The case for the strong and conditional analysis of permission

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Introduction

- Permission modals like *can* are classically analyzed as existential quantification over a (possibly ordered) modal base. But according to the *deontic reduction* approach (Anderson 1958, Kanger 1971, von Wright 1971), this quantificational pattern, named *weak permission*, is only one of two that are related to permission.
- There is also *strong permission*, and the two kinds are represented as follows:

(1) strong: $\Box(p \to \textbf{OK}) \approx \forall w' \in p.\, w' \in \mathcal{D}(w)$

(2) weak: $\Diamond(p \wedge \textbf{OK}) \approx \exists w' \in \mathcal{D}(w).\, p(w')$

where **OK** is a proposition asserting the lack of deontic violations, and $\mathcal{D}$ maps a world to its deontic modal base.

- Some more recent accounts of permission, especially those deriving Free Choice (FC) semantically, have utilized strong permission (Asher & Bonevac 2005, Barker 2010), which also connect strong permission to conditionals: $p \mathrel{\Box\!\!\to} \textbf{OK}$, as FC is analogous to Simplification of Disjunctive Antecedents (SDA).
- This poster presents data that highlights an array of analogies between permission and conditionals, beyond FC and SDA, which further motivate an analysis of permission in terms of conditionals that can derive these analogies in a unified way; the preliminaries of such an analysis is sketched.

Empirical motivation

- Below are the many parallels between AnC (antecedent of conditionals) and ScP (scope of permission modals) summarized.

SDA-FC

FC in permission is analogous to SDA in conditionals.

(3) $\Diamond(A \vee B) \rightsquigarrow \Diamond A, \Diamond B$

(4) $(A \vee B) \mathrel{\Box\!\!\to} C \rightsquigarrow A \mathrel{\Box\!\!\to} C, B \mathrel{\Box\!\!\to} C$

(5) You can read book I or book II. $\rightsquigarrow$ You can read book I; you can read book II.

(6) If you read book I or book II, you will pass the exam.
$\rightsquigarrow$ If you read book I, you will pass the exam.
$\rightsquigarrow$ If You read book II, you will pass the exam.

NPI

NPIs are licensed in both AnC and ScP, deriving SDA-FC like meanings.

(7) $\Diamond(\exists x.\, P(x)) \rightsquigarrow \forall x.\, \Diamond P(x)$

(8) $(\exists x.\, P(x)) \mathrel{\Box\!\!\to} C \rightsquigarrow \forall x.\, (P(x) \mathrel{\Box\!\!\to} C)$

(9) You can read any book.

(10) If you read any book, you will pass the exam.

Sobel and R-Sobel

While Williamson (2020) raises the issue of non-monotonicity of permission and compares them to Sobel and Reverse Sobel sequences in conditionals (12), here I explicitly replicate these sequences with permission (11).

(11) $\neg\Diamond A; \Diamond(A \wedge B)$ Sobel
$\#\, \Diamond(A \wedge B); \neg\Diamond A$ R-Sobel

(12) $\neg(A \mathrel{\Box\!\!\to} C); (A \wedge B) \mathrel{\Box\!\!\to} C$ Sobel
$\#\, (A \wedge B) \mathrel{\Box\!\!\to} C; \neg(A \mathrel{\Box\!\!\to} C)$ R-Sobel

Context: *In order to maintain peace,*

(13) a. US cannot disarm. But US and USSR can both disarm. Sobel
b. #US and USSR can both disarm. But US cannot disarm. R-Sobel

(14) a. If US disarmed, there'd be war. But if US and USSR both disarmed, there'd be peace. Sobel
b. #If US and USSR both disarmed, there'd be peace. But if US disarmed, there'd be war. R-Sobel

Sobel is puzzling given the classic semantics for permission:
$\exists w' \in \textsc{best}(\mathcal{D}(w)).\, p(w') \wedge q(w') \Rightarrow \exists w' \in \textsc{best}(\mathcal{D}(w)).\, p(w')$.
R-Sobel is not problematic for the classic semantics per se, but once Sobel's consistency is derived, R-Sobel will require a separate explanation. But accounts for such sequences already exist in the conditional literature.

