

EXPRESSIVISM ABOUT EPISTEMIC MODALITY: (YALCIN 2011)

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1 Contextualism, Relativism and Eavesdroppers

- Epistemic uses of *might* and *could*
 - **Epistemic**
 - (1) a. # John isn't here right now. But, John might be here right now.
b. # John isn't here right now. But, it could be that John is here right now.
 - **Non-epistemic**
 - (2) a. John isn't here right now. But, John might have been here right now. (He might have made the train which he in fact missed.)
b. John isn't here right now. But, John could be here in 1 ms. (He can teleport.)
c. John isn't here right now. But, John could have been here right now. (He could have made the train which he in fact missed.)
- Standard view about epistemic modality is *contextualism*, informally:
Contextualism $\text{Might}(\phi)$ is true when uttered just in case some contextually salient information is compatible with ϕ
- Formally, it can be captured in modal logic, or a Kratzer-style semantics:
 - **Modal logic** analysis: $\llbracket \text{Might}(\phi) \rrbracket_R = \{w \mid R(w) \cap \llbracket \phi \rrbracket_R \neq \emptyset\}$
 - ▶ R is determined by context of utterance
 - ▶ R maps each world to the contextually relevant information at that world
 - ▶ $R(w)$ the contextually relevant information at w
 - **Kratzerian** analysis: $\llbracket \text{Might}(\mathbf{B}, \phi) \rrbracket_c = \{w \mid \llbracket \mathbf{B} \rrbracket_c(w) \cap \llbracket \phi \rrbracket_c \neq \emptyset\}$
 - ▶ $\llbracket \mathbf{B} \rrbracket_c = \{\langle w, p \rangle \mid p \text{ is the } c\text{-relevant information at } w\}$
 - ▷ So $\llbracket \mathbf{B} \rrbracket_c(w) =$ the c -relevant information at w
 - ▶ c is the context of utterance but it must be richer than Stalnaker's context set
 - ▷ c does not just provide one set of worlds (one body of relevant information)

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- It provides a set of worlds for each world (a body of relevant information for each world)
- So c must contain something like R
- What is a context such that it fixes such a thing? Open question.
- The point: **fix the context of utterance** and you've **fixed the proposition** expressed
- **Truth:** $\llbracket \text{Might}(\phi) \rrbracket_c$ is true in w iff $w \in \llbracket \text{Might}(\phi) \rrbracket_c$
 - Truth is a two-place relation between a world and a proposition
- The proposition expressed varies with the contextually relevant information
 - Whether or not that proposition is true depends only on the proposition and the world
- **Relativists** have challenged this position with *eavesdroppers* cases:
 - Bond case Egan (2007):
 - ▶ Bond and Leiter are in London listening to a bug Bond planted in a conference room in SPECTRE's headquarters in the Swiss Alps. Bond left behind some misleading evidence pointing to his presence in Zürich. Blofeld finds the evidence, takes it to be genuine, and turns to his No.2:
 - (3) Bond might be in Zürich
 - ▶ No.2, sensibly replies "That's true."
 - ▶ But, now consider Leiter, hearing this all from London. He's not at all inclined to say "That's true." when *he* hears (3) from Blofeld, even though Leiter knows that it is compatible with what Blofeld knows.
 - The relativist take:
 - ▶ When assessed by No.2, (3) is true
 - ▶ When assessed by Leiter, (3) is false
 - The relativist argument against contextualism:
 - (A) If contextualism is true, the context of utterance fixes the content of (3)
 - (B) Since No.2 and Leiter are assessing the same utterance, there is only one context of utterance to consider
 - (C) But then there is only one content to consider
 - (D) But according to contextualism, that content is either true or false independently of who's assessing it
 - (E) So it is incompatible with the relativist's take on the data
- Relativists respond in two different ways:
 - Relativizing content: epistemic modals express different propositions in different contexts of *assessment* [give up (A)]
 - Relativizing truth: epistemic modals always express the same 'proposition' which is true *relative* to some *assessors* and not others [give up (D)]

1.1 Content Relativism

(Defended by Weatherson 2009 for indicative conditionals, but called ‘indexical relativism’)

