

What's up with modal epistemology?

0 Introduction

- A) What are the crucial questions in ME?
- B) What is the subject matter of ME? (What is modality?)
- C) What are the crucial challenges and problems of ME?

1 Conceivability-based accounts

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Literature

0 Introduction

Modal Epistemology (ME)

statements/propositions

necessarily true/false

possibly true/false

contingently true/false

- How do we tell the difference?
- How do we tell the modal status of p ?
- modal knowledge?

Possible World Semantic

P is possible iff P is true in at **least one** possible world.

P is necessary iff P is true in **all** possible worlds.

0 Introduction

Modal Epistemology (ME)

- A) What are the crucial **questions** in ME?
- B) What is the **subject matter** of ME? (What is modality?)
- C) What are some of the crucial **problems** and **challenges** ME faces?

(For a good introduction to ME, see Vaidya 2011.)

0 Introduction

A) What are the crucial questions in ME?

- 1) **Can** we know (or have justified beliefs (JB) of) modal propositions? Are modal propositions the kinds of things we can have knowledge or JB of? (ontological question)
- 2) **Do** we know (or have JB of) modal propositions? (skeptical question)
- 3) **How** do we know (or have JB of) modal propositions? What is the **primary source of evidence** in ME? (epistemological question)
- 4) If we do have modal knowledge, **what do we have knowledge of?** **What is** modal knowledge? (metaphysical question)

0 Introduction

B) What is the subject matter of ME? (What is modality?)

- Modality comes in different flavours.
- epistemic vs. non-epistemic modality

Epistemic Modality

P is **epistemically possible** for a subject S iff P is not ruled out by what S knows.

- The body of knowledge to which ep. modality is relative is not necessary only that of an individual.

E.g.: It is epistemically possible for us all that Goldbach's Conjecture is true (or false), since we don't know the truth-value of GC.

0 Introduction

B) What is the subject matter of ME? (What is modality?)

Non-Epistemic Modality

logical modality (narrow sense)

nomological modality (e.g. physical m.)

metaphysical modality

P is **logically possible** iff P is consistent with the laws of logic.

P is **nomologically possible** iff P is consistent with a certain body of laws (e.g. the laws of nature).

P is **metaphysically possible** iff P is true in at least 1 possible world.

→ Primary task in ME: epistemic access to **metaphysical modality**

0 Introduction

C) What are crucial challenges and problems of ME?

(i) Modal Error as challenge for ME

Kripke/Putnam: 'water = H₂O' necessary & a posteriori

Before K/P: 'water ≠ H₂O' seemed possible

→ account for Modal Error!

Kripkean account:

→ **confusion** of **epistemic** and **metaphysical** possibility

'water ≠ H₂O' *ep. possible* (not a priori (not certain) that water = H₂O)

'water ≠ H₂O' *mp. impossible* (actual world = fixed: 'H₂O ≠ H₂O')

0 Introduction

C) What are crucial challenges and problems of ME?

(ii) A Benacerraf-style problem for ME

→ **skepticism** about modal knowledge?

Anti-skeptical tendency

Yablo: ***Grand scale objections*** to ME will “[u]ltimately [...] require answers, but answers of a kind that the experiences of philosophy has accustomed us to doing without”. (Yablo 1993, 4)

Williamson: We do have knowledge of metaphysical modality since: we know that Henry VIII could have had > 6 wives and we know that $3+3$ could not have been > 6 .

Overview

Different accounts in ME

1 Conceivability-based accounts

1.1 Stephen Yablo

1.2 David Chalmers

2 Understanding-based accounts

2.1 George Bealer

2.2 Ch. Peacocke

3 Counterfactual-based accounts

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5.1 S. Roca-Royes

1 *Conceivability*-based accounts in ME

Appealing to the relation between conceivability and possibility can be regarded as the classical view in ME:

'Tis an establish'd maxim in metaphysics, *That whatever the mind clearly conceives includes the idea of possible existence*, or in other words, *that nothing we imagine is absolutely impossible*. We can form the idea of a golden mountain, and from thence conclude that such a mountain may actually exist. We can form no idea of a mountain without a valley, and therefore regard it as impossible.
(Hume 1980, 32)

- Stephen Yablo (1993)
- David Chalmers (1996, 2002)
- Peter Menzies (1998)

(For a good introduction to *conceivability*-based accounts, see Gendler/Hawthorne 2002.)

