

# Iffy Endorsements

Magdalena and Stefan Kaufmann  
(University of Connecticut)

PhLiP 6, November 15-17, 2019













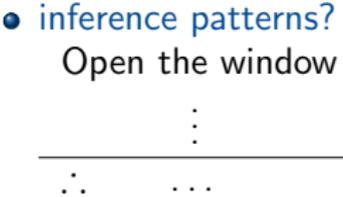




# Challenges to formal semantics

## How to characterize the meaning of imperatives

- truth conditions?  
 $\llbracket \text{Open the window} \rrbracket = 1$  iff ...



- context change potential?  
 $c \llbracket \text{Open the window} \rrbracket c'$  iff ...







# Modality

## Similarity with (other) prioritizing modals

- (11) You { should / must / have to } close the window.
  - a. **descriptive** use (assertion):  
✓ 'That's not true.'
  - b. **performative** use (command/request/...):  
✗ 'That's not true.'
  
- (12) Close the window.
  - ✗ 'That's not true.'
  - a. never used **descriptively**
  - b. always used **performatively**

Aside: Some imperative uses are paraphrased more naturally with possibility modals (Schwager, 2005; Grosz, 2009; Oikonomou, 2017; Francis, t.a.).

Theories differ on the nature of the relationship.



# Speaker endorsement

## Imperatives imply speaker's endorsement:

- (13) According to the guidelines you have to close that door now,  
✓ but I absolutely don't want you to do this.
- (14) Close that door now,  
✗ but I absolutely don't want you to do this.

## ... even when used for disinterested advice:

- (15) A: How do I get into that building?  
B: You have to go in by the front door.  
But on no account would I want you to do this, it's forbidden.  
B': Go in by the front door.  
#But on no account would I want you to do this, it's forbidden.

# Speaker endorsement

## Imperatives imply speaker's endorsement:

- (13) According to the guidelines you have to close that door now,  
✓ but I absolutely don't want you to do this.
- (14) Close that door now,  
✗ but I absolutely don't want you to do this.

## ... even when used for disinterested advice:

- (15) A: How do I get into that building?  
B: You have to go in by the front door.  
But on no account would I want you to do this, it's forbidden.  
B': Go in by the front door.  
#But on no account would I want you to do this, it's forbidden.

## ... even when used for concessions:

- (16) Ok, then go into that building!  
#But on no account would I want you to do this.







# Taking stock of what there is to capture

- Link to prototypical use — functional versatility
- Non-descriptivity
- Affinity to prioritizing modality
- Speaker endorsement

# Taking stock of what there is to capture

- Link to prototypical use — functional versatility
- Non-descriptivity
- Affinity to prioritizing modality
- Speaker endorsement

➡ Different combinations of:

compositional meaning

+

post-compositional effects  
on suitable representations  
of utterance contexts

+

general pragmatic reasoning



























# Imperative consequents

## Differences I:

Inferences *from necessary means against pursuing a goal*

- (24) B: I'm considering doing semantics.  
 A: If you want to do semantics, you have to study logic.  
 A: So don't even think about it.
- (25) B: I'm considering doing semantics.  
 A: If you want to do semantics, study logic.  
 A: ??So don't even think about it.

# Imperative consequents

## Differences II:

Inferences *from necessary means in favor of pursuing a goal*

- (26) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So yes, do semantics.
  
- (27) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So yes, do semantics.

# Imperative consequents

(18) If you are cold, close the window.

(19) If you are cold, you {should / ...} close the window.

## Some similarities with prioritizing modals carry over...

(Schwager, 2006a; Kaufmann and Schwager, 2011)

...but not all.

