal base and ordering source are
  supplied by the context; which ones are possible is constrained by the presuppositional
  meaning component; the particular effect (speech act type) depends on the proposition
  obtained by filling in these values

- yet to explain: PERMISSIONS, CONCESSIONS, certain pieces of ADVICE

4.3 Remark: Refuting imperatives

in order to refute an imperative, the presuppositions have to be refuted (note that the speaker
can only order what he is entitled to order, hence, if he is not entitled to give orders, he is not
actually giving them)

(176) a. A: Geh   sofort   nach Hause!
            A: Go.IMPSG immediately home!
        b. B: Du hast mir überhaupt nichts zu befehlen!
            B: You are not in the position to tell me what to do!

with ADVICE replies can come close to confirming/refuting truth

(177) A: Wie komme ich nach Rüsselsheim? - B: Nimm am besten den 16er!
        A: How do I get to Rüsselsheim? - B: take.IMPSG best the 16-line ('Take line 16.')

        a. A: Stimmt! Hatte ich total vergessen. Danke.
            A: Right! I'd totally forgotten about it. Thanks.
        b. $^{??}$A': Nein, das ist nicht wahr.
            No, that is not true.
        c. A": Nein, das kann nicht stimmen. Der fährt doch
                nach Osten! Du hast ja gar keine Ahnung.
            A": No, that can't be correct. It goes eastwards! You don't know the
                first thing about it!

that's not true is slightly weird in this context; but *das* 'that' in (177c) refers exactly to the
proposition I claim is expressed by the imperative

4.4 More thoughts on ADVICE and the standard semantics of graded modality

- Back to ESSLLI 2009 and the lazy world *u*:

(178) In *u*, you want is a fee waiver for ESSLLI 2009.
        In *u*, you don't want to work too much (course proposals! - *yikes*)

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In u, you get a fee waiver only if you submit a course proposal.
<u>Therefore:</u> ...?

- modal base (bouletic information f_1 + circumstantial information f_2):

(179) $f_1(u) = \{\lambda v.\text{you obtain a fee waiver for ESSLLI 2009 in } v, \lambda v.\text{you don't submit a proposal in } v\}$
$f_2(u) = \{\lambda v.\text{you submit a course in } v \text{ or you don't get a fee waiver in } v\}$

derived (neither is necessary):

(180) $O(f_2, f_1, u) \cap \{v \in W \mid \text{you submit a course proosal in } v\} \neq \emptyset$
$O(f_2, f_1, u) \cap \{v \in W \mid \text{you don't submit a course proosal in } v\} \neq \emptyset$

(181) A: See... I want [cf. above] and their regulations are [cf. above]. What shall I do?
B: Come on, submit something!
B': Come on, you should really submit something.

problem arises for both modals (standard semantics) and imperatives; compare:

(182) B": I would submit something. (It's really not that much work and it's quite a lot of fun.)

A's question amounts to *what are the relevant preferences*

(183) A: *Given that I get only a fee waiver if I submit, and that I want to not submit, and I want a fee waiver, **given what you consider good goals/criteria**, what p is necessary?*

that these wishes pertain has been made part of $CG(c)$: hence, given the semantics in (154) it is thus taken into account

B does not consider all of A's wishes, or 'getting all A's wishes fulfilled" the "relevant criterion/good goal" (else he couldn't express a necessity)

B suplies $g_B(u) = \{v \in W \mid \text{you get a fee waiver in } v\}$; for intersection with $CG(c)$:

(184) $\lambda w.(\forall v \in O(cg_F \cup f, g_B, w))[\text{you submit a course proosal in } v]$,
where f is empty, $g_B = $ *what B considers good goals/the relevant criteria*

4.5 Comparing graded modals to Portner (2007)'s To-Do-Lists

- declaratives relate to epistemic modals, imperatives relate to priority modals

(185) A: Go present this proposal to our bankers today!
B: I should take the 7 a.m. flight to N.Y. then.

imperatives modify To-Do-Lists, and To-Do-Lists help determine the ordering source for deontic modals

- ordering induced by ToDoList & Agent's Commmitment: for each participant, the To-Do-List measures rationality:

(186)   Partial Ordering of Worlds $<_i$ (Portner (2005:(12)),Portner 2007:(16)):
For any $w_1, w_2 \in \bigcap CG, w_1 <_i w_2$ iff for some $P \in \mathrm{TDL}(i), P(w_2)(i) = 1$ and $P(w_1)(i) = 0$, and for all $Q \in \mathrm{TDL}(i)$, if $Q(w_1)(i) = 1$, then $Q(w_2)(i) = 1$.