1.1 Yablo's *conceivability*-based ME

Introduction

Thesis: *Conceivability* is the basic source of evidence in ME.

“Optimism”: Conceivability is a (fallible) guide to possibility.

Because conceivability involves the **appearance of possibility**.

The conceivability of *p* involves the **appearance of possibility** of *p* iff:

- a) Our intentional act of conceiving that *p* is **veridical only if *p* is possible**.
- b) When we conceive of a proposition *p*, we are *prima facie* **motivated or moved to belief that *p* is possible**.

1.1 Yablo's *conceivability*-based ME

Introduction

“Pessimism”: 3 arguments against conceivability-possibility link

- (i) The Confusion Objection
- (ii) The Circularity Objection
- (iii) The A Posteriori Objection

Yablo: (i)-(iii) presuppose notions of conceivability that do *not involve the appearance of possibility*

→ Only notions of conceivability that involve the appearance of possibility are claimed to be a guide to possibility.

1.1 Yablo's *conceivability*-based ME

(i) The Confusion Objection

Pessimist: 'conceivability' = 'believability' ('conc._b')

I find p conceivable if I find p believable (i.e. *true for all I know*).

→ conc._b can only yield epistemic possibility (not metaphysical poss.)

Confusion Objection: Thinking that conc. yields mp. poss. is just a confusion!

Yablo's answer: Yes, but not all conc. is conc._b!
Conc._b does not involve the appearance of poss. and thus in no guide to mp. poss.

1.1 Yablo's *conceivability*-based ME

(ii) The Circularity Objection

- (C1) To be **unaware of p's impossibility** is a sufficient condition to find p conceivable.
- (C2) To reliably conclude p's poss. from p's conc. we need to **rule out** that we find p conc. only **because** we are **unaware** of p's **impossibility**.
- (C3) To rule that out we need to **know p's modal status in advance**.
- (C4) So, conceivability methods run in a **circle**.

Yablo: conceivability methods are fallible
but **not so fallible** that they can't justify our modal beliefs

→ Pessimist must show that impossibilities are **often** conceivable

1.1 Yablo's *conceivability*-based ME

(ii) The Circularity Objection

- (O1) *Almost always*, when p is impossible and I am unaware of that, I find p conceivable.
- (O2) *Often*, when p is impossible, I am unaware that it is impossible.
- (O3) So, *often*, when p is impossible, I find it conceivable.

Yablo: 3 objections against the argument above:

- 1) **dialectical problem:** An optimist that is doubtful of (O3) will also be doubtful of (O1).
- 2) **statistical problem:** (O1) is a statistical claim, but there are no examples to back up (O1).
- 3) **relevance problem:** The argument presupposes a notion of conc. that does not involve the appearance of poss.

1.1 Yablo's *conceivability*-based ME

(ii) The Circularity Objection

- (O1) *Almost always*, when p is impossible and I am unaware of that, I find p conceivable.
- (O2) *Often*, when p is impossible, I am unaware that it is impossible.
- (O3) So, *often*, when p is impossible, I find it conceivable.

Yablo: The argument presupposes a notion of conc. that does not involve the appearance of poss.

→ conc. as **believability of the possibility** of p ('conc._{bp}')

- (O1') *Almost always*, when p is impossible and I am unaware of that, I find it **believable that p is possible**.

1.1 Yablo's *conceivability*-based ME

(iii) The A Posteriori Objection

'water = H₂O' necessary & a posteriori (Putnam, Kripke)

'water ≠ H₂O' impossible

'water ≠ H₂O' conceivable?

(A1) *Whenever* p is a posteriori false, I find it conceivable whether it is possible or not.