(Condoravdi and Lauer, 2017)

Conditionals reveal differences not observed in matrix contexts

- ▶ Testing ground for competing theories of imperatives
- ▶ Evidence to adjudicate between
  - conventional encoding of speaker preferences
  - conventional encoding of discourse management

# Speaker preferences and performativity

## Two crucial explananda:

- ① Relationship between imperatives and the *speaker's* preferences  
deriving the right amount of endorsement

# Speaker preferences and performativity

## Two crucial explananda:

- 1 Relationship between imperatives and the **speaker's** preferences  
deriving the right amount of endorsement
- 2 Performativity  
no assertions

# Speaker preferences and performativity

## Two crucial explananda:

- 1 Relationship between imperatives and the **speaker's** preferences  
deriving the right amount of endorsement
- 2 Performativity  
no assertions

## Two approaches (of interest here):

- 1 **Speaker preferences** (of a certain kind) are hard-wired into the semantics of imperatives  
(Bierwisch, 1980; Truckenbrodt, 2005; Condoravdi and Lauer, 2012, 2017; Oikonomou, 2016; Starr, t.a.)  
Propositions about discourse commitments to preferences self-verify  
(Condoravdi and Lauer, 2017)
- 2 Endorsement and performativity from **meaning-context interaction**  
(Schwager, 2006b; Kaufmann, 2012; this talk)

# Speaker preferences and performativity

## Public effective preferences

(Condoravdi and Lauer, 2017)

- Preference structure: partially ordered set  $\langle P, \leq \rangle$  of propositions

# Speaker preferences and performativity

## Public effective preferences

(Condoravdi and Lauer, 2017)

- **Preference structure:** partially ordered set  $\langle P, \leq \rangle$  of propositions
- **Effective preferences:** preference structure that guides actions.  
Must be (made) **consistent** and **realistic** relative to agent's beliefs.  
(“if you know you can't have both, you know how to choose”)

# Speaker preferences and performativity

## Public effective preferences

(Condoravdi and Lauer, 2017)

- **Preference structure:** partially ordered set  $\langle P, \leq \rangle$  of propositions
- **Effective preferences:** preference structure that guides actions.  
Must be (made) **consistent** and **realistic** relative to agent's beliefs.  
(“if you know you can't have both, you know how to choose”)
- Imperatives encode **public effective preferences** ➡ **self-verifying**
  - Uttering  $p \Rightarrow$  Speaker becomes publicly committed to  $p$
  - $\llbracket \text{Leave!} \rrbracket^c =$  ‘Speaker is publicly committed to an effective preference that Addressee leave’

# Speaker preferences and performativity

## Public effective preferences

(Condoravdi and Lauer, 2017)

- **Preference structure:** partially ordered set  $\langle P, \leq \rangle$  of propositions
- **Effective preferences:** preference structure that guides actions.  
Must be (made) **consistent** and **realistic** relative to agent's beliefs.  
(“if you know you can't have both, you know how to choose”)
- Imperatives encode **public effective preferences** ➡ **self-verifying**
  - Uttering  $p \Rightarrow$  Speaker becomes publicly committed to  $p$
  - $\llbracket \text{Leave!} \rrbracket^c =$  ‘Speaker is publicly committed to an effective preference that Addressee leave’

- ➡ Fundamentally different from (descriptively used) modal declaratives.
  - C&L argue that this explains the patterns with imperative consequents

# Cooperation by default

## Too much endorsement?

Challenge for speaker preference-based theories:

- (28) A: How do I get to Logan Airport?  
B: Take the bus. disinterested advice
  
- (29) Have a seat! invitation

- no anti-endorsement: *#but on no account would I want you to do it*
- no lexical expression of preference: *#I want you to do this*

# Cooperation by default

## Too much endorsement?

Challenge for speaker preference-based theories:

- (28) A: How do I get to Logan Airport?  
 B: Take the bus. disinterested advice
- (29) Have a seat! invitation

- no anti-endorsement: *#but on no account would I want you to do it*
- no lexical expression of preference: *#I want you to do this*

**Cooperation by default:** (Condoravdi and Lauer, 2017)

- An agent is cooperative-by-default if she adds any topical goal of another agent she learns about to her effective preference structure, in such a way that it does not strictly outrank any of her self-motivated preferences.
- *want* is lexically restricted to self-motivated preferences.

# Speaker preferences and performativity

## Differences I:

Inferences *from necessary means against pursuing a goal*

- (24) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So don't even think about it.
  
- (25) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So don't even think about it.

**Condoravdi and Lauer:**

- In using the imperative, (25A) commits themselves to a conditional effective preference **for logic** (through cooperation by default).
- This clashes with the unconditional effective preference **against semantics** (expressed in the next sentence).