(187)   `Agent's commitment` (Portner 2005(13), Portner 2007:(17)):
For any agent i, the participants in the conversation mutually agree to deem i's actions rational and cooperative to the extent that those actions in any worlds $w_1 \in \bigcap CG$ tend to make it more likely that there is no $w_2 \in \bigcap CG$ such that $w_1 <_i w_2$.

   – <u>problem</u>: (non-)action takes place in time; don't do anything - time eliminates worlds at which you have more properties

   – <u>potential problem</u>: trying to convince people that you can't do 'better' is equally rational (depending on how exactly likelihood is defined)

- imperatives influence subsequent priority-modals:

(188)   a.   Sit down right now.   ORDER
        b.   Noah should sit down right now, given that he has been ordered to do so.

(189)   a.   Have a piece of fruit.   INVITATION
        b.   Noah should have a piece of fruit, given that it would make him happy.

<u>but</u>: b-sentences seem performative, too; this can be modified as follows:

(190)   Noah should sit down right now, given what he has been ordered.

the deontic To-Do-List is a subset of the deontic ordering source used subsequently in the same unit of discourse - problem: *bouletic*-necessity (e.g. *Try some chocolate*)

- should not update the wishes of the addressee - at best, tells the addressee what follows from his/her wishes

- *given that...* -phrases can be inserted, which suggests that the imperative is to follow from some background, and does not directly update the background

- predictions are similar for ORDERS: what follows from what is optimal according to your orders is what you are ordered to do (compare the discussion of 1)

- details for what I take to be a misprediction on bouletic-cases:

Kratzer definitions for modal base and ordering source, plus To-Do-List-Definition

(191)   A selection function f is a (possibly partial) function taking two arguments, a world w and a set of propositions S, and returning a subset of S.   *his (52)*

(192)   A parametrized selection function h is a (possibly partial) function taking n arguments ($n > 2$), namely $n - 2$ individuals, a world, and a set of propositions S, and returning a subset of S.   *his (53)*

picking from sets that include both properties and propositions:

(193)   For any individual x, world w, and set of propositions or properties Π:
   a.   if it is defined, $\underline{\text{deontic}}_x(w, \Pi) =$
         $\{y \in \Pi : y$ expresses an obligation of x in w or
         $y(x)$ expresses an obligation of x in $w\}$
   b.   if it is defined, $\underline{\text{bouletic}}_x(w, \Pi) =$
         $\{y \in \Pi : y$ expresses a desire of x in w or
         $y(x)$ expresses a desire of x in $w\}$
   c.   if it is defined, $\underline{\text{teleo}}_x(w, \Pi) =$
         $\{y \in \Pi : y$ expresses a goal of x in w or
         $y(x)$ expresses a goal of x in $w\}$

maybe needed: $\underline{\text{'deontic-qua-}c_S\text{'}}_x(w, \Pi)$ (*what I ordered*)

(194)   Pragmatic function of imperatives:
         The canonical discourse function of an imperative clause Φ_{imp} is as follows.
         Where C is a context of the form $\langle CG, Q, T, h \rangle$:
   a. $C + \Phi_{imp}$ is defined only if
         $h_{addr}(w, T(addr))$ is defined for every $w \in \bigcap CG$.
   b.   Provided that it is defined, $C + \Phi_{imp} = \langle CG', Q, T', h \rangle$, where:
         (i) T' is just like T except that $T'(addr) = T(addr) \cup \{[[\phi_{imp}]]\}$, and
         (ii) $CG' = CG \cup \{\{w \in CG :$ for any set of properties S, if h_{addr} is
                defined, $[[\phi_{imp}]] \in h_{addr}(w, S)\}\}$

(195)   a.   You sit down right now! $h = deontic_{addr}$
         b.   Have a piece of chocolate! $h = bouletic_{addr}$
         c.   Talk to your advisor more often! $h = teleo_{addr}$

<u>but:</u> at least, (195b) should not add anything to what forms the hearer-bouletic ordering source of a subsequent modal verb.

relationship to Kratzer's theory: a context is $\langle CG, Q, T, h, f, g \rangle$: h picks out subset of To-Do-List for imperatives, f is the modal base, the ordering source is: $\lambda w.h_{subject}(w, g(w))$

(196) $[[\text{should}]]^c = \lambda P \lambda x \lambda w : f$ is a realistic conversational background, and g is a prioritizing conversational background. $(\forall v \in O(f, h_x(w, g(w)), w))[w' \in P(x)]$.