(A2) *Often*, a posteriori falsehoods are impossible.

(A3) So, a posteriori falsehoods are often found conceivable despite their impossibility.

Yablo: The argument presupposes a notion of conc. that does not involve the appearance of poss.

→ conc. as **epistemic conceivability** ('conc._{ep}')

1.1 Yablo's *conceivability*-based ME

(iii) The A Posteriori Objection

epistemic conceivability ('conc._{ep}')

P is conc._{ep} for me iff I can imagine (not truly believing the very proposition p, but) believing something true with my actual p-thought.

→ Kripke's epistemic possibility

All a posteriori impossibilities are epistemically possible.

Example

I cannot imagine truly believing 'Hesperus ≠ Phosphorus', but I can imagine believing some true proposition q with my actual p-thought.

→ I imagine my thought "Hesperus ≠ Phosphorus" not expressing 'Venus ≠ Venus', but a different proposition (in an epistemic counterpart situation) with different truth-conditions.

1.1 Yablo's *conceivability*-based ME

Conceivability and Imagination

Yablo: All these objections talk about the “wrong” kind of conc.

→ What is the “right” kind of conc.?

(CON) *P* is *conceivable* for me iff I can *imagine* a world (situation) that I take to verify *p*.

Question: What are the standards that one has to satisfy in order to imagine a scenario that verifies *p*?

→ Can we imagine a world that verifies that there are naturally purple COWS? (Cf. Van Inwagen 1998)

1.1 Yablo's *conceivability*-based ME

Modal Error

- Our faculties (imagination, conceiving) are **fallible**.
- This is not a peculiar problem: also **perception** is fallible.
- **Account of modal error** (to cordon off conc.-failure in a principled way)

Yablo: Conceivability is fallible and known to be so.

When I conceive that p , p appears possible to me.

Still, p might not be possible, but I would need a **defeater** to mistrust my conceivability-evidence.

- Without an actual defeater, the conceivability of p will prima facie justify me in taking p as mp . possible.

1.1 Yablo's *conceivability*-based ME

Upshot of Yablo's account

Yablo: We can & do have modal knowledge.

Primary source of justification: **conceivability**

P is conc. for me iff I can imagine a world that verifies p.

Conceivability - is a **fallible guide** to mp. poss.
- provides *prima facie* evidence for p's mp. poss.

→ We need an account of **modal error** to detect and avoid mistakes.

Difficulty: What does it take to imagine a world that verifies p?

Overview

Different accounts in ME

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5.1 S. Roca-Royes

1.2 Chalmers's *conceivability*-based ME

Weak Modal Rationalism

Thesis: Conc. (of a specific sort) **entails** poss. (of a specific sort).

(WMR) Primary positive ideal conceivability entails primary possibility.

3 distinctions:

- 1) **prima facie** vs. **ideal** conceivability
- 2) **negative** vs. **positive** conceivability
- 3) **primary** vs. **secondary** conc. (& poss.)

1.2 Chalmers's *conceivability*-based ME

1) *prima facie* vs. ideal conceivability

(PFC) S is **prima facie** conceivable for a subject when S is conceivable **on first appearance**.

(IC) S is **ideally** conceivable when S is conceivable on **ideal rational reflection**.

Example: The axioms of naïve set theory are *prima facie* conceivable, but *not ideally*.

ideal rational reflection = reflection that is undefeatable by better reasoning

→ idealizing away from our cognitive limitations

Such an idealization is also present in our conceptions of “a priori” and “knowledge”.

1.2 Chalmers's *conceivability*-based ME

2) negative vs. positive conceivability

- (NC) S is **negatively** conceivable when S is **not ruled out a priori**, or when there is no apparent contradiction in S.
- (PC) S is **positively** conceivable when one can (coherently modally) **imagine a situation that verifies S**.

S is positively conc. \rightarrow S is negatively conc. (*not vice versa*)

Example: We cannot rule out Goldbach's Conjecture (GC) (it is *prima facie neg. conc.*) but we cannot coherently imagine a situation verifying (GC) (so, it's not *pos. conc.*).

