Fine-tuning natural language imperatives: between logic and linguistcs

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ust
Be :-)

Grammar to the rescue

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- Other sentence types – other canonical functions

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- 'imperative' (grammar) = 'imperative' (logic)?
- Formal analysis of NL imperatives?

1. Imperatives in linguistics
2. Desiderata for a semantics of NL imperatives
3. Various accounts discussed in linguistics
4. The modal story
5. Put to use

Functional diversity: beyond commands

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- Various types of wishes (expressives):

  (6) a. Enjoy the conference!
  b. Please don't have broken another vase!
  c. Don't be home, please!

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  Indirect speech acts?

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(10) (To go to Harlem) Take the A-train.

a. The best thing to do is to take the A-train.
b. #He advised me to take the A-train by commanding me to do so.

Truth-values and assertions

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  - Non-boolean combinatorics: Ross's paradox, no scope under negation,. . .

(12) a. Post the letter
b. Post the letter or burn it

Practical inferences and others

- Intuitive validity of inferences with quantifiers, conjunctions, . . .

(13) Take any book that is on the desk.
Kindaichi's grammar of Japanese is on the desk.

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Same problems as with modal verbs (Charlow 2014).

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- Subsequent modals (Portner 2007):

(14) A: Take the train!
According to A, you should take the train.

Speaker endorsement and openness

- Deontic Moore's paradox (Frank 1996):

(15) #You should go to Paris, but in fact, I think it is not advisable.

(16) A: How do I get to Harlem?
B: Take the A-train. But I don't want you to do this.
(Kaufmann 2006/2012)

(17) Ok, then go through this door since you want it so much!
a. #But don't forget, I don't want you to.
b. But it's not officially allowed, so I wish you would not.
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- Epistemic openness (Kaufmann 2006/2012)

(18) a. Sam must go to confession (#but he's not going to).
(Ninan 2005)
b. Go to confession (#but I know you won't go).

Complete answers

- Imperatives can answer questions of practical deliberation (variant of Kolodny & MacFarlane's 2010 miners paradox)

(19) Which shaft should we block?

a. Block shaft A. That's where they are.
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- Partial answers aren't felicitious unless it is clear that the addressee will arrive at a complete answer in time:

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- Contrasts with objective readings for modals like *ought* or *should* (Kaufmann & Kaufmann 2013: subjunctive marking crucial).

For comparison: logical form $!\phi$

- Overt subjects provide evidence of a propositional core

(21) a. YOU pick up the phone.
b. Everybody pick up the phone.

(22) a. Don't you pick up the phone.
b. Don't anybody pick up the phone.

(Schmerling 1982, Kaufmann 2006/2012, Zanuttini 2008)

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- Logical form of imperative clauses: '!ϕ'
  - ϕ: propositional core, prejacent
  - !: place-holder for imperative-specific assumptions