(197)   *Conversational background contains To-Do-List*
        Given a context of the form $\langle CG, Q, T, h, f, g \rangle$ for all participants in the conversation α, for all $P \in T(\alpha)$, and for al $w \in \bigcap CG, P(\alpha) \in g(w)$.   *his (61)*

(198)   *Same selection function*
        The selection function strongly tends to remain the same through a unit of discourse.   *his (62)*

- worry: one way relationship To-Do-Lists to ordering sources; only imperatives update To-Do-Lists

- relationship conversational backgrounds and To-Do-Lists

(199)   #Stay inside all day! (ORDER) Since you enjoy the nice weather, go out and play a little bit. (SUGGESTION)

but: ordering sources as we know them can be conflicting; think of the lazy world

(200)   #Don't submit a course proposal! Get a fee waiver for ESSLLI!

- coherence of modal backgrounds [follows from both approaches]

(201)   You should give more of your income to the poor. #And you should try this single malt scotch.

- TDL has no effect on the past - no commands w.r.t. the past state [agreed, but:]

(202)   Please don't have broken another vase!
        Given what my wishes are, it is necessary that you are not in a post-state of having broken another vase.

5   Unit 4: The modal operator analysis at work

5.1   QIP: imperatives between necessity and possibility

- imperatives pose a problem for semantics because their direct usages comprise an inhomogeneous set of speech act types (the *Functional Inhomogeneity Problem* FIP): ORDER, REQUEST, ADVICE, WISH, PROHIBITION, . . .

  particular problem: *Quantificational Inhomogeneity Problem* (QIP)

- some examples:

  imperatives used for giving PERMISSION and as CONCESSIONS:

  both speech act types involve widening of the permissible worlds, and: widening of the set of worlds which are possible futures the speaker will not try to prevent

- two different solutions within the MOP-analysis

1. semantically, imperatives still express necessity (cf. Schwager 2005b; Schwager 2006b for PERMISSIONS and CONCESSIONS)

   a pragmatic mechanism (accommodation) lets the necessity statement have an effect that would normally be achieved by a possibility statement

   note: this does not render PERMISSION-imperatives indirect speech acts; i.e., no underlying act of ORDERing is computed

2. the imperative itself can express possibility (Schwager 2005a; Schwager 2006b for *zum Beispiel*)

   (a) ambiguity (Grosz 2008)

   (b) always possibility; this is normally exhaustified ("the only possibility" = necessity; Schwager 2005b)

5.1.1 Cases to consider

PERMISSIONS:

(203)   a.   (It starts at eight, but) come earlier if you like!   [Hamblin (1987)]
        b.   Take an apple if you like.
        c.   Nimm   dir   ruhig   einen Apfel!
             take.IMP yourself PRT='CALM' an   apple
             'Take an apple if you like.'

CONCESSIONS:

(204)   a.   Alright, don't come then! (If you think you are so clever.)   CONCESSION
        b.   Okay, dann komm   eben nicht!
             okay, then come.IMP PRT not

back to ESSLLI 2009 again:

(205)   a.   B: Submit a proposal! - A: [. . .] - B: Okay, then don't submit anything.
        b.   B: Schick   was   hin!   - A: [. . .] - B: Dann schick   nichts
             B: send.IMP something to.there - A: - B: then   send.IMP nothing
             hin.
             to.there

ADVICE:

(206)   Kauf   zum Beispiel keine Zigaretten!
        buy.IMP for   example no   cigarettes
        'For example, don't buy any cigarettes.'   &&

(207)   a.   How could I stop smoking?/What do I have to do in order to stop smoking?
        b.   One of the things you may not do is buy cigarettes. $\Box\neg BC$(*addressee*)
             ($\rightarrow$ *It is necessary that you don't buy cigarettes.*)

(208)   a.   How could I save money?
        b.   One of the things you could do is not buy cigarettes. $\Diamond\neg BC$(*addressee*)
             ($\nrightarrow$ *It is necessary that you don't buy cigarettes.*)

* <u>remark:</u> in classroom discussion, Paul Dekker remarked that both examples are more complicated than ordinary possibility or necessity: for the reading explored in (207), the fact that this is one of many necessities is brought out in the paraphrase (*one of the things*), and comes out correctly in the analysis proposed below; for (208), both paraphrase and analysis fail to bring out the point that not buying cigarettes is one among other <u>sufficient</u> means. This touches upon an issue problematic for overt possibility modals as well:

(209)   a.   How do I get to Hamburg.
          b.   You can take the ICE from Frankfurt.