- **Content Relativist** analysis: $\llbracket \text{Might}(\mathbf{B}, \phi) \rrbracket_{c,a} = \{w \mid \llbracket \mathbf{B} \rrbracket_{c,a}(w) \cap \llbracket \phi \rrbracket_{c,a} \neq \emptyset\}$
 - $\llbracket \mathbf{B} \rrbracket_{c,a} = \{\langle w, p \rangle \mid p \text{ is the } a\text{-relevant information at } w\}$
 - ▶ So $\llbracket \mathbf{B} \rrbracket_{c,a}(w) =$ the a -relevant information at w
 - a is the context of **assessment**
- The point: **fix** the **context** of **assessment** and you’ve **fixed** the **proposition** expressed
- **Truth**: $\llbracket \text{Might}(\phi) \rrbracket_{c,a}$ is true in w iff $w \in \llbracket \text{Might}(\phi) \rrbracket_{c,a}$
 - Truth is **still** a two-place relation between a world and a proposition
- In cases without eavesdroppers, etc. $c = a$, so this analysis often makes predictions identical to contextualist analysis
- On this view, epistemic modals do not express a proposition until assessed
 - When assessed, it’s infor relevant to the assessment that is taken into consideration
 - As Egan & Weatherson (2011:11) suggest, it is probably plausible to take this information to include the speaker’s information and the assessor’s information
 - \mathbf{B} is something like *we*, but for information
- But this proposition is of the conventional variety:
 - It is a set of worlds, or (if you don’t like the possible-worlds theory of propositions) determines such a set
- Not so for Truth Relativism

1.2 Truth Relativism

(As Egan 2007 develops it. MacFarlane 2011 opts for a slightly more complicated version, but we won’t be looking at issues pertinent to this complication.)

- **Truth Relativist** analysis: $\llbracket \text{Might}(\mathbf{B}, \phi) \rrbracket_c = \{\langle w, j \rangle \mid \llbracket \mathbf{B} \rrbracket_c(w, j) \cap \llbracket \phi \rrbracket_c \neq \emptyset\}$
 - $\llbracket \mathbf{B} \rrbracket_c = \{\langle \langle w, j \rangle, p \rangle \mid p \text{ is } j\text{'s relevant information at } w\}$
 - ▶ So $\llbracket \mathbf{B} \rrbracket_c(w, j) = j\text{'s relevant information at } w$
 - j is the assessor or ‘judge’
- Epistemic modals express propositions that are neither context, nor assessment sensitive
- Instead, **truth** is assessment sensitive
- **Truth**: $\llbracket \text{Might}(\phi) \rrbracket_c$ is true in w relative to j iff $\langle w, j \rangle \in \llbracket \text{Might}(\phi) \rrbracket_c$
 - Truth is **now** a three-place relation between a world, a judge and a proposition

▶ Or, equivalently, between a *centered world* and a proposition

▶ Lewis (1979) analyzed the objects of *de se* attitudes as sets of *centered worlds*

- On this view, epistemic modals express a single proposition in all contexts of utterance and assessment
 - Not so for Content Relativism
- But this proposition is true relative to some judges and not others
- In the Bond case, consider the proposition expressed by *Bond might be in Zürich*
 - It is true relative to No.2
 - It is false relative to Leiter
 - So they disagree about the truth of the very same proposition

2 Problems for Descriptivism

- Both contextualism and relativism are *factualist* or *descriptivist* theories
 - Whether or not *might* claims are true turns on how the world (centered world) is
 - Their contents reflect this: whether or not they are true in w (for j) depends on what the contextual information in w (for j) is like!
- Yalcin (2011, 2007) raises four problems for descriptivist theories and develops his own *non-factualist* or *expressivist* theory to replace them
- The problems:
 - (1) Epistemic contradictions
 - (2) Assertability and disagreement
 - (3) Conflicting intuitions
 - (4) Accepting an epistemic modal is not being in a second-order state of mind
- I think (2) is somewhat weak but (1), (3) and (4) will give us plenty to talk about