Some propositional and non-propositional proposals

Facts + | Rules, Goals, Desires | ⇒ Optimal choice

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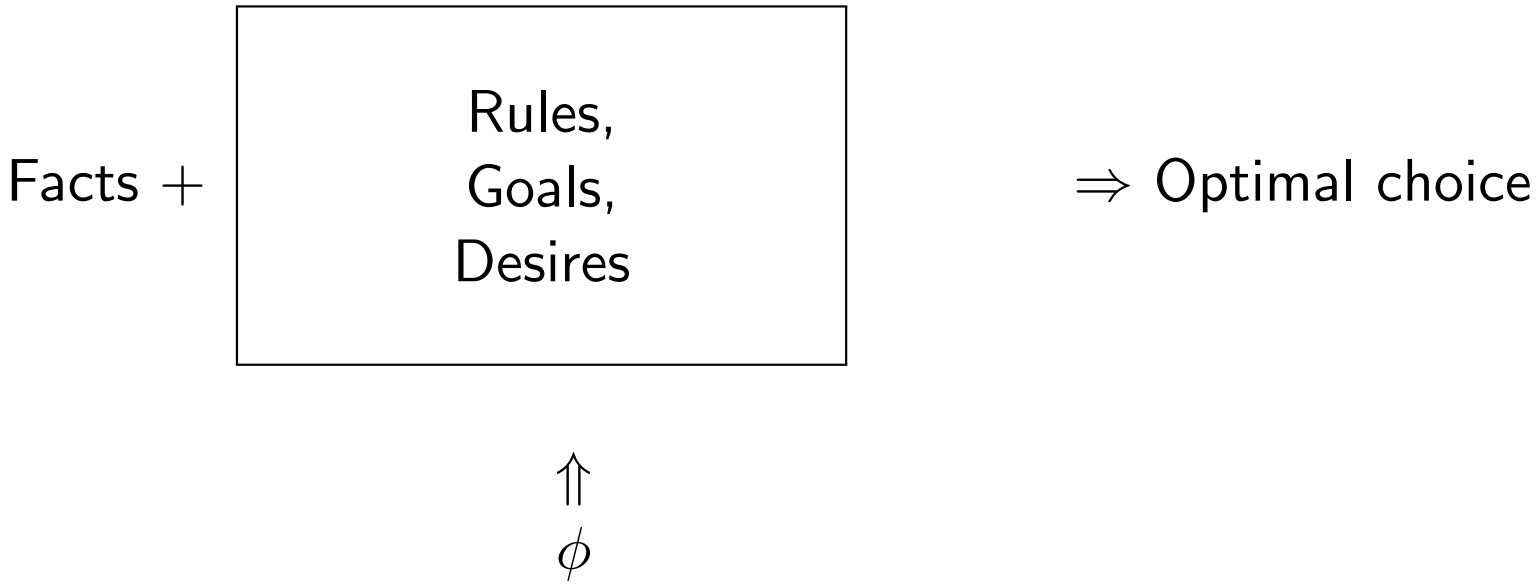

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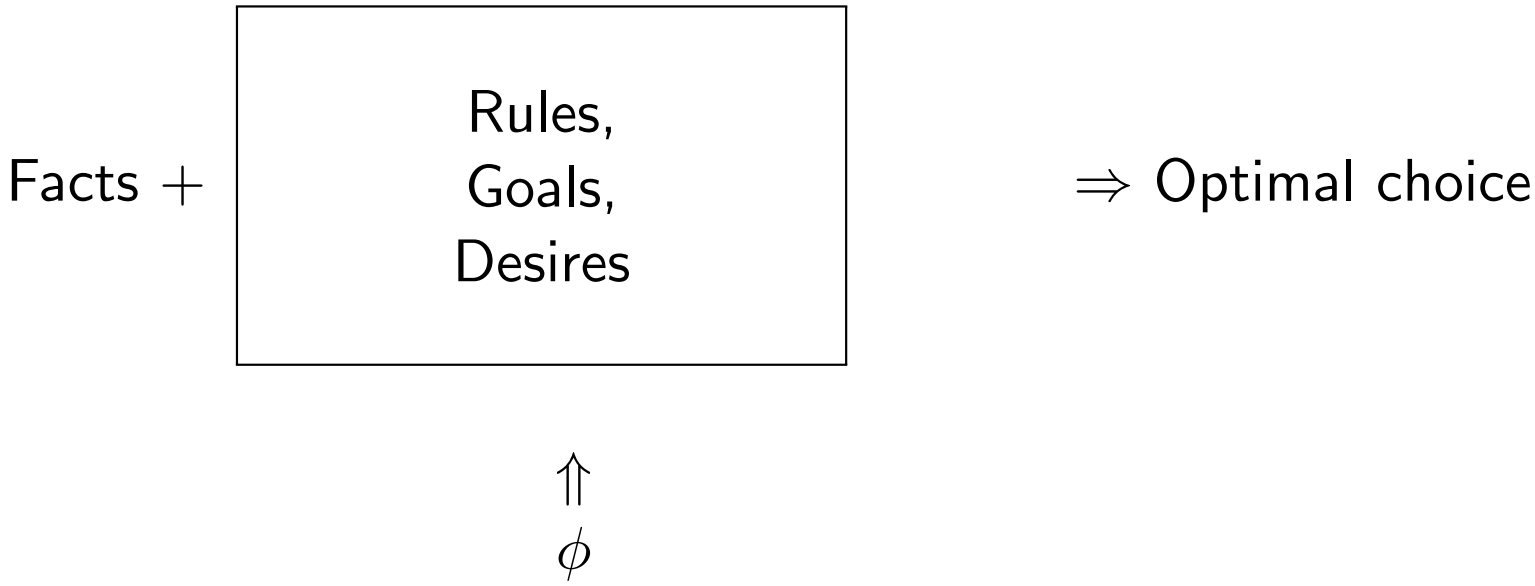