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

Problem: a posteriori **impossibilities** ('water \neq H₂O')
seem conceivable

Chalmers: 'water \neq H₂O' is primarily conceivable,
but *not* secondarily conceivable

Primary conceivability yields **primary (*epistemic*) possibility**.

Secondary conceivability yields **secondary (*metaphysical*) poss.**

'water \neq H₂O' is **epistemically possible** (it is possible that the actual world turns out to be one in which water \neq H₂O; not a priori (not certain) that water = H₂O)

'water \neq H₂O' is **metaphysically impossible**
(when we take the actual world to be fixed, water = H₂O; \rightarrow 'water \neq H₂O' means 'H₂O \neq H₂O' not possible.)

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

Problem: a posteriori **impossibilities** ('Hesperus \neq Phosphorus')
seem conceivable

Chalmers: 'Hesperus \neq Phosphorus' is primarily conceivable,
but *not* secondarily conceivable

Chalmers's answer to that presupposes his **internalist 2d-semantics**:

→ primary conc. of 'water \neq H₂O' → epistemic poss. of 'water \neq H₂O'
→ epistemic conc. of 'water \neq H₂O' → **metaphysical possibility** of
*'the clear drinkable liquid in
the rivers and lakes \neq H₂O'*

internalist 2d-semantics:

'the clear drinkable liquid in the rivers and lakes \neq H₂O' = **one
dimension** of the meaning of 'water \neq H₂O'.

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

Problem: a posteriori **impossibilities** ('Hesperus \neq Phosphorus')
seem conceivable

Chalmers: 'Hesperus \neq Phosphorus' is primarily conceivable,
but *not* secondarily conceivable

2 ways to explain the distinction between prim. & sec. conc.

- a) **Chalmers vs. Kripke**
- b) **2 different ways to think about hypothetical possibilities**

Note: Chalmers's *primary conc.* is analogous to Yablo's *conc.*_{ep}.

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

a) Chalmers vs. Kripke

Kripke:

(1) 'Hesperus \neq Phosphorus'

is not possible
is **not conceivable**

(2) 'the brightest star in the evening sky \neq
the brightest star in the morning sky'

is possible
is conceivable

Kripke: (2) is not a part of the meaning of (1) (sem. externalism)

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

a) Chalmers vs. Kripke

Chalmers: **internalist** version of **epistemic 2-dimensional semantics**

(1) 'Hesperus \neq Phosphorus'

primary intension(1): 'the brightest star in the evening sky \neq
the brightest star in the morning sky'

secondary intension(1): 'Venus \neq Venus'

pr.int.(1) is **possible**

sec.int.(1) is **impossible**

→ (1) is **primarily conceivable, but not secondarily conceivable.**

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

b) 2 ways to think about hypothetical possibilities

(1C) S is **primarily** conceivable (or *epistemically* conceivable) when it is **conceivable that S is actually the case.**

(2C) S is **secondarily** conceivable (or *subjunctively* conceivable) when **S conceivably might have been the case.**

Imagine a situation! You can **consider** the imagined situation

1) **as actual** (as a way the actual world might (turn out to) be)

2) **as counterfactual** (as a way the world might have been (but isn't))

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

b) 2 ways to think about hypothetical possibilities

Example:

'water \neq H₂O' **is possible** if *considered as **actual*** (epistemic poss.)
(it is possible that the actual world turns out to be one in which water \neq H₂O; not a priori (not certain) that water = H₂O)

'water \neq H₂O' **is impossible** if *considered as **counterfactual***
(when we take the actual world to be fixed, water = H₂O; \rightarrow 'water \neq H₂O' means 'H₂O \neq H₂O' not possible.)

(1C) yields **epistemic possibility** (primary possibility) (apriority)

(2C) yields **metaphysical possibility** (secondary possibility)

1.2 Chalmers's *conceivability*-based ME

3) primary vs. secondary conceivability

b) 2 ways to think about hypothetical possibilities

→ Idea of (1C): *for all we know a priori*: many ways the world might be

→ **(1C) is an epistemic notion.**

→ Idea of (2C): *we take the actual world to be fixed* and ask
subjunctively: could S have been the case?