2.1 Epistemic Contradictions

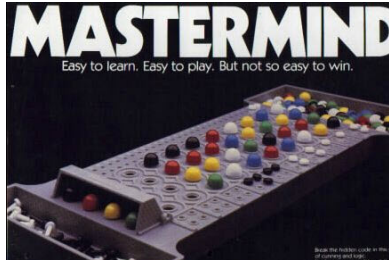
- Similar to (1), (4) sounds terrible
 - (4) # It’s raining and it might not be raining
- Why? A descriptivist-friendly explanation:
 - Well, (5) is also bad
 - (5) It’s raining and I don’t know it’s raining
 - It is Moore-paradoxical: it asserts something whose truth undermines the epistemic grounds for the utterance itself

- ▶ Fashionable analysis: knowledge is the norm of assertion (Williamson 1996)
- But on the descriptivist views (4) says basically the same thing as (5)
 - ▶ So let's just give the same (pragmatic) explanation!
- Yalcin turns this attempt against the descriptivist
 - When embedded, the *might* version remains bad, but the *know* version doesn't
 - (6) a. # Suppose it's raining and it might not be raining
 - b. Suppose it's raining and I don't know that it's raining
 - (7) a. # If it's raining and it might not be raining...
 - b. If it's raining and I don't know that it's raining...
 - On the one hand, this suggests that the pragmatic analysis of (5) is right
 - But on the other, it shows that the parallel pragmatic analysis of (4) is insufficient
 - ▶ It can capture (4) but *not* (6) or (7)
- So how far does this objection go?
- Is this a mere technical objection, or a more principled one?
 - Are there plausible factualist truth-conditions that make (4) actually contradictory?
 - Think about what making ϕ and $\text{Might}(\neg\phi)$ inconsistent *means!*
- But wait, the content of a *might*-claim and its semantic denotation are different
 - Stick to pragmatic analysis for (4), avoid inconsistency problem just noted
 - Then formulate a factualist semantics for *if* and *suppose* which gives *might*-claims a different content in these linguistic contexts
 - Such a semantics is sketched in Yalcin (2011: §§4,5)
 - (Yalcin 2011: 1,1011-2) offers an arguments against it
 - It is easy to see it as a slight twist to Yalcin's proposed semantics
 - So we'll return to it after we see Yalcin's semantics
- Yalcin (2007: 302) notes that this view has an surprising feature:
 - The proposition you express by *it might be raining* is not the same proposition you suppose when you suppose that it might be raining
 - Similarly, the proposition you express by *it might be raining* is not the proposition you believe when you believe that it might be raining
 - ▶ At least if we want to explain the infelicity of (8) in a parallel fashion
 - (8) John believes that it is raining and (that) it might not be raining
- Problem or surprise?

2.2 Conflicting Intuitions

- Contextualists and relativists seem to predict that there is a clear contextual body of information against which epistemic modals are interpreted
- Contextualists say: it's made available by the context of utterance
- Relativists say: it's made available by the context of assessment
- The eavesdroppers cases are used to motivate the relativist version
- But a far less biased take on those cases is that it is hard to know what to say about the truth value of the *might*-claim
 - Fat Tony secretly plants highly compelling evidence of his murder at the docks. The evidence is discovered by the authorities, and word gets out about his apparent death. The next evening, from his safe house, Fat Tony watches a panel of experts on the news discussing the situation.
 - Expert *A* has had a good look at the evidence found at the scene. "Fat Tony is dead," he says.
 - Expert *B* also had a good look at the evidence, but his assessment is more cautious. "Fat Tony might be dead," *B* says.
 - We all agree. What expert *A* said is false.
 - What about expert *B*? True or false? Be reminded that Fat Tony planted very compelling evidence, but also that he is definitely not dead. Some say true (contextualists), some say false (relativists). Other's shrug.
 - This distribution was found among 128 naive informants (Yalcin & Knobe 2010)
 - ▶ They were given the vignette and then one of the two assessments (What *B* said is true/false)
 - ▶ They ranked the assessment on a scale of 1-7, 1 being 'completely disagree', 7 being 'completely agree' and 4 being 'in between'
 - ▶ As a control, they presented them with the assessment for what expert *A* said
 - ▷ There was clear disagreement with the True assessment (1.71)
 - ▷ Clear agreement with the False assessment (6.11)
 - ▶ As for *B*:
 - ▷ Just better than ambivalence (4.86) about 'True'
 - ▷ Just worse than clear disagreement (1.94) about 'False'
 - ▶ In other words: there's no consensus and definitely not a consensus in favor of relativism (as you might expect, the relativists are deviants!)