According to (209b), taking the ICE from Frankfurt is not only compatible with reaching Hamburg, but is rather (under certain assumptions: e.g. that you ride the train to the very end,...) a sufficient means to get there. Cf. the literature on **anankastic conditionals** for more information on the issue, in particular Werner 2006.

Moreover, Sven Lauer pointed out that at least his variety of standard German does not allow to interpret (220) as in (207). *

⟨UNKNOWN⟩:
Mother to her child who is terribly afraid of frogs and doesn't want to touch a frog:

(210)   Fass   den Frosch ruhig an!
        touch.IMP the frog   PRT at
        'Touch it [ruhig]! It won't do you any harm.'
        rendering P. Grosz: '*In view of what you need to do in order not to come to any harm,* it's possible for you to touch the frog!'

5.1.2 The pragmatic story for PERMISSIONS

- Schwager (2005b): imperatives always express necessity; in certain contextual constellations, they come to have the effect that is usually associated with an expression of possibility (i.e., widening of what the possibilities are)

- <u>argument:</u> avoid ambiguity; moreover: possibility effects are a lot harder to get than necessity effects, mostly marked by particles (*ruhig*), *if you like/wenn du magst-*antecedents, *then*,...

- we cannot rely on conditionalization: still no obligation; same problem for *may*-permissions

    (211)   a.   If you want to come earlier, (*given what your wishes are/given what my wishes are/*...) you must come earlier.
                b.   You may come earlier if you like.
                c.   Wenn Du magst, kannst du auch schon früher kommen.
                    if   you like   can   you also already earlier come

    ⇒ *if you like* behaves in a funny way

- resolution of modal base and ordering source:

    ORDER

(212)   [[Nimm dir einen Apfel!]] = *Given what we know the world to be like and given what I order* it is necessary that you take an apple.

PERMISSION: under the resolution of the contextual parameters as in (213), a permission effect is achieved if, in the utterance context, the propositions in (214) are common knowledge (note: (203c) is also very natural as just resolving uncertainty w.r.t. whether it is permitted or not)

(213)   [[Nimm dir ruhig einen Apfel!]] =
Given what we know the world to be like and given what you want it is necessary that you take an apple.

(214)   a. ϕ is among the wishes[4] of the hearer
         b.   the speaker is against the hearer's realizing ϕ
         c.   the hearer doesn't want to offend the speaker (keep the speaker pleased)
         d.   it is possible that, at the next moment, c_S permits taking an apple

(215)   proposition expressed by (213):
$p = \lambda w.\forall v \in O(cg_F, g, w)[\text{the addressee takes an apple in } v]$

at t_1 before the utterance (with g = *what c_A wants*, k = *what c_S orders*):

for any w in CG:	$g(w)$ = {the speaker is pleased, the addressee takes an apple}
for any w in CG	$k(w)$ = {c_A does not take an apple}
for any w in CG,	$k(w)$ is fulfilled or the speaker is not pleased, but not both
for any w in CG,	$O(cg_F, g, w)$ contains two types of worlds
	w_1: the speaker is pleased, the addressee does not take an apple
	w_2: the speaker is not pleased, the addressee takes an apple
there is a world w' in CG,	at t_2, c_S expresses p and permits the taking of an apple (i.e., at $k(w')$ = { })

at t_2, c_S expresses (215), which is true only if a permission occurs (plus metalinguistic information: w'-like worlds survive)

- c_S tries to update with proposition p, hence, it is known at t_2 that he believes p;

- either, he is an authority and p is true (that is, CG does not contain worlds at which he tries to update with p but p is false), or, a presupposition failure occurs

  hence: presupposition failure, or we are in a w'-like world, and this was a permission

alternative situation: it was not prohibited before - effect of an information that it is permitted (+ endorsing to go with your preference -?)

---

[4]Understood as primitive hearer would assent to "yes, (if it had not upleasant consequences), I would like that"; these wishes need not be necessities according to what he wants - the two come apart in case of inconsistencies.