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'$\lambda x.\phi$ *is added to the addressee's To Do List*'

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Charlow (2014):
'*the property of a plan to single out* ϕ *as optimal*'

Comparing: representation of utterance context

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- Additions: Permissibility Sphere (Lewis), To Do List (Portner), Plan/Set of plans (Charlow)
- Assumptions about status of additions, e.g.:

(23) Portner's (2007) Agent's Commitment:
For any participant i, the participants in the conversation mutually agree to deem i's actions rational and cooperative to the extent that those actions in any world $w_1 \in \bigcap$CG tend to make it more likely that there is no $w_2 \in \bigcap$CG such that $w_1 <_i w_2$.

with: $w_1 <_i w_2$ iff
$\{P \mid P$ is on i's TDL and $P(w_1)(i)\}$
$\subset \{P \mid P$ is on i's TDL and $P(w_2)(i)\}$

Comparing: relationship to modality

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- Semantically identical (Lewis, Kaufmann)

$$\Uparrow$$
$$\ldots$$
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Imperatives guarantee truth of subsequent modal statements (Portner)

Modality in linguistics: Kratzer (1977,...)

- Possible worlds semantics (Hintikka 1969, Kripke 1972)
- Context determines modal flavor of modal expressions:

(25) Mary may come to the party.

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  - notions other than $\Box$ and $\Diamond$

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- Ordering source g at w introduces preorder $\leq_{g(w)}$ on W:

(26) $u \leq_{g(w)} v \Leftrightarrow$
$\{p \in g(w) \mid p(v) = 1\} \subseteq \{p \in g(w) \mid p(u) = 1\}$

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- Consider only finite approximation (Lewis's Limit Assumption)

(27) a. $O(f, g, w) :=$
$\{u \in \bigcap f(w) | \forall v \in \bigcap f(w)[v \leq_{g(w)} u \to u \leq_{g(w)} v]\}$
b. $w\mathrm{R}^{f,g}u$ iff $u \in O(f, g, w)$

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- *must*/*may* as $\Box/\Diamond$ interpreted w.r.t. $\mathrm{R}^{f,g}$.

Application: a deontic reading

(28) '*Jon must pay a fine*' is true at w, f, g iff
$\forall u \in O(f, g, w)$[John pays a fine in u].

A context that would make it true:

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A context that would make it true:

- f = circumstantial, g = UConn parking regulations
- $f(w) = \{$Jon has an area 2 permit, Jon parked his car next to the philosophy department, the parking lot next to the philosophy department is an area 1 parking lot$\}$

Application: a deontic reading

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A context that would make it true:

- f = circumstantial, g = UConn parking regulations
- $f(w) = \{$Jon has an area 2 permit, Jon parked his car next to the philosophy department, the parking lot next to the philosophy department is an area 1 parking lot$\}$
- $g(w) = \{$people who park on area 1 lots without an area 1 permit pay a fine, people who park on area 2 lots without an area 2 permit pay a fine$\}$

Application: a deontic reading

(28) '*Jon must pay a fine*' is true at w, f, g iff
$\forall u \in O(f, g, w)$[John pays a fine in u].

A context that would make it true:

- f = circumstantial, g = UConn parking regulations
- $f(w) = \{$Jon has an area 2 permit, Jon parked his car next to the philosophy department, the parking lot next to the philosophy department is an area 1 parking lot$\}$
- $g(w) = \{$people who park on area 1 lots without an area 1 permit pay a fine, people who park on area 2 lots without an area 2 permit pay a fine$\}$
- Among worlds in $\bigcap f(w)$: worlds where Jon pays a fine outrank worlds where he doesn't.

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- *if*-clauses restrict modals, quantificational adverbs, and other operators (Lewis 1975).

