

Don't be late or you'll miss the first slot

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1 Conditional Imperatives

- **imperatives**: morphosyntactically identifiable clause types
- various languages: conditional readings
(e.g. English, cf. Bolinger 1967; German, Greek, cf. Han 1998; Malagassy, Georgian, Korean)

1.1 The constructions

- (1) imperative AND declarative (**IaD**)
imperative OR declarative (**IoD**)
- (2) a. Show up late and you're gonna lose your job.
b. Come in time or you won't get a ticket.

1.2 Outline

- IaDs \neq IoDs
- IoDs are not truly conditional
- " $\neg A \vee B \equiv A \rightarrow B$ " is not sufficient
- non-classical disjunction does quite well
- alternative speech act algebraic solution seems to weak

2 Why IaDs but not IoDs are True Conditionals

- claim: both IaDs and IoDs formally involve a genuine imperative
- evidence:
 - cross-linguistic occurrence of IaDs and IoDs

- IoDs and IaDs in languages with unambiguous imperative marking (e.g. German)
- alleged differences in selection restrictions/subject interpretation: don't hold if not for independent reasons (vs. e.g. Han 1998; cf. Schwager 2004))
- only IoDs also associate it with a sentential force typical for imperatives (obligation, advise, suggestion, . . .).

why IaDs \neq IoDs

- IoDs allow for insertion of *please* (3) or tagging with *will you* (4), IaDs lose their conditional reading (cf. Bolinger 1967), (3-b), (4-b) grammatical only as speech act conjunctions:
 - (3) a. Sit down, **please**, or I'll call the police.
 - b. Sit down, **please**, and I'll call the police. [*IaD]
 - (4) a. Sit down, **will you**, or I'll call the police.
 - b. Sit down, **will you**, and I'll call the police. [*IaD]
- IaDs allow for “negative interpretations”, IoDs don't (cf. Clark 1993):
 - (5) a. Come one step closer and I'll shoot.
 - b. #Leave or I'll make you a nice dinner. [intended: 'Stay!']
- Sequences of two IaDs involving ‘contradictory’ imperative clauses can be uttered felicitously (6-a); analogous IoD sequences give rise to contradictory interpretations (6-b):
 - (6) a. **Tell her you love her**, and she'll do anything. **Don't tell her** and you won't get very far.
 - b. # **Tell her you love her**, or she won't do anything. **Don't tell her**, or you will get a lot of attention.

→ the first disjunct of an IoD possesses directive sentential force, while IaDs have truly conditional semantics.

3 Disjunctions as Conditionals in Disguise?

- conditional reading for disjunctions doesn't seem surprising, given:
 - (7) $A \rightarrow B \equiv \neg A \text{ OR } B$

BUT: while IaDs do, IoDs don't get truly conditional readings!

→ even if we could overcome the non-truthfunctional character of the first disjunct to make it an argument to truth-functional *or* we would fail to predict that the imperative is actually given.

(cf. 5 for some remarks on a solution relying on the equivalence in (7))

4 Non-Classical Disjunction for IoDs

recent non-classical accounts for disjunction (Zimmermann 2000, Schulz 2003, Geurts 2003, Ms.):

(8) “disjunction” = “conjunction of modalized disjuncts”

evidence: **Free Choice Readings** (cf. Kamp 1973)

truth-functional disjunction does not entail its disjuncts; nevertheless, possibility modalized disjuncts are often entailed:

(9) Ede may be in Berlin or he may be in Frankfurt.

- (10) a. (9) \models Ede may be in Berlin.
 b. (9) \models Ede may be in Frankfurt.

need not hold:

(11) Ede may be in Berlin or he may be in Frankfurt, but I don’t know which.

further advantage for imperatives: non-classical disjunction does not validate disjunction introduction, thus **avoiding Ross (1941)’s paradox**:

(12) Post the letter! $\rightarrow_{\text{disjunction-introduction}}$ Post the letter or burn it!