# Speaker preferences and performativity

## Differences I:

Inferences *from necessary means against pursuing a goal*

- (24) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So don't even think about it.
  
- (25) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So don't even think about it.

**Condoravdi and Lauer:**

- In using the imperative, (25A) commits themselves to a conditional effective preference **for logic** (through cooperation by default).
- This clashes with the unconditional effective preference **against semantics** (expressed in the next sentence).

➡ Imperatives cannot be used for **ADVICE-NOT-TO**.

# Speaker preferences and performativity

## Differences I:

Inferences *from necessary means against pursuing a goal*

- (24) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So don't even think about it.
- (25) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So don't even think about it.

### Condoravdi and Lauer:

- In using the imperative, (25A) commits themselves to a conditional effective preference **for logic** (through cooperation by default).
- This clashes with the unconditional effective preference **against semantics** (expressed in the next sentence).
- ➡ Imperatives cannot be used for ADVICE-NOT-TO.  
**BUT this does not explain all the data!**

# Speaker preferences and performativity

## Differences II:

Inferences *from necessary means in favor of pursuing a goal*

- (26) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So yes, do semantics.
  
- (27) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So yes, do semantics.

**The issue:**

- (27) is also odd, even though it is ADVICE-TO.
- This can't be about conflicting preferences. *pace Condoravdi and Lauer*

# Speaker preferences and performativity

## Differences II:

Inferences *from necessary means in favor of pursuing a goal*

- (26) B: I'm considering doing semantics.  
A: If you want to do semantics, you have to study logic.  
A: So yes, do semantics.
  
- (27) B: I'm considering doing semantics.  
A: If you want to do semantics, study logic.  
A: ??So yes, do semantics.

**The issue:**

- (27) is also odd, even though it is **ADVICE-TO**.
- This can't be about conflicting preferences. *pace* Condoravdi and Lauer

➡ Imperatives can't be used for **ADVICE-WHETHER-TO!**









# Preview

## A different culprit:

- (33) If you want to do semantics, you have to study logic.
- (34) If you want to do semantics, study logic.

*if A, IMPERATIVE*

- imperatives generally address a *decision problem*.  
roughly: “what to do”
- conditional on *A*: “what to do if *A*”  
cannot count as advice on whether *A*

# Preview

## A different culprit:

- (33) If you want to do semantics, you have to study logic.
- (34) If you want to do semantics, study logic.

if *A*, *IMPERATIVE*

- imperatives generally address a *decision problem*.  
roughly: “what to do”
- conditional on *A*: “what to do if *A*”  
cannot count as advice on whether *A*

▶ Preferences are not what's special about imperatives.  
Presupposed discourse structure is.

# Outline

- 1 Imperatives as a troublesome clause type
- 2 Conditionalized imperatives
- 3 Imperatives and discourse structure**
  - Modal operator theory of imperatives
  - Conditionals and practicality

# Modal operator theory of imperatives

## Modal semantics

(Schwager, 2006b; Kaufmann, 2012, 2019)

- Modals can be non-descriptive **in certain contexts**.

(Kamp, 1973, 1978; Lewis, 1979)

- Imperatives are always non-descriptive.

# Modal operator theory of imperatives

## Modal semantics

(Schwager, 2006b; Kaufmann, 2012, 2019)

- Modals can be non-descriptive in certain contexts.

(Kamp, 1973, 1978; Lewis, 1979)

- Imperatives are always non-descriptive.
- at-issue meaning: Kratzerian necessity modal IMP

(35) '[ IMP[ you leave ]]'  $\rightsquigarrow$   $\Box^R$ (Addressee leaves)

Accessibility relation  $R$  determined by modal base and ordering source  
(Kratzer, 1991)



# Modal operator theory of imperatives

## Modal semantics

(Schwager, 2006b; Kaufmann, 2012, 2019)

- Modals can be non-descriptive in certain contexts.

(Kamp, 1973, 1978; Lewis, 1979)

- Imperatives are always non-descriptive.
- at-issue meaning: Kratzerian necessity modal IMP

(35) '[ IMP[ you leave ]]'  $\rightsquigarrow$   $\Box^R$ (Addressee leaves)

Accessibility relation  $R$  determined by modal base and ordering source  
(Kratzer, 1991)

- presuppositions restrict felicitous use to contexts in which a modal would be performative

**Hypothesis:** constraints on discourse status of modality and preadjacent explain non-descriptive behavior of conditionals.