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  - Conditionals with overt modals: restriction of overt or covert epistemic modal (Frank 1996)

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- Challenge for NL imperatives
  - Explain magical adjustment
  - General analysis for imperatives beyond commanding

Why split that way?

- Semantic uniformity for descriptive and performative modal verbs (Schulz 2005, Kaufmann 2012, Kamp 1978)

(29) a. Mary, you may leave now.
b. You may leave now. (John said so.)
c. John said that you may leave now.

- Non-propositional accounts of imperatives (properties, plans, action terms,. . .) still need to explain contextual profile (non-assertive, inferences, embedded occurrences. . .).

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  - Make sure imperatives occur only in such settings
- Analogous challenge: specify the status of a TDL (Portner) or plan set (Charlow)

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- Non-boolean inferential behavior, specifically: Ross's paradox
  Does not correlate with descriptive vs. performative language
  (von Wright 1969)

(30) a. You can pay online or at the police station. (I checked the rules.)
b. If you may take an apple or a pear, you should consider yourself lucky. (Barker 2010)
c. You may take an apple or a pear depending on what you're allergic to.

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- Interrogatives introduce non-trivial Π
- For simplicity: practical interrogatives ('What should α do?') are split into modal parameters (*f*, *g*) and possible prejacents (the cells of Π^{Δ}_{α})

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- g meets the Ordering Source Restriction (OSR):
  - Either c is a practical context for the addressee (so f, g: decisive modality) and p is a complete or c-completable answer to $\Pi^{\Delta}_{\mathrm{addr}}$
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  (Thomason 1984)
- Imperatives presuppose these conditions, modal verbs can occur felicitously in such contexts or others.

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(31) a. Please don't be home yet!
b. Just don't forget to call him tomorrow!

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(31) a. Please don't have broken another vase.
b. Please be the person we were looking for.

Predicting desiderata about imperatives

- True or infelicitous (EA)
- Non-descriptive: different directives (context dependency of Kratzerian modality) or expressive speech acts (OSR)
- Deriving expressives (wishes):
  - Actual addressee, *p* unsettled, actual addressee: no wish (Condoravdi & Lauer 2012); accommodation of $\Pi^{\Delta}_{\text{addr}}$

(31) a. Get a lot of work done tomorrow.
b. #Be well again next week.

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- #'. . . but I don't want you to' (OSR: decisive modality/speaker bouletic)
- #'. . . but you won't do it' (EA: true, OSR: decisive modality/want vs. wish)

Possibility-like readings

- Stronger than permissions:

(31) Take a cookie!

(32) a. You may leave by the front door and you may leave by the back door.
b. #Leave by the front door, and leave by the back door.

Best option given addressee's wishes ('if you like')

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- Concessions

  (33) Ok, go then to Paris since you want it so much.

  Accommodation that the hearer's (contextually relevant) preferences serve as g of decisive modality.

Some further benefits of the modal story

- Standard account of conditionals extends naturally:

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- Compositional behavior of embedded imperatives: modalized proposition plus presuppositions (projection, local accommodation).

Embedded imperatives in speech reports

- Traditional view: impossible, only quotes

(36) a. * John said that open the door.
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(37) a. John$_1$ said call his$_1$ mom.
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- Presuppositions: properties of original speech event - local resolution/accommodation (Heim 1983, van der Sandt 1992)

(38) John wants the banshee in his attic to leave.

Embedded imperatives: Slovenian

- Apparently just like 'you should' (Dvorak 2005, Rus 2005)

(39) Marko je rekel Petru da mu pomagaj.
Marko AUX said Peter.DAT that him help.2PIMP
'Marko said to Peter that you should help him.'

Embedded imperatives: Slovenian

- Semantic/pragmatic restrictions (Stegovec, Ms.)

(40) a. Paul to George: 'Ringo should listen to Brian!'
b. John to Ringo: 'Paul said to George that [you should listen]$_{2plmp}$ to Brian.'

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- Context properties split between original and actual context

Restrictive relative clauses

- Cross-linguistically rarer; hypothesis: requires compatibility with complementizer
- Ancient Greek (Meideiros 2013), Slovenian (Dvorak 2005, Rus 2005)

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    (45) The book that [you should buy]$_{\mathrm{2pSg}}$ as soon as it is available is not yet out.

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