4.1 Disjunctions as epistemic alternatives

- Zimmermann 2000: assumes implicit epistemic modalisation in semantics, (cf. Schulz 2003 for an account relying more strongly on pragmatics)

problem: imperatives are normally incompatible with explicit epistemic modalization

4.2 Geurts 2003, Ms.

- (13) $C_1 Q_1 P_1 \wedge C_2 Q_2 P_2$ ($Q_1, Q_2 \in \{\diamond, \square\}$)
 - natural language disjunctions are list of modalized (Q, Q') propositions (P_1, P_2)
 - no restriction as to kind of modality (deontic/epistemic)
 - no covert modal needed if *any* overt one is present; otherwise: insert \square (interpreted epistemically)

- each modal has to be evaluated with respect to a contextually given background (C_1, C_2)
- C_1, C_2 are contextually identified parts of the epistemic (*common ground*, CG) or deontic (set of permissible worlds, *DG*) background. Two principles, exhaustivity and disjointness govern their identification:

$$(14) \quad \begin{array}{l} \textbf{Exhaustivity} \quad CG \subseteq (C_1 \cap P_1) \cup (C_2 \cap P_2) \\ \textbf{Disjointness} \quad C_1 \cap P_1 \cap C_2 \cap P_2 = \emptyset \end{array}$$

- example:

an epistemic sentence like (15-a) can get interpreted as in (15-b), identifying $C_1 = C_2 = CG$ (disjointness and exhaustivity guarantee that it may not be in both places simultaneously but has to be in one of them):

$$(15) \quad \begin{array}{ll} \text{a.} & \text{It may be here or it may be there.} \\ \text{b.} & CG \diamond it \text{ is here} \wedge CG \diamond it \text{ is there} \end{array}$$

4.3 Applying Geurts' analysis to IoDs

- straightforwardly:
 - imperative: gives us the required modalization
 - second conjunct: (implicit) necessity for worlds of non-compliance
- problem: Geurts does not tackle mixed backgrounds (epistemic/deontic)!

4.3.1 Extending Geurts' analysis to mixed backgrounds

IoDs constrain the set of worlds that could be the real world at an utterance time t_o by giving information on how the real world is to develop in the future given what the speaker knows:

$$(16) \quad \begin{array}{l} \textbf{CG} \dots \text{Common Ground; } \{w \in W \mid \text{state of conversation renders } w \text{ a} \\ \text{candidate for being the real world } (w_o)\} \\ \textbf{DG} \dots \text{deontic background (set of worlds that make all commands of} \\ \text{the speaker true); realistic about the future, thus } DG \subseteq CG; \text{ (nothing} \\ \text{is commanded that is known to be impossible to happen)} \end{array}$$

deriving the title:

$$(17) \quad \begin{array}{ll} \text{a.} & \text{Don't be late or you'll miss the first slot.} \\ \text{b.} & C_1 \square P_1 \wedge C_2 \square P_2 \end{array}$$

$C_1 = DG$ (deontic background)

$P_1 = \{w \in W \mid \text{the addressee is not late in } w\}$

first disjunct: $DG \subseteq \{w \in W \mid \text{the addressee is not late in } w\}$

$C_2 = ?$

$P_2 = \{w \in W \mid \text{the addressee misses the first slot in } w\}$

second disjunct: $C_2 \subseteq \{w \in W \mid \text{the addressee misses the first slot in } w\}$

candidates for C_2 (salient parts of the epistemic background):

1. **CG** as such? Not salient after uttering the imperative. (ruled out by disjointness anyway: 2nd disjunct says $CG \subseteq P_2 \Rightarrow DG \cap P_1 \cap CG \cap P_2 = P_2 (\neq \emptyset)$)
2. the worlds in which the addressee complies: **(CG \cap P₁)**
3. the worlds, in which he doesn't: **(CG - P₂) \rightarrow wanted!**

$$(18) \quad DG \sqcap P_1 \wedge (CG - P_1) \sqcap P_2$$

\rightarrow can disjointness and exhaustivity correctly single out (3)?

disjointness at work:

- the compliance worlds $(CG \cap P_1)$ are ruled out:

$$(19) \quad DG \cap P_1 \cap (CG \cap P_1) \cap P_2 = DG (\neq \emptyset)$$

2nd disjunct says $(CG \cap P_1) \subseteq P_2$. Therefore, $P_1 \subseteq P_2$. Then, by first disjunct $DG \subseteq P_2$.