→ **(2C) is a metaphysical notion.**

Example: 'water \neq H₂O' is prim. conc.: sit.: liquid stuff \neq H₂O
is not sec. conc.: no sit.: H₂O \neq H₂O

(1C) yields **epistemic possibility** (primary possibility) (apriority)

(2C) yields **metaphysical possibility** (secondary possibility)

1.2 Chalmers's *conceivability*-based ME

Conceivability and Possibility

(WMR) **Primary** positive ideal conceivability *entails* **primary** poss.

→ (WMR) only talks about **epistemic** (primary) **possibility**.

→ (WMR) falls short of the goal of ME: epistemic access to **mp. poss.**

1.2 Chalmers's *conceivability*-based ME

Conceivability and Possibility

(WMR) Primary positive ideal conceivability *entails* primary possibility.

(2C) is an **a posteriori** matter. (Chalmers wants to be a rationalist)

→ (WMR) falls short of the goal of ME: epistemic access to **mp. poss.**

Chalmers: 'Water \neq H₂O' is not metaphysically possible.

But the prim. conc. of 'water \neq H₂O' reveals something about metaphysical possibility:

→ mp. poss. world in which *the clear drinkable liquid in the rivers and lakes \neq H₂O*

This result depends on Chalmers's **internalist 2d-semantics**.

1.2 Chalmers's *conceivability*-based ME

Criticism

1) Incompleteness:

Chalmers offers only a partial account of our modal knowledge (leaving out the part about metaphysical modality)

→ Chalmers's answer involves/presupposes internalist 2d-semantic

2) Idealization:

Chalmers only offers a “**definition**” of modal knowledge (metaphysical argument: ideal conc. entails possibility)

No “**criterion**”: When are we justified in believing a modal prop.?

(cf. Worley 2003, Bruckner 2001)

3) Circularity:

The link between conc. & poss. = **toothless, trivial or circular** if it is “metaphysically defined” in terms of “ideal conceivability” (i.e. conceivability that **cannot** be refuted by better reasoning).

1.2 Chalmers's *conceivability*-based ME

Upshot of Chalmers's account

Chalmers: We can & do have modal knowledge.

Primary source of justification: **conceivability**

(WMR) Primary positive ideal conceivability *entails* primary possibility.

→ S's prim. poss. entails the **mp. poss.** of S's primary intension.

Difficulties: Incompleteness? (internalist 2d-semantics?)
Idealization (no "criterion"?)
Circularity?

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2 *Understanding*-based accounts in ME

... **ground modal knowledge** in our **understanding** of concepts or principles.

- George Bealer (2002)
- Christopher Peacocke (1998)

2.1 Bealer's *understanding*-based ME

Introduction

Critique against *conceivability*-based accounts

- conc. ≠ basic evidence in ME
- evidence: a datable conscious episode must occur
- *conceivability* = modal fact, does not occur
- actual conceiving? – why should conc. be evidence for poss.?
- Yablo: because conc. involves the *appearance of possibility*

Bealer: *appearance of possibility* = **modal intuition**

Thesis: *Modal intuition* is the basic source of evidence in ME.

- A) What are intuitions?
- B) Why should (modal) intuitions count as evidence at all?

2.1 Bealer's *understanding*-based ME

What are intuitions on Bealer's account?

B1: Intuitions are **seemings**.

B2: Intuition is a **sui generis** propositional attitude (different from beliefs, guesses and hunches).

B3: Intuitions are **fallible**.

B4: The kinds of seemings relevant to ME are **intellectual**, not experiential (i.e. sensory or imaginative).

B5: The kinds of intuitions relevant to the a priori disciplines are **rational** (a priori) intuitions, i.e. intuitions that present themselves as necessary.

