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

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## 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$_{clause-type}$ = $\langle imperative_{form-type}, \text{ORDER} \rangle$

  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*

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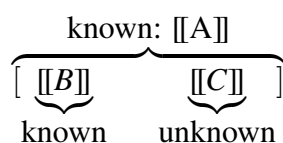         b.   The sentence "..." is true if and only if "...".

  $\Rightarrow$ 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:

  (2)   **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:



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application to imperatives fails: (*i*) truth doesn't seem to apply to imperatives, hence, (1b) is not helpful; (*ii*) imperatives do not normally occur as parts of larger units, hence, (2) is not helpful

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

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

`Ross' paradox` (cf. Ross 1944)

(4)    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*):

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

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

  (6)    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)

(7)    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. (7a)): proposed in Chomsky (1975, Katz and Postal (1964); evidence: tagging

  (8)     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( $\underbrace{\textit{thoughts}}_{\text{semantics}}$ )

  <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)

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

resulting picture:

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

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:

(11)    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

(12)    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

(13)    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. (13)): wide scope for *every*, but not for *most*:

(14)    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.'*

(15)    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 $\langle s, st \rangle$:

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

(17)  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:

(18)  *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

(19)  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

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

(21)  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

(22)  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)

(23)  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)

c.    a set of temporal intervals $T$

(24)    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)

(25)    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. $c_W$

(26)    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:

(27)    a sucessful ASSERTION($\phi$) 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 $\phi$ in $c$ is rendered mututal joint belief)
<u>metalinguistic information:</u>
$CG(c') \subseteq$ '$c_S$ uttered something with the intention to make an assertion'
<u>felicity conditions:</u> speaker knew $\phi$ at $c$, addressee did not know $\phi$ 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:

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

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

<u>Lewis:</u>

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

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

(30)  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.*):

(31)  [[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**):

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

(33)  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
          $PS(c') = PS(c) \cup \{w \in W \mid \text{the addressee reads Lewis in } w \text{ \& } w \text{ is as close to } PS(c) \text{ as possible}\}$

<u>note:</u> 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:

(34)  [[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)

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

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

(36)  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

<u>problem 2</u>: 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

(37)  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 $O$

(38)  a.  If $K$ is a DRS, then $\delta K$ 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 $\delta K$ 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

<u>problems</u>:

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

    (39)  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

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

  - weak answers:

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

b.   Okay, I'll try to.

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

(42)   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.

(43)   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:

(44)   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

- credo: 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

(45)   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, $\pi$ 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 $((E \times T) \times \{\text{TRUE, FALSE}\})$

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

  if $e$ is known to happen at $\tau$: all possibilities $\sigma$ in the information state are associated with $((e, \tau), TRUE)$; if it is known to be false at $\tau$, 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:

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

- 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?

    (47)　　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:

    (48)　　Never write to me again.

  - question/answer pairs are indirect:

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

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

(50)    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)

  (51)    [[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

(52)    Generalized update function $F$:                          [Portner 2005]
   a.    The generalized update function $F$ adds a semantic object $\phi$ 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:

(53)    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 $Q(w_2)(i) = 1$.[1]

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[1]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 $u$.

(54)   `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)

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

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

- unmodalized object - no scopal amiguities:

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

- conditionals: material implication?

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

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

  (59)   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 (59b), indeed: more rational not do do anything against getting well a.s.a.p., debatable: (59c)); tricky: (59d) - requires some sort of embedding under a conditional antecedent (-?)

- problematic: PERMISSIONS, CONCESSIONS
- separation of imperative and declarative information:

(60) 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*$\}$, $QS' = QS$, $TDL'(\text{magda}) = TDL(\text{magda}) \cup \{\lambda w \lambda x : \text{magda} = x.x \text{ empties the mailbox-empty in } w\}$

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

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

(62) 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

(63) a. You can ask Cécile or you can email to Patrick.
→ You can ask Cécile. And you can email to Patrick.
b. You can ask Cécile or you can email to Patrick, I forgot which.
↛ 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

(64) The book might be on the table or I might have left it at home.
→ 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.

(65) You may go to Shoal Creek, or you may go to Shingle Creek, but stay away from the dangerous one.
$\not\rightarrow$ 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 $\phi$* 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:

  (66) 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 (27), 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: $\langle s,st \rangle$

– direct answers:

(67)    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.

(68)    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.

(69)    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:

(70)    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

(71)    (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?'

(72)    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