- the non-compliance worlds $(CG - P_1)$ come out fine:

$$(20) \quad DG \cap P_1 \cap (CG - P_1) \cap P_2 = \emptyset$$

\Rightarrow correct prediction: $(CG - P_1)$ is the second background C_2

exhaustivity:

IoDs are in fact most likely interpreted exhaustively (*either - or*).

naive application of Geurts' rule:

$$(21) \quad CG \subseteq (DG \cap P_1) \cup ((CG - P_1) \cap P_2)$$

This is too strong.

- (22) argument: Take w : w cannot be distinguished from w_o ($w \in CG$), $w \in \overline{P_1}$, but w is not permitted ($w \notin DG$).
Then, w is a counterexample to (21).
But intuitively, since w is a P_1 -world, it does not falsify the IoD in (18) under an exhaustive interpretation!

Mixed backgrounds require a modified constraint for exhaustivity:

1. we have to exhaustivize towards the larger background (here: the epistemic one, given $DG \subseteq CG$)
2. intersection with (a part of) the “foreign” background has to be ignored (unify with the proposition as such)

For IoDs, this gives us (23-b) which in fact requires that all worlds in which the imperative is not complied with are such that the consequence given in the second disjunct holds:

- (23) a. naive application: $CG \subseteq (DG \cap P_1) \cup ((CG - P_2) \cap B')$
 b. modified: $CG \subseteq P_1 \cup ((CG - P_1) \cap P_2)$

Desired result for IoDs:

- (24) a. Don't be late or you'll miss the first slot!
 b. “All worlds permitted by the speaker are worlds in which you are on time, all worlds possible according to the speaker are such that either the addressee is in time or he misses the first slot.”

4.4 Further Combinations?

typical IoDs: **deontic necessity** (\Box_{deo}) ... **epistemic necessity** (\Box_{epi})

- (25) $C_1 \Box_{deo} P_1 \ \& \ C_2 \Box_{epi} P_2$

→ Geurts' framework would lead us to expect various other combinations. What, if anything, is available?

4.4.1 Further Combinations with deontic first disjuncts

Deontic necessity (\Box_{deo}) ... **possibility** (\Diamond)?

- **same background**: disjointness would require backward anaphora ⇒ **odd** (cf. Geurts)

(argument: not all of the background may be covered by P_1 (disjointness!), but the first disjunct says $C_1 \subseteq P_1$. Therefore, C_1 can only be a proper part of the background. But how constrain it? P_2 is not yet salient!)

- (26) a. #It must be here or it may be there. [his (29)]
 b. $(CG - P_2) \subseteq P_1 \ \& \ (CG - P_1) \subseteq P_2$
 c. #Be here at 12 or you may come tomorrow.

⇒ # $\Box_{deo} \Diamond_{deo}$, # $\Box_{epi} \Diamond_{epi}$,

- **deontic necessity** \Box_{deo} ... **epistemic possibility** \Diamond_{epi} ?