# Modal operator theory of imperatives

## Constraints on felicitous use

(Schwager, 2006b; Kaufmann, 2012, 2019)

$\llbracket \text{IMP} \rrbracket^c(R)(p)$  presupposes:

- $\text{Speaker}_c$  has perfect knowledge regarding  $\Box^R$  **and**











# Modal operator theory of imperatives

## Decisive modality

Modal flavor  $R$  counts as **decisive** in context  $c$  if there is a decision problem  $\Delta_a$  for an agent  $a$  (*here: the addressee*) and  $R$  is taken to encode the relevant criteria for solving it. This entails that:



# Modal operator theory of imperatives

## Link to prototypical use — functional versatility

- Command meets practical requirements without specific assumptions
- Utterance specific function depends on specific flavor of  $R$ , lexical material, presumed preferences, . . . (Kaufmann, 2019)

## Non-descriptivity

- Contexts that have the presupposed properties give rise to non-descriptive uses of modal statements

## Affinity to prioritizing modality

- Shared at-issue content

## Speaker endorsement

- From presupposed status of modal flavor  $R$  as decisive modality











# Conditionals and practicality

## A global decision problem

- (38) **A:** What's a good way to spend this chunk of money?  
**B:** If you want to host the dinner, buy a bigger dining table.

- A's decision problem in the **global context**:  $\{\alpha_1, \alpha_2, \alpha_3\}$







# Conditionals and practicality

## A local decision problem

- (39) **A:** What do I have to do if I want to host the dinner?
- B:** (If you want to host the dinner,) buy a bigger dining table.







# Conditionals and practicality

## No **ADVICE-WHETHER-TO**

- (40) **A:** Should I host the dinner party?
- B:** If you want to host the dinner, buy a bigger dining table.
- B:??**So don't do it. / ??So yeah, do it.







# Conditionals and practicality

## Modals are ok

(41) **A:** Should I host the dinner party?

**B:** If you want to host the dinner, you have to buy a bigger dining table.

**B:** So don't do it. / So yeah, do it.

# Conditionals and practicality

## Modals are ok

(41) **A:** Should I host the dinner party?

**B:** If you want to host the dinner, you have to buy a bigger dining table.

**B:** So don't do it. / So yeah, do it.

- descriptive use
- not action-directing; can serve as grounds for conclusion

# Conditionals and practicality

## Imperatives **can be ok (after all)**

(42) A: I want to host the party.

B: If you want to host the party, buy a bigger dining table.

a. #So I don't think you should host it.

b. **But** I don't think you should host it.

c. **But it would cost you a fortune**, so I don't think you should host it.

# Conditionals and practicality

## Imperatives can be ok (after all)

(42) A: I want to host the party.

B: If you want to host the party, buy a bigger dining table.

a. #So I don't think you should host it.

b. But I don't think you should host it.

c. But it would cost you a fortune, so I don't think you should host it.

- (42a): B has conflicting assumptions about the conversational goals (rather than conflicting preferences)
- *so*-moves show what the speaker takes to be the QUD.
- *but* marks contrast, can shift the QUD

# Conclusions

- Assimilating imperatives to modals allows us to capture imperatives in the consequents of conditionals
  - N.B. Propositional and/or dynamic theories of imperatives generally do well on conditionals
- Restrictions on conversational strategy do not come from clashes between conditional and unconditional preferential commitments
- Capturing the non-descriptive nature of imperatives (performatively used modals) provides clues for capturing their discourse behavior
- Progress for understudied topic: discourse strategies involving imperatives and performative modality (more to do: syntax-prosody-semantics of information structure, markers of rhetorical relations, discourse strategy trees, . . . )

Thank you.