5.1.3 CONCESSION

- imperatives can be modally subordinated (cf. Roberts 1989; Schwager 2006a for imperatives)

  (216)   a.   If you want him$_i$ to say nice things about your work, treat every professor$_i$ with courtesy.
  b.   *If he$_i$ is already there, give every speaker$_i$ his badge.
  c.   If John's already there, give him his badge.   *epistemic*

  (217)   Ede might make lasagne$_i$ tonight. $^{???}$/(^{ok}In that case) try it$_i$, he's an excellent cook.

  (218)   <u>Vielleicht</u> bringt ja   Maria *einen Wein$_i$* mit.   Dann <u>stell</u>   *ihn$_i$*
  perhaps   brings PRT Maria a   wine along. then put.IMP it
  einstweilen   in den Kühlschrank.
  in-the-meantime in the fridge
  'Mary might bring some wine$_i$ with her. In that case, put it in the fridge in the meantime.'

- CONCESSION-type: contra Schwager (2005b) - *then* indicates modal subordination to *if you don't care about me, do it*

  (219)   Okay, then don't do it, if you think you are so clever.

  <u>argument</u>: presence of *then*/*dann*

5.1.4 (In)exhaustive advice

- genuine ambiguity of the modal force embedded under *zum Beispiel* 'for example'

  (220)   Kauf   zum Beispiel keine Zigaretten!
  buy.IMP for   example no   cigarettes
  'For example, don't buy any cigarettes.'   &&

  (221)   a.   One of the things you may not do is buy cigarettes. $\square\neg BC$(*addressee*)
  b.   One of the things you could do is not buy cigarettes. $\lozenge\neg BC$(*addressee*)

  disambiguation by further particles *schon mal*:

  (222)   Kauf   zum Beispiel schon   mal keine Zigaretten!
  buy.IMP for   example already PRT no   cigarettes
  'For starters, one thing is not to buy cigarettes.' $\square\neg BC$(*addressee*)

  idea:

  1. underlyingly, imperatives express possibility; normally: exhaustive possibility

   (223)   a.   Q: What could I possibly do to stop smoking?

b. A: Du kannst **nur** aufhören, Zigaretten zu kaufen.
　　you can　　only stop,　　cigarettes to buy
　　'The only possibility you have (to achieve your task)
　　is to stop buying cigarettes.'

exhaustive possibility = necessity: *it's your only possibility = you must*

compare: anti-exhaustive necessity (one necessity among others)

(224)　A: Um　　　an eine gute Uni　　zu kommen, mußt du **zum**
　　　　A: in-order-to to a　　good university to get,　　must you for
　　　　Beispiel viel　　Geld　haben. B: Echt?　#**Und das ist alles?**
　　　　example lots-of money have. B: really? and　that is　all?
　　　　'A: In order to get into a good university, you need lots of money, for
　　　　example. B: Really? #And that's all?

2. exhaustification can be blocked by *for example*

3. two possibilities for imperatives containing *for example*:

　　　　　　　　　"for example ϕ!"

for example$(\Diamond \phi)$　　*for example*$((\text{EXH } \Diamond) \phi)$
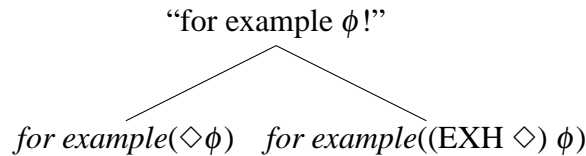
- the imperative operator as non-primitive necessity:

easier to see if we distinguish a background and a proposition that follows from the background (cf. Geurts 1999; roughly, at a world w, $b = O(cg_F, g, w)$)

(225)　a.　$\Diamond = \lambda b \lambda p. (\exists w \in b)[w \in p]$
　　　　b.　$\Box = \lambda b \lambda p. (\forall w \in b)[w \in p]$

(226)　a.　$OP_{Imp} = \Diamond \; (= \lambda b \lambda p. (\exists w \in b)[w \in p])$

　　　　b.　　　　　　　　　　　　　　　　　　CP
　　　　　　　　　　　　　　　　　　　　　C　　p
　　　　　　　　　　　　　　　　OP_{Imp}　b
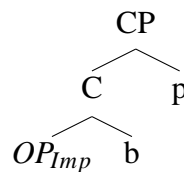
exhaustification w.r.t. domains and properties where parts of elements in the domain can have the same property (mereology, propositions,...)