Multitude

Lewis (1979) notes that permission, e.g. *You are allowed to do no work on Friday*, seems to makes permissible a multitude of worlds, corresponding to the various ways the day off is spent. The $\exists$-analysis of permission cannot deliver this effect, while conditionals can.

CondPerm

Permission is granted in Korean and Japanese via conditional morphosyntax (Chung 2019, Kaufmann 2017). In English, permission can be queried and granted via conditionals:

(15) Is it OK if I sleep? Yes, it is OK if you sleep. $\approx$ May I sleep? Yes, you may sleep.

- The parallels above suggest that permission, *can p*, is better understood as *strong* permission, and more specifically, conditionals of the form $p \mathrel{\Box\!\!\to} \textbf{OK}$.
- Once permission is viewed as strong/conditional, an additional parallel emerges:

Homogeneity

Negating a conditional is akin to negating the consequent (von Fintel 1997); negation distributes to disjuncts in AnC/ScP (double prohibition, DP):

(16) $\neg(A \mathrel{\Box\!\!\to} \textbf{OK}) \rightsquigarrow A \mathrel{\Box\!\!\to} \neg\textbf{OK}$

(17) $\neg(A \mathrel{\Box\!\!\to} C) \rightsquigarrow A \mathrel{\Box\!\!\to} \neg C$

(18) A: Will I pass the test if I read book 1 or book 2?
B: No. $\rightsquigarrow$ $\text{book}_1 \mathrel{\Box\!\!\to} \neg\text{pass}, \text{book}_2 \mathrel{\Box\!\!\to} \neg\text{pass}$

(19) A: Can I read book 1 or book 2?
B: No. $\rightsquigarrow$ $\text{book}_1 \mathrel{\Box\!\!\to} \neg\textbf{OK}, \text{book}_2 \mathrel{\Box\!\!\to} \neg\textbf{OK}$

Proposal

- I propose the following analysis of permissive *can*; $\leq_w$ is w's similarity ordering:

(20) $[\![\text{can}]\!]^{w,h} = \lambda p : \forall w'w'' \in h'_w \cap p.\, \textbf{OK}^w_{h'}(w') = \textbf{OK}^w_{h'}(w'').$
$\forall w' \in h'_w \cap p.\, \textbf{OK}^w_{h'}(w')$
$h' = h\,[\textsc{alt}(p)_1]^{\leq}[\textsc{alt}(p)_2]^{\leq} \ldots [\textsc{alt}(p)_n]^{\leq};$
$h[q]^{\leq} = \lambda w.\, h_w \cup \{w' : \forall w'' \in q.\, w' \leq_w w''\}$

- The account is in terms of a dynamic, strict, homogeneous, and alternative-sensitive analysis of conditionals.
- ***Dynamicity***: h is the modal horizon prior to update, which is dynamically updated to h' upon evaluation; this dynamicity accounts for Sobel and R-Sobel, following von Fintel (2001). $\textbf{OK}^w_{h'}$ abbreviates $\textsc{best}_{d_w}(h'_w)$, the rendition of **OK** given an evaluation world w, w's modal horizon h'_w after update, and w's deontic ordering d_w.
- ***Alternative-sensitivity***: the account deviates from von Fintel (2001) and follows a suggestion in Chung (2019) in that the horizon is updated by the alternatives to the AnC/ScP (for each alternative q, worlds as close to w as any q-world are added to the horizon), from which SDA-FC follows (see below).
- Chung (2019) is not concerned with derivation of FC; the use of alternatives is independently motivated for the analysis of deontics in Korean.
- ***Strictness***: The strict dynamic approach is Strawson-DE for the AnC/ScP, which explains NPI (von Fintel 1999).
- ***Homogeneity***: *can* has a homogeneity presupposition, similar to the generic operator $\textsc{gen}$ applied to bare conditionals in von Fintel (1997). This accounts for the non-disjunctive data in Homogeneity.
- If defined, *can p* asserts that all p-worlds in h' are deontically the best in h'.