# References I

- Barker, C. 2010. Free choice permission as resource-sensitive reasoning. *Semantics and Pragmatics*, 3(10):1–38.
- Bierwisch, M. 1980. Semantic structure and illocutionary force. In Searle, J., editor, *Speech Act Theory and Pragmatics*. Reidel, Dordrecht.
- Charlow, N. 2014. Logic and semantics for imperatives. *Journal of Philosophical Logic*, 43: 617–664.
- Condoravdi, C. and S. Lauer. 2012. Imperatives: Meaning and illocutionary function. In Piñon, C., editor, *Empirical Issues in Syntax and Semantics*, volume 9, pages 1–21.
- Condoravdi, C. and S. Lauer. 2016. Anankastic conditionals are just conditionals. *Semantics & Pragmatics*, 9.
- Condoravdi, C. and S. Lauer. 2017. Conditional imperatives and endorsement. In Lamont, A. and K. Tetzloff, editors, *Proceedings of NELS 47*, volume 1, pages 185–204, Amherst, MA. Graduate Linguistics Student Association.
- Crnič, L. and T. Trinh. 2009. Embedding imperatives in English. In Riester, A. and T. Solstad, editors, *Proceedings of Sinn und Bedeutung 13*, pages 113–127. University of Stuttgart.
- Davis, C. 2009. Decisions, dynamics, and the Japanese particle *yo*. *Journal of Semantics*, 26(4): 329–366.
- Eckardt, R. 2012. Hereby explained: An event-based account of performative utterances. *Linguistics and Philosophy*, 35:21–55.
- von Fintel, K. and S. Iatridou. 2017. A modest proposal for the meaning of imperatives. In Arregui, A., M. Rivero, and A. P. Salanova, editors, *Modality Across Syntactic Categories*, pages 288–319. Oxford University Press.
- Francis, N. t.a. Imperatives under *even*. In Baird, M., D. Göksu, and J. Pesetsky, editors, *Proceedings of the North East Linguistics Society (NELS) 49*, Amherst, MA. GLSA.
- Frank, A. 1996. *Context Dependence in Modal Constructions*. PhD thesis, University of Stuttgart.

# References II

- Grosz, P. 2009. German particles, modality, and the semantics of imperatives. In Lima, S., K. Mullin, and B. Smith, editors, *The Proceedings of NELS 39*, Amherst, MA. GLSA.
- Han, C.-h. 1999. Deontic modality, lexical aspect and the semantics of imperatives. In of Korea, T. L. S., editor, *Linguistics in the morning calm*, volume 4. Hanshin Publications, Seoul.
- Hausser, R. 1980. Surface compositionality and the semantics of mood. In Searle, J., F. Kiefer, and M. Bierwisch, editors, *Speech Act Theory and Pragmatics*, volume II, pages 71–95. Reidel, Dordrecht.
- Heim, I. 1983. On the projection problem for presuppositions. *Proceedings of the West Coast Conference on Formal Linguistics*, 2:114–126. Reprinted in Davis (Ed., 1991).
- Kamp, H. 1973. Free choice permission. *Proceedings of the Aristotelian Society*, 74:57–74.
- Kamp, H. 1978. Semantics versus pragmatics. In Guenther, F. and S. J. Schmidt, editors, *Formal Semantics and Pragmatics for Natural Languages*, pages 255–287. Reidel, Dordrecht.
- Karttunen, L. and S. Peters. 1979. Conventional implicature. *Syntax and Semantics*, 11:1–56.
- Kaufmann, M. 2012. *Interpreting Imperatives*. Springer, Berlin.
- Kaufmann, M. 2019. Fine-tuning natural language imperatives. *Journal of Logic and Computation*, 29(3). First published online, June 18, 2016.
- Kaufmann, S. and M. Schwager. 2011. A unified analysis of conditional imperatives. In Cormany, E., S. Ito, and D. Lutz, editors, *Proceedings of SALT 19*, pages 239–259. eLanguage.
- Kratzer, A. 1991. Modality. In Stechow, A. v. and D. Wunderlich, editors, *Semantik. Ein internationales Handbuch der zeitgenössischen Forschung*, pages 639–650. de Gruyter, Berlin/New York.
- Lewis, D. 1979. Attitudes de dicto and de se. *Philosophical Review*, 88:513–543.
- Oikonomou, D. 2016. *Covert modals in root contexts*. PhD thesis, MIT.
- Oikonomou, D. 2017. *Covert Modals in Root Contexts*. PhD thesis, MIT.
- Portner, P. 2005. *What is meaning?* Blackwell.