(227)　exhaustification in terms of identity: *Only John came to the party.*
　　　　$P(john) \wedge \neg \exists y[y \neq john \wedge P(y)]$

domain: $pow(W)$, P = "is a possibility w.r.t background b"

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(228)   a. $\Diamond bp \rightarrow \forall q[p \subset q \rightarrow \Diamond bq]$
         b. $\forall q[[q \neq \emptyset \wedge q \subseteq (b \cap p)] \rightarrow \Diamond bq]$

possibility 1: Rooy and Schulz 2004 relativize w.r.t. relevance (*p is possible w.r.t. b and no other possibility that is equally relevant is possible*) - assume: sub- or super-propositions are not (equally) relevant

problem:

(229)   What is necessary for you to stop smoking?
         a.   you don't buy any cigarettes anymore
         b.   you buy no cheap cigarettes anymore
         c.   you buy only bad cigarettes
         d.   …

possibility 2: set-theoretic solution, cf. Zimmermann (2000) closes off lists of possibilities $p_1, \ldots, p_n$ to say that these propositions cover the entire background, that is, that their union is a necessity (proof Zimmermann's footnote 22):

(230) $(\forall q)[q \cap H_c \neq \emptyset \rightarrow [q \cap p_1 \neq \emptyset \vee \ldots \vee q \cap p_n \neq \emptyset]]$ his (24κ'), p.268

(231) $EXH(\Diamond) = \lambda b \lambda p.\Diamond(b)(p) \ \& \ (\forall q \in \Diamond(b))[q \in \Diamond(p)]$

(232)   For arbitrary b and p:
         $EXH(\Diamond) \Rightarrow \square$: for any w if $w \in b$, then $\{w\} \cap b \neq \emptyset$, therefore $\{w\} \cap p \neq \emptyset$, therefore $w \in p$.
         For non-empty b and arbitrary p:
         $EXH(\Diamond) \Leftarrow \square$: $(\forall w \in b)[w \in p]$, therefore $b \cap p \neq \emptyset$. And if for any q, $\Diamond(b)(q)$, then there is a $w \in b \cap q$. But then $w \in p$, therefore $q \cap p \neq \emptyset$, so $q \in \Diamond(p)$.

generalize to cover also necessity

p is an exhaustive necessity with respect to background b (in symbols, $(EXH(\square))(b)(p)$) as nothing follows from the background b that does not follow from p.

(233) $EXH(\square) = \lambda b \lambda p.\square(b)(p) \ \& \ (\forall q \in \square(b))[q \in \square(p)]$

Exhaustified necessity ($EXH(\square)$) boils down to identity of background and proposition, proof in (234).

(234)   For arbitrary b and p, $EXH(\square)(b)(p) \Leftrightarrow (b = p)$
         $\Leftarrow$: $b = p$, therefore $b \subseteq p$, and $(\forall q \in \square(b))[q \in \square(p)]$.
         $\Rightarrow$: $EXH(\square)(b)(p) = \square(b)(p) \ \& \ (\forall q \in \square(b))[q \in \square(p)]$. So, by the first conjunct and the interpretation of $\square$, $b \subseteq p$. Assume $b \subset p$. Then $(\exists w \in p)[w \notin b]$. Then, it would be the case that $b \in \square(b)$, but not $b \in \square(p)$. Therefore, it cannot be the case that $b \subset p$. Hence, $b = p$.

(235) $EXH(R) = \lambda b \lambda p.R(b)(p) \ \& \ (\forall q \in R(b))[q \in R(p)]$

(236) $zB(R) = \lambda b \lambda p.R(b)(p) \ \& \ \Diamond(Bel_S)[\neg(\forall q \in R(b))[R(p)(q)]]$,
          where Bel_{c_S} the speaker's belief worlds.

(237)   a. $[\ [\ \{EXH, zB, \emptyset\} \ [\ \{EXH, zB\}(OP_{Imp}) \ ] \ ] \ b \ p \ ]$
          b. $[\ [\ \{ EXH, zB, \emptyset\} \ [\ \{ must, may, \dots \ \} \ ] \ ] \ b \ p \ ]$

According to (237a), in absence of *zum Beispiel*, *EXH* is applied to OP_{Imp}.

(238)   Kauf   zum Beispiel keine Zigaretten!
          buy.IMP for   example no   cigarettes
          'For example, don't buy any cigarettes.'