- Further, remember the case of Mordecai (von Fintel & Gillies 2008).
- Mordecai is teaching Pascal to play Mastermind.



Mordecai knows the solution, which contains only one red peg. But he is training Pascal to correctly deduce the answer. After a few rounds, nothing has happened which precludes there being two reds. Pascal says:

(9) There might be two reds

Mordecai could say:

(10) That's right. There might be.

- But the relativist precludes this, since in Mordecai's context of evaluation, there are no worlds where there are two reds.
- So, it would seem that we need a theory which predicts our conflicting intuitions about eavesdroppers cases rather than predicting a definitive intuition either way
- Neither contextualism nor relativism are well-suited for this

2.3 Modal Beliefs and Higher-Order States

- Begin with the familiar idea that a belief state can be modeled as the set of worlds compatible with what is believed
- What is it to believe that it might be raining?
- According to descriptivism:

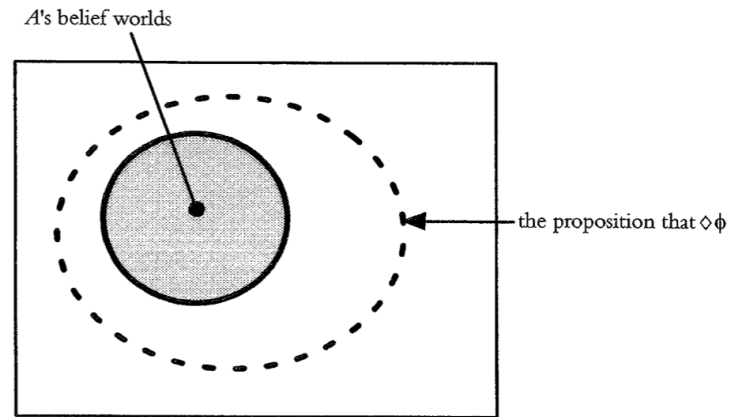


Fig. 10.1. $B_A \Diamond \phi$: The descriptivist model.

- Why believe Bob might be in his office?
 - Not equivalent to: "Why believe that I don't know that Bob is not in his office?"
 - Rather: "Why fail to believe that Bob isn't in his office?"
- Similarly, if we're eating and my dog Fido heels at my chair, and you ask: "Why is Fido sitting there staring at you?"
 - He thinks I might give him a bone
- Surely nothing follows about canine self-awareness
- Minimal modification of first-order view that corrects this:

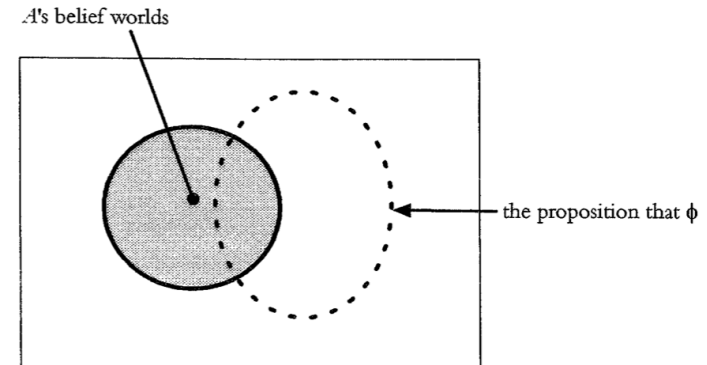


Fig. 10.2. $B_A \Diamond \phi$: The first-order model.

3 Yalcin's Semantics

- Yalcin's semantics is a twist on the dynamic semantics developed by Veltman (1985, 1996); Groenendijk *et al.* (1996)
 - But it is not itself a dynamic semantics
 - We'll learn all about dynamic approaches next week
- Yalcin introduces a new **information parameter** s (a set of worlds):

Yalcin Semantics $\llbracket \text{Might}(\phi) \rrbracket_{c,w,s} = 1 \iff \exists w' \in s : \llbracket \phi \rrbracket_{c,w',s} = 1$

 - The key, and weird, feature here is that w is not mentioned on the right-hand side
- What does this semantics say about epistemic contradictions:

$\llbracket \phi \wedge \text{Might}(\neg\phi) \rrbracket_{c,w,s} = 1 \iff \llbracket \phi \rrbracket_{c,w,s} = 1 \ \& \ \exists w' \in s : \llbracket \phi \rrbracket_{c,w',s} = 0$

 - There are c, w, s for which the epistemic contradiction is true, so it is not a contradiction
 - But, there is no s in which the epistemic contradiction is *accepted* (Yalcin 2007: 1004)

Acceptance ϕ is accepted in s iff $\forall w \in s : \llbracket \phi \rrbracket_{c,w,s} = 1$

 - ▶ For $p \wedge \text{Might}(\neg p)$, this requires $\forall w \in s : \llbracket p \wedge \text{Might}(\neg p) \rrbracket_{c,w,s} = 1$.
 - ▷ The first conjunct requires: $\forall w \in s : \llbracket p \rrbracket_{c,w,s} = 1$
 - ▷ The second: $\exists w' \in s : \llbracket p \rrbracket_{c,w',s} = 0$
 - ▷ These are inconsistent demands on s !
 - So epistemic contradictions are unacceptable!
 - Yalcin (2007: 998) provides an indicative conditional semantics to predict (7)

Indicative Conditional $\llbracket \phi \rightarrow \psi \rrbracket_{c,w,s} = 1 \iff \forall w' \in s_\phi : \llbracket \psi \rrbracket_{c,w',s_\phi} = 1$

 - $s_\phi := \text{MAX} s' \subseteq s : (s' \neq \emptyset \ \& \ \forall w' \in s' : \llbracket \phi \rrbracket_{c,w',s'} = 1)$
 - On this view, indicative conditionals, like epistemic modals, constrain the information parameter only, and not the world parameter
 - The basic idea is to shift to an information state where ϕ has been accepted and make sure that ψ has been accepted.
 - But when ϕ is $p \wedge \text{Might}(\neg p)$, there will be no such state
 - So the truth of the indicative conditional could not be defined
 - Hence epistemic contradictions are infelicitous in antecedents of indicatives
 - The semantics for belief/supposition works similarly (Yalcin 2007: 995)

Belief $\llbracket \text{Bel}_A(\phi) \rrbracket_{c,w,s} = 1 \iff \forall w' \in s_A^w : \llbracket \phi \rrbracket_{c,w',s_A^w} = 1$

 - s_A^w is the set of worlds compatible with what A believes in w
 - It says that ϕ has been accepted in A 's state of information in w

- This false for epistemic contradictions, since no state of information accepts them!
- Notice that this model fits Figure 10.2 and not Figure 10.1
 - But something like Figure 10.1 holds for non-modal claims, despite the fact that Bel_A has the same semantics in both instances
- So it meets the 'not higher-order objection'
- Yalcin (2007: §§5-8) upgrade this model of belief to distinguish:
 - For all the president of France knows, it's raining in Topeka
 - The president of France believes that it might be raining in Topeka
- Intuitively, there's a difference between ϕ being compatible with what you know and ϕ being a live epistemic possibility for you.
 - Sadly, we don't have time to go into this

3.1 Expressivism and Eavesdroppers

- This theory is supposed to be expressivist and this expressivism is supposed to explain the conflicted intuitions we have in eavesdropping cases
- But on the face of it, it's hard to see how it's expressivist
- After all, it assigns truth-values to epistemic modal claims
 - Why doesn't this count as factualist?
 - Indeed, since the truth-values are relative to s , doesn't it count as relativist?
- Here, Yalcin (2011: 327) appeals to the difference between *compositional semantic value* and *informational content*
 - $\llbracket \phi \rrbracket_{c,i} = 1$ is the compositional semantic value of ϕ
 - This is used to articulate our tacit semantic competence, which is usefully characterized as an ability to effect a distinction between a space of points i
 - Separate from this technical notion is the notion of the truth of a proposition, or informational content
 - It is this latter that Yalcin wishes to use to distinguish expressivism from descriptivism
- So what does Yalcin's semantics commitment him to say about the informational content of epistemic modal claims?
 - This depends on how one extracts a definition of informational content from compositional semantic value
 - Yalcin appeals to one way of doing this which identifies informational content with the **diagonal proposition**
 - This draws on the notion of a context c and an index i discussed in Kaplan (1989) and Lewis (1981)