2.1 Bealer's *understanding*-based ME

Intuitions as evidence

3 parts of the story:

- 1) We actually use intuitions constantly in our “*standard justificatory procedure*”.
- 2) Bealer argues **that** our intuitions are evidence.
(A rejection of intuitions as evidence (i.e. radical empiricism) leads to a self-defeating epistemology.)
- 3) **Why** are intuitions evidence?
 - When we **determinately understand** the relevant concepts our **intuitions** about these concepts will be reliable (i.e. **truth-tracking**).

2.1 Bealer's *understanding*-based ME

2) Self-defeat argument against radical empiricism

Quinean empiricism:

- (i) *The principle of empiricism.* A person's phenomenal experiences and/or observations comprise the person's evidence.
 - (ii) *The principle of holism.* A theory is justified (acceptable, more reasonable than its competitors, legitimate, warranted) for a person if and only if it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's evidence.
 - (iii) *The principle of naturalism.* The natural sciences (plus the logic and mathematics needed for them) constitute the simplest comprehensive theory that explains all, or most, of a person's phenomenal experiences and/or observation.
- (A) A theory is justified for a person iff it belongs to the *simplest regimented formulation of natural sciences*.
- (B) (i)-(iii) do **not** belong to the *simplest regimented formulation of natural sciences*.
- (C) **(i)-(iii) are not justified.**

2.1 Bealer's *understanding*-based ME

2) Self-defeat argument against radical empiricism

Quinean empiricism:

- (i*) *The principle of moderate rationalism.* A person's phenomenal experiences **and intuitions** comprise the person's evidence.
- (ii) *The principle of holism.* A theory is justified (acceptable, more reasonable than its competitors, legitimate, warranted) for a person if and only if it is, or belongs to, the simplest comprehensive theory that explains all, or most, of the person's evidence.
- (iii) *The principle of naturalism.* The natural sciences (plus the logic and mathematics needed for them) constitute the simplest comprehensive theory that explains all, or most, of a person's phenomenal experiences and/or observation.

Bealer: Replacing the *principle of empiricism* by the *principle of moderate rationalism* blocks the self-defeat argument.

2.1 Bealer's *understanding*-based ME

3) Why intuitions are evidence

Bealer takes (modal) intuitions as basic sources of evidence, but **why?**

Modal Reliabilism

(MR) Intuitions are (basic) evidence, because they have a **reliable modal tie to the truth**.

This tie to the truth is **fallible**, but
a **necessary** (modal) one (intuitions do not
accidentally lead to truth).

Why should there be such a tie between (modal) intuitions & truth?

→ **concept possession** (CP): indeterminate CP
determinate CP

2.1 Bealer's *understanding*-based ME

3) Why intuitions are evidence

Determinate concept possession:

Suppose that in her journal a sincere, wholly normal, attentive woman introduces *through use* (not stipulation) a new term '**multigon**'. She applies the term to various closed plane figures having several sides (pentagons, octagons, chiliagons, etc.). Suppose her term expresses some definite concept – the concept of being a multigon – and that she **determinately understands** this concept. By chance, she has neither applied her term 'multigon' to triangles and rectangles nor withheld it from them; the question has just not come up. Eventually, however, she considers it. Her cognitive conditions (intelligence, etc.) are good, and she determinately understands these concepts. Suppose that **the property of being a multigon is either the property of being a closed, straight-sided plane figure, or being a closed, straight-sided plane figure with five or more sides.** [...] Then, intuitively, when the woman entertains the question, she would have an intuition that it *is* possible for a triangle or a rectangle to be a multigon **if and only if** being a multigon = being a closed, straight-sided plane figure. Alternatively, she would have an intuition that it is *not* possible for a triangle or a rectangle to be a multigon **if and only if** being a multigon = being a closed, straight-sided plane figure with five or more sides. (Bealer 2002, 103; *my emphasis, M.W.*)

2.1 Bealer's *understanding*-based ME

3) Why intuitions are evidence

The woman would have **truth tracking intuitions**.

- If she did not we would either say that:
 - a) she does **not really (determinately) understand** one or more concepts involved, *or*
 - b) her **cognitive capacities** are not of a high enough quality

So, **determinate concept possession (DCP)** is **essentially connected with truth**.