If *zum Beispiel* serves as the obligatory modifier of OP_{Imp}, the imperative expresses
possibility. (237a) is instantiated as in (239).

(239) $[[[\ \emptyset \ [\ zB \ OP_{Imp}]] \ b \ ]$ you don't buy cigarettes $]$

The complex modal operator is computed as in (240) and applies to the respective
propositions as in (241). The reading obtained is the one of inexhaustive possibility as
singled out in (221b).

(240) $zB(OP_{Imp}) = \lambda b \lambda p.\Diamond(b)(p) \ \& \ \Diamond(Bel_{c_S})[\neg(\forall q \in \Diamond(b))[q \in \Diamond(p))]]$

(241) $\Diamond(B)$(you don't buy cigarettes) &
              $\Diamond(Bel_{c_S})[\neg(\forall q \in \Diamond(B))[q \in \Diamond$(you don't buy cigarettes)]],
              for a contextually given background B
          *'It is possible for you not to buy cigarettes, but I don't exclude that you have
          other possibilities as well'*

(242) $[[[\ zB \ [\ EXH \ OP_{Imp}]] \ b \ ]$ you don't buy cigarettes $]$

(243) $zB(EXH(OP_{Imp})) = zB(\Box) =$ by equivalence in (232)
          $\lambda b \lambda p.\Box(b)(p) \ \& \ \Diamond(Bel_{c_S})[\neg(\forall q \in \Box(b))[q \in \Box(p)]]$

(244) $zB(EXH(OP_{Imp}))(B)$(you don't buy cigarettes) =
          $\Box(B)$(you don't buy cigarettes) &
              $\Diamond(Bel_{c_S})[\neg(\forall q \in \Box(B))[q \in \Box$(you don't buy cigarettes)]],
              for some contextually given B.
          *'it is necessary that you don't buy cigarettes, and I don't exclude that there
          are more things necessary (w.r.t. B)'*

- modal operators in Salish that (like imperatives) express necessity as a default but are
  interpreted as possibility when necessity gives rise to a contradiction (cf. Matthewson,
  Rullman, and Davis 2005).

5.1.5 What particles show and why I am still not convinced that we should conflate the two kinds of possibility-usages

- Grosz (2008): imperatives do contain modal operators, and they are ambiguous/underspecified as to whether they express possibility or necessity

  PERMISSION-imperatives express possibility in semantics

- <u>his claim:</u> there are German particles that

  1. occur in modalized sentences only (*ruhig, bloss, JA*), and

  2. impose restrictions on what kind of modal force they combine with (*ruhig*: $\Diamond$; *bloss, JA*: $\Box$)

  3. since all three particles can occur in imperatives, (*i*) imperatives contain modal operators, and (*ii*) OP_{Imp} is ambiguous between $\Box$/$\Diamond$

- some examples:

  (245) a. Der isst {ruhig,*bloß,*JA} den Spinat.
  he   eats {ruhig, bloß, JA} the spinach
  'He is eating/will eat the spinach.'
  b. Der kann/darf {ruhig,*bloß,*JA} den Spinat essen.
  he   can/may {ruhig, bloß, JA} the spinach eat
  'He can/may eat the spinach.'
  c. Der soll   {ruhig, bloß, JA} den Spinat   essen.
  he   can/may {ruhig, bloß, JA} the spinach eat
  'He can/may eat the spinach.'

- <u>note:</u> the correlation holds only if *sollen* is also ambiguous in modal force, as Grosz (2008) assumes (usually: $\Box$)

  sollen in V1 is usually claimed to express $\Diamond$ (cf. Önnerfors 1997) - CONCESSIONS (initial *dann* 'then' - same effect)

  (246) Soll er doch sauer   sein.
  shall he PRT offended be
  roughly: 'Let him be offended then.'

  (247) Der Hans soll ruhig den Kühlschrank ausräumen.
  the Hans shall ruhig the fridge   empty
  'Hans shall [ruhig] empty the fridge.'
  In view of what I want, it is possible for Hans to empty the fridge.   *Grosz 2008, (36)*

- <u>follow ups:</u> test for PERMISSION vs. COMMAND, but not for modal force (*pace* Grosz 2008)

  (248) a. . . . das stört mich nicht.
  that doesn't disturb me.

  b. ...sonst wirst du bestraft.
    or else you'll be punished.