## References III

- Portner, P. 2007. Imperatives and modals. *Natural Language Semantics*, 15:351–383.
- Roberts, C. 1996. Information structure in discourse: Towards an integrated formal theory of pragmatics. *OSU Working Papers in Linguistics*, 49:34–70.
- Roberts, C. 2015. Conditional plans and imperatives: a semantics and pragmatics for imperative mood. In *Proceedings of the 2015 Amsterdam Colloquium*.
- Sæbø, K. J. 2002. Necessary conditions in a natural language. In Fery, C. and W. Sternefeld, editors, *Audiatur Vox Sapientiae. A Festschrift for Arnim von Stechow*. Akademie Verlag, Berlin.
- van der Sandt, R. 1992. Presupposition projection as anaphora resolution. *Journal of Semantics*, 9: 333–377.
- Schwager, M. 2005. Permitting permissions. In Gervain, J., editor, *Proceedings of the 10th ESSLLI Student Session 2005, Edinburgh*.
- Schwager, M. 2006a. Conditionalized imperatives. In Tancredi, C., M. Kanazawa, I. Imani, and K. Kusumoto, editors, *Proceedings of SALT XVI*. CLC Publications, Ithaca, NY.
- Schwager, M. 2006b. *Interpreting Imperatives*. PhD thesis, University of Frankfurt.
- Seeger, K. 1989. Bringing it about. *Journal of Philosophical Logic*, 18:327–347.
- Starr, W. t.a. A preference semantics for imperatives. *Semantics & Pragmatics*.
- Truckenbrodt, H. 2005. Explizit performative. Talk at 'Graduiertenkolleg Satzarten', Universität Frankfurt am Main, February.

# Conditional preference commitments

Condoravdi and Lauer consider three definitions:

(C&L) Agent  $a$  is committed to preferring  $q$  conditionally on  $p$  iff  $a$  is automatically committed to preferring  $q$  if/once ...

- a. ...  $p$  is true.
- b. ...  $a$  believes/knows that  $p$  is true.
- c. ...  $a$  is committed to believing that  $p$  is true.

STRONG  
INTERMEDIATE  
WEAK

# Conditional preference commitments

Condoravdi and Lauer consider three definitions:

(C&L) Agent  $a$  is committed to preferring  $q$  conditionally on  $p$  iff  $a$  is automatically committed to preferring  $q$  if/once ...

- a. ...  $p$  is true.
- b. ...  $a$  believes/knows that  $p$  is true.
- c. ...  $a$  is committed to believing that  $p$  is true.

STRONG  
INTERMEDIATE  
WEAK

● Only WEAK delivers a plausible notion of public effective preferences

# Conditional preference commitments

Condoravdi and Lauer consider three definitions:

(C&L) Agent  $a$  is committed to preferring  $q$  conditionally on  $p$  iff  $a$  is automatically committed to preferring  $q$  if/once ...

a. ...  $p$  is true.

b. ...  $a$  believes/knows that  $p$  is true.

c. ...  $a$  is committed to believing that  $p$  is true.

STRONG

INTERMEDIATE

WEAK

- Only WEAK delivers a plausible notion of public effective preferences
- All three are hard to reconcile with linguistic data...



# Conditional preference commitments

Problems with STRONG and INTERMEDIATE:

(C&L) Agent  $a$  is committed to preferring  $q$  conditionally on  $p$  iff  $a$  is automatically committed to preferring  $q$  if/once ...

a. ...  $p$  is true.

b. ...  $a$  believes/knows that  $p$  is true.

c. ...  $a$  is committed to believing that  $p$  is true.

STRONG

INTERMEDIATE

WEAK

INTERMEDIATE, WEAK: (45a) is contradictory; (45b) is void

(45) a. If my secretary is a spy, make sure I never know.

b. I will never find out if my secretary is a spy. But if she is, send her this envelope.

# Conditional preference commitments

(C&L) Agent *a* is committed to preferring *q* conditionally on *p* iff *a* is automatically committed to preferring *q* if/once ...

- a. ... *p* is true.
- b. ... *a* believes/knows that *p* is true.
- c. ... *a* is committed to believing that *p* is true.

STRONG  
INTERMEDIATE  
WEAK