Diagonal Proposition $\{c \mid \llbracket \phi \rrbracket_{c,i_c} = 1\}$

- The set of Kaplanian contexts (utterance locations, e.g. world, time, speaker tuples) in which ϕ is true with respect to the world and time ($i_c = \langle w_c, t_c \rangle$) of that context
- On this view, the informational content is determined by the ‘index of the context’ i_c
 - This means that when you settle a context, there is a privileged index
- Yalcin’s view is not that epistemic modals aren’t truth-evaluable, but rather that this notion of informational content is not well-defined for them
 - That would require a well-defined notion of s_c , since the diagonal proposition would be: $\{c \mid \llbracket \text{Might}(\phi) \rrbracket_{c,\langle w_c, s_c \rangle} = 1\}$
 - But this is what Yalcin denies: “there is no such thing as ‘the informational state of the context’. While of course there presumably are information states in the context (the states of the interlocutors, for instance), we stipulate as theorists that the role of this parameter is not to represent any of them. Rather, it is a *non-factual parameter*. Unlike the world coordinate or time coordinate, this parameter does not correspond to any possible feature of context.” (p.329)
 - How does communication with epistemic modals work then?
 - ▶ “Relative to a context, an epistemic possibility claim determines a condition, or property, on states of information – on states of mind. It is the satisfaction of this property that the speaker aims to coordinate his listeners on. The speaker thereby expresses a feature of his state of mind, and does so without describing himself, or the world.” (p.329)
- Yalcin (2007) presents various additional arguments against the view which assumes s_c is well-defined

3.2 Objections

- Many philosophers, including Kaplan, identify the informational content (what is said) of a sentence with the **horizontal proposition**

Horizontal Proposition $\{i \mid \llbracket \phi \rrbracket_{c,i} = 1\}$
- This does not require any privileged notion of the information state of the context!
- The horizontal proposition for $\text{Might}(\phi)$ would be $\{\langle w, s \rangle \mid \llbracket \text{Might}(\phi) \rrbracket_{c,w,s} = 1\}$
- This looks a lot like the relativist view!
- Presumably the difference is this:
 - If $\text{Might}(\phi)$ is true wrt $\langle w, s \rangle$, then for all w' , $\text{Might}(\phi)$ is true wrt $\langle w', s \rangle$
 - So truth is ‘independent of the world’
 - The relativist, by contrast requires, in effect, s to be the assessor’s information in w

- So, for the relativist the truth of $\text{Might}(\phi)$ is not independent of w
- This also makes clear that the content on Yalcin’s theory is really well-defined, it’s just not a proposition:
 - $\llbracket \text{Might}(\phi) \rrbracket = \{s \mid \forall w : \llbracket \text{Might}(\phi) \rrbracket_{w,s} = 1\}$
- As such, it has a different pragmatics:
 - Instead of proposing to intersect with context set, it proposes to make context set one of the $s \in \llbracket \text{Might}(\phi) \rrbracket$
 - But what exactly is the resulting context set: it seems we can’t say, only that it isn’t certain other context sets
 - ▶ Maybe ‘the most minimal revision’ of the context set which is among these s ’s...
 - Issuing $\text{Might}(\phi)$ is **not an assertion**
- But what is $\llbracket \text{Might}(A) \wedge B \rrbracket$?
 - It seems that the only hope is the set of world, info state pairs: $\{\langle w, s \rangle \mid \llbracket \text{Might}(A) \rrbracket_{w,s} = 1 \ \& \ \llbracket B \rrbracket_{w,s} = 1\}$
 - But how does this fit into the pragmatics?
 - ▶ Propose to eliminate context set worlds not in some pair
 - ▶ Propose to make context set one of these s ’s
 - Sounds virtuosic!
- How do we make sense of epistemic modals in questions?
 - *Might it be raining?*
 - Can’t be the propositions that would count as complete answers, thought it’s not exactly clear what those answers are!
- What about other kinds of modals? Should we be expressivists there too?
 - But for non-epistemic readings of *might* we don’t get the behavior that motivates Yalcin’s view
 - So it would seem that this would make the wrong predictions
- But then how do we get a unified account of *might*?

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