Deriving SDA-FC

- As h is updated with the alternatives of the AnC/ScP, and $p \vee q$ has p, q as alternatives, the updated horizon h' will contain the closest p-worlds and closest q-worlds.
- This makes $\Diamond(p \vee q)$ *dynamically entail* (von Fintel 2001) $\Diamond p$ and $\Diamond q$.

(21) $[\![\text{can}]\!]^{w,h}(p \vee q) = \forall w' \in h'_w \cap (p \vee q).\, \textbf{OK}^w_{h'}(w')$ assuming $h' \supseteq h[p][q]$
$= \forall w' \in h'_w \cap p.\, \textbf{OK}^w_{h'}(w') \wedge \forall w' \in h'_w \cap q.\, \textbf{OK}^w_{h'}(w') \Rightarrow [\![\text{can}]\!]^{w,h'}(p) \wedge [\![\text{can}]\!]^{w,h'}(q)$

- This with the homogeneity presupposition derives DP (19).
- Also, more intricate FC patterns in Bar-Lev & Fox (2020) are derived straightforwardly, e.g. $\forall x.\, \Diamond(P(x) \vee Q(x))$, $\Diamond\forall x.\, P(x) \vee Q(x)$.

Duality

- Side benefit of the homogeneity presupposition: strong necessity with the usual semantics can be defined as the dual of permission.

(22) $[\![\text{need}]\!]^{w,h}(p) := \neg[\![\text{can}]\!]^{w,h}(\neg p) = \forall w' \in \textbf{OK}^w_{h'}.\, p(w')$ assuming $h' \supseteq h[p][\neg p]$

Negative FC

Additionally, negated necessity, $\neg[\![\text{need}]\!]^{w,h}(p) = [\![\text{can}]\!]^{w,h}(\neg p)$, is ready to derive *negative FC*:

(23) $\neg\Box(A \wedge B) \rightsquigarrow \neg\Box A, \neg\Box B.$

Let $\blacksquare, \blacklozenge$ abbreviate $[\![\text{need}]\!]$, $[\![\text{can}]\!]$; and assume $h' \supseteq h[p][q][\neg p][\neg q]$,

(24) $\neg\blacksquare^{w,h}(p \wedge q) = \blacklozenge^{w,h}(\neg(p \wedge q)) \Rightarrow \blacklozenge^{w,h'}(\neg p) \wedge \blacklozenge^{w,h'}(\neg q) = \neg\blacksquare^{w,h'}(p) \wedge \neg\blacksquare^{w,h'}(q)$

(25) You don't need to read both book I and book II. $\rightsquigarrow \neg\Box\text{book}_1, \neg\Box\text{book}_2$

Loose ends and conclusion

- An explicit definition of the alternative set; in particular, conjunctive alternatives must be disallowed, or the assertion in FC will rule out scalar implicature $\neg\Diamond(A \wedge B)$.
- There is evidence that negative FC and the analogous simplification of negated conjunctive antecedents (SNCA) might be qualitatively different from FC and SDA (Marty et al. 2021, Ciardelli, Zhang & Champollion 2018), but they are unified in this approach.
- There is also debate on the correctness of the strict dynamic approach, e.g., Boylan & Schultheis (2021: against, a.o.) and Greenberg (2021: for, a.o.).
- The details of the implementation are thus not the main point; rather,

The main takeaway…

…is that a strong/conditional analysis of permission will better capture the analogies between permission and conditionals and has the potential to derive the empirical facts with existing tools for the analysis of conditionals.

- Any account of conditionals that successfully derives SDA-FC, NPI, Sobel, R-Sobel, and Homogeneity can also extend to permission; such a move will also provide intuitive understanding for Multitude and CondPerm.

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