(given $DG \subset CG \Rightarrow$ no backward anaphora required for disjointness)

- (27) Apply in time for your visa or you might have trouble.

problem: exhaustive interpretation? In some worlds you might be lucky and be spared trouble even if you applied too late...

$$(28) \quad CG \not\subseteq \text{you-apply-in-time} \cup \text{you-have-trouble}$$

only way to keep up exhaustivity in that case: insert covert necessity modal (interpreted epistemically)

$$(29) \quad DG \subseteq \text{you-apply-in-time} \ \& \ (CG - \text{you-apply-in-time}) \ \Box (\diamond \text{you-have-trouble})$$

Starting with deontic possibility (\diamond_{deo})

- imperatives can get permission readings:

$$(30) \quad \text{Take an apple (if you like)!}$$

but: sequence “permission ... obligation” seems odd (irrespective of how the permission is realized (imperative or overt modal)):

$$(31) \quad \begin{array}{l} \text{a. You may take an apple or you will starve.} \\ \text{b. Take an apple if you like or you will starve.} \end{array}$$

predicted to be fine by Geurts' framework!

- preliminary: **exhaustivity in permissions**

Geurts discusses:

$$(32) \quad \begin{array}{l} \text{a. You may take an apple or you may take a pear.} \\ \text{b. } DG \cap \text{apple} \neq \emptyset \ \& \ DG \cap \text{pear} \neq \emptyset \end{array}$$

problem: via **exhaustivity** he (explicitly) predicts the following: (32-a) \models You must take an apple or a pear.

- \Rightarrow mostly counterintuitive. Entire background should rather be relativized to some goal/set of **alternatives**.

(After uttering (32-a), doing nothing at all remains possible unless it counts as a genuine alternative.)

$$(33) \quad \begin{array}{l} \text{a. } C_1 \diamond \text{apple} \ \& \ C_2 \diamond \text{pear} \\ C_1 = C_2 = (DG \cap \{w \in W \mid \exists p \in \text{ALT}(\text{take apple/pear}): w \in p\}) \end{array}$$

(cf. van Rooy 2000 for a performative account of permissions; alternatives Rooth 1985, van Rooy 2003)

- acceptable examples of **deontic possibility** \diamond_{deo} ... **deontic necessity**

\square_{deo}

background modifier: *you hand in the paper*

- (34) a. Send the paper by email (if you like) or you have to hand it in personally.
 b. You can send the paper by email (if you like) or you have to hand it in personally.

(roughly analogous to Geurts' epistemic case [his (29)])

$C_1 = DG \cap \textit{addressee hands in the paper}$

$P_1 = \textit{addressee sends the paper by email}$

first disjunct: $C_1 \cap P_1 \neq \emptyset$

$C_2 = C_1 - P_1$

$P_2 = \textit{addressee hands in paper personally}$

second disjunct: $C_2 \subseteq P_2$

- **deontic possibility** \diamond_{deo} ... **deontic possibility** \diamond_{deo}

background modifier: *you have something for dinner*

- (35) Buy some pizza if you like or you may also make pasta.

background modifier: *you see a film tonight*

- (36) a. Go to the movies if you like or else we could watch a movie at home.
 b. You can go to the movies or else we could watch a movie at home.

- **deontic possibility** \diamond_{deo} ... **epistemic necessity** \square_{epi}

background modifier: *we have something for dinner*

- (37) a. Get some pizza if you like or else we make pasta.
 b. You can buy some pizza (if you like) or else we make pasta.

→ starting with a permission is fine, but it does require a salient goal for which P_1 and P_2 count as solutions

4.4.2 Epistemic modality followed by deontic modality?

Seems to be quite bad ...

- **epistemic necessity** \Box_{epi} ... **deontic possibility** \Diamond_{deo}
 predicted to be odd: $(CG \supset DG) \Rightarrow$ disjointness would require backward anaphora exactly as if the backgrounds were the same
 (38) #You must be John, or else you may call your mother.
- **epistemic possibility** \Diamond_{epi} ... **deontic necessity** \Box_{deo} : out.
 (39) a. #(e.g. on the mobile phone:) You might be in Oxford or you have to call your boss.
 b. #You might be in Oxford or call your boss.
 c. \neq You might be in Oxford. If you are not you have to call your boss.
- **epistemic possibility** \Diamond_{epi} ... **deontic possibility** \Diamond_{deo}
 (40) #You could be tired or you may watch a film.
 for: You could be tired. If you are not you may watch a film.