(249) Du nimmst   dir einfach, was du brauchst. Das
    you take.2PSGPRESIND yourself simply what you need. That
    stört mich überhaupt nicht.
    disturbs me at.all   not
    'You just take what you need. I really don't mind.'

- problem: *muss* (only: □) is incomaptible with all particles for an independent reading (non-performative) - no clear evidence for incompatibility □ + *ruhig*

  hence, alternative story (-?): *ruhig* can appear whenever a certain pragmatic effect is achieved - widening, no matter, if by ◇ or □

  particles *ruhig, bloß, JA* require performative modality - out in conditionals of antecendents:

(250) Wenn er unbedingt/*JA/*bloß zur Beichte gehen soll, geht er
    if he necessarily/JA/bloß to confession go shall, goes he
    morgen.
    tomorrow
    'If he necessarily/JA must go to confession, he will go tomorrow.'

- possibility test: compatibility of contradictory complements (cf. Grosz 2008, his (38))

(251) Father: Hans wants to spend Christmas abroad. He thinks about going to Toronto or to Sidney! Is there anything we can do to convince him to spend Christmas here with us? - Mother: Oh come on...
  a. Der kann's/soll's/soll's ruhig in Kanada verbringen, und der
    he can-it/shall-it/shall-it ruhig in Kanada spend,   and he
    kann's/soll's/soll's ruhig in Australien verbringen. (I don't care)
    can-it/shall-it/shall-it ruhig in Australia spend
    'He can spend it in Australia, and he can spend it in Kanada.'

  for me: only *kann* is okay (footnote: "some speakers only accept these examples with *or*"; for me, *oder* 'or' rules in *soll's* under epistemic uncertainty w.r.t. an obligation, no possibility reading; and *soll's ruhig* is inacceptable)

(252) a. Du kannst ruhig hingehen, aber du kannst auch ([?]ruhig) zu Hause
    you can ruhig go-there, but you can also (ruhig) at home
    bleiben.
    stay
    'You can ruhig go there, but it's also okay if you stay home.'
  b. #Du sollst ruhig hingehen, aber du sollst auch (ruhig) zu Hause
    you shall ruhig go-there, but you shall also (ruhig) at home
    bleiben.
    stay

> *cannot meant:* 'You shall ruhig go there, but it's also okay if you stay home.'

maybe: *sollen* can achieve the effect of a possibility statement (e.g., be used as a PERMISSION), but: it does not seem to semantically express possibility → *ruhig* can combine with certain expressions of semantic necessity

- compare ADVICE-imperatives:

  in the absence of closure intonation *for example*-imperatives can receive ◇-interpretations, *sollen* only gets the □ interpretation:

  (253)　Kauf zum Beispiel gar keine Zigaretten mehr, kauf Zigaretten, die dir nicht
  　　　schmecken,…　　　　　　　　　　　　　　　　　　　　　　　　　　◇
  　　　for example, buy.IMP not-any cigarettes anymore, buy.IMP cigarettes you
  　　　don't like,…

  (253)　Du sollst (zum Beispiel) keine Zigaretten mehr kaufen, du solltst Zigaretten
  　　　kaufen, die dir nicht schmecken,…　　　　　　　　　　　　　　　　□
  　　　you should (for example) not buy cigarettes anymore, you should buy cigarettes
  　　　you don't like,…　　　　　　　　　　　　　　　　　　　　　　　　□

  und 'and': only the (contradictory) obligation reading is available (why?!)

  oder 'or': all performative necessity and possibility modals behave alike: we get an (exhaustive) lists of all possibilites to fulfill an obligation; cf. Geurts ta)

  ⇒ *zum Beispiel*-imperatives and *sollen* behave differently

- issue: free choice items are licensed under possibility modals, not under necessity

  (254)　a.　You may pick any flower!
  　　　b.　#You must pick any flower.
  　　　c.　Pick any flower!

  still, (254c) is different from mere possibility; there is an obligation to pick one flower, and a permission to pick whichever you want (cf. Aloni 2005)

- for the moment:

  1. imperatives express necessity statements, unless antiexhaustified (as can be done by *for example*)

  2. *sollen* = EXH(OP_{Imp})

  3. necessity statements sometimes achieve widening PERMISSION,…-effects (possibility-like effects)

  4. particles are maybe sensitive to the presence of modality as such, and the effect that modality achieves

- alternative: anti-exhaustification can be done by other particles as well (e.g. *ruhig*)

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