\Rightarrow to be looked at more closely!!!

- for the moment: The *Epistemicity-has-the-last-word-Rule*
 If mixed modality is at play, the last disjunct has to involve the modality with respect to which exhaustivization takes place (here: epistemicity).
 (enhancing its plausibility: the intonation of the last disjunct (rise/fall) determines whether something gets an exhaustive interpretation or not, cf. Zimmermann 2000)

5 Remarks on an Alternative Account (Krifka 2004)

- Krifka (2004) gives an alternative account for IoDs relying on **speech act disjunction**:
 speech act disjunction can be defined in terms of the following better known categories:
 - speech acts are functions from commitment states to commitment states
 - **speech act conjunction**: subsequent performance
 - **speech act negation**: “speaker indicates that effects of the negated speech act are not operative in the context”
 - **De Morgan**: $\neg (A \& B) \equiv \neg A \text{ OR } \neg B$

- **duality of speech acts:** \neg PERMIT \neg Q = COMMAND Q; \neg PROMISE \neg Q = THREAT Q

his application to an example:

- (41) Go away or I call the police!
- (42) \neg [**PERMIT**[STAY(addressesee)]& **PROMISE**[\neg CALL POLICE(speaker)]]
 \approx \neg **PERMIT**[STAY(addressesee)] OR \neg **PROMISE**[\neg CALL POLICE(speaker)]]
 \approx **COMMAND**[\neg STAY(addressesee)] OR **THREAT**[\neg \neg CALL POLICE(speaker)]
 $=$ **COMMAND**[GO AWAY(addressesee)] OR **THREAT** [CALL POLICE(speaker)]
- (43) I refuse to do the following: PERMIT that you stay and then PROMISE that I don't call the police.

- **Is this strong enough???**

If a conjoined speech act is negated, that is, if speaker refuses to make a conjoined speech act, then at least one of the conjuncts is negated. [...] The speaker indicates that either the effects of A or the effects of A' are not operative in c. In particular, if the addressee acts as if the effects of the A were still operative in c, then the effects of A' are not operative.

- **Krifka's account predicts:**

either the command holds or the threat holds; it is not granted that the negative consequence does not come about; if the hearer does not comply with the imperative, it cannot be granted that the negative consequence does not come about.

- as far as I see, prediction of possible vs. secure evil in case of non-compliance cannot be distinguished:

- (44) a. Apply in time for your visa or you get into trouble.
 b. Apply in time for your visa or you might get into trouble.

\Rightarrow come out the same: PROMISE[you don't get into trouble] is not granted

- **Wanted at speech act level:** The speaker is committed to having given the command, irrespective of what the hearer does. If the hearer does not comply, the speaker is committed to the truth of the consequences predicted in the or-clause.
- furthermore: extremely wide conception of PROMISE, COMMAND, THREAT needed, e.g. requests/implorations as COMMAND

- (45) Please call him or he won't talk to me for weeks.

6 Conclusions

so far:

- **IoDs are not truly conditional**, the imperative is associated with a sentential force (obligation, permission)
- Geurts' **modal account of disjunction** gives the right reading:
 - the modal operators are interpreted against contextually given backgrounds
 - background individuation is constrained by the principles of exhaustivity and disjointness
- **IoDs mix deontic and epistemic backgrounds**, exhaustivity has to be adapted
- **permissions are exhaustive with respect to** a background restricted by a contextually implied goal (a set of **alternatives** in order to reach that goal)
- IoDs are kept completely **parallel to “normal” sentence disjunction**
- modal disjunction spares us **Ross’ paradox**
- Krifkas’ speech act algebraic account (as it stands) seems to weak

Outlook:

- take a closer look at sequences “epistemic - deontic”
- spell out how goals interact with backgrounds of permissions
- other backgrounds? (buletic, . . .)
- do we need to take into account graded modality?

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