- Thus our **(modal) intuitions** that stem from DCP have a **reliable tie to the truth**.

2.1 Bealer's *understanding*-based ME

3) Why intuitions are evidence

Determinate Understanding

(DU) Necessarily for all subjects x and all propositions p that x understands determinately: p is true *iff* it is possible for x to settle with **a priori stability** that p is true (cf. Bealer 1999, 43).

A Priori Stability

Very roughly, a subject x settles with **a priori stability** that p is true iff no improvement of the cognitive condition or in conceptual repertory of x would change the way in which p gets settled (under the condition that x understands p determinately throughout) (cf. Bealer 2002, 104).

2.1 Bealer's *understanding*-based ME

3) Why intuitions are evidence

Determinate Understanding

(DU) Necessarily for all subjects x and all propositions p that x understands determinately: p is true *iff* it is possible for x to settle with **a priori stability** that p is true (cf. Bealer 1999, 43).

A Priori Stability

[A subject x] settles with *a priori stability* that p is true iff, for cognitive conditions of some level l and for some conceptual repertory c , (1) x has cognitive conditions of level l and conceptual repertory c , and x attempts to elicit intuitions relevant to the question of whether p is true, and x seeks a theoretical systematization based on those intuitions, and that systematization affirms that p is true, and all the while x understands p m-ly, and (2) necessarily, for cognitive conditions of any level l' at least as great as l and for any conceptual repertory c' , which includes c , if x has cognitive conditions of level l' and conceptual repertory c' , and x attempts to elicit intuitions bearing on p and seeks a theoretical systematization based on those intuitions, and all the while x understands p m-ly, then that systematization also affirms that p is true. (Bealer 2002, 104)

2.1 Bealer's *understanding*-based ME

Bealer's ME at work

(W) It is metaphysically necessary that water = H₂O.

→ **empirical information** (water = H₂O)

→ how do we bridge the modal gap to '□ (water = H₂O)'?

Det. underst. (DU) of 'water': we know *a priori* that water is **compositional stuff (CS)** (i.e. individuated by its microphysical structure)

DU of 'compositional stuff': *a priori*: (CS=Comp.X) → □(CS=Comp.X)

DU('water') → *a priori* intuitions that bridge the modal gap.

2.1 Bealer's *understanding*-based ME

Bealer's ME at work

(1) *category concepts* (such as: predication, number, property, stuff,...)

(2) *content concepts* (such as phenomenal concepts)

(3) *naturalistic concepts* (such as: water, gold, lemon, arthritis,...)

(1) and (2) are **semantically stable**, (3) is not.

A concept q is **semantically stable** iff, necessarily, for any population C , it is necessary that, for any concept q' and any population C' whose epistemic situation is qualitatively identical to that of C , if q' in C' is the counterpart of q in C , then $q = q'$ (cf. Bealer 1999, 44).

A concept is **semantically stable** iff it is invariant across communities whose epistemic situations are qualitatively identical (cf. Gendler/Hawthorne 2002a, 56).

2.1 Bealer's *understanding*-based ME

Modal error

→ How do we explain that our **modal intuitions** sometimes **lead us astray**.

(X) Water could be XYZ.

local categorial mis*understanding*:

→ We mistakenly think that water is **macroscopical stuff** (individuated by its macroscopic properties) instead of **compositional stuff** (individuated by its microscopic structure)

→ **We do not determinately understand 'water'.**

2.1 Bealer's *understanding*-based ME

Critique

- 1) **Do we have DU of any of our concepts?** If not intuition could not provide us with evidence. (Vaidya 2011)
- 2) If I am not in “**ideal conditions**” I cannot trust my intuitions. So, I need to know when I am in “ideal (enough) conditions”.
→ demarcation line?

2.1 Bealer's *understanding*-based ME

Upshot of Bealer's account

Bealer: We can & do have modal knowledge.

Primary source of justification: **modal intuitions**

- (1) We constantly **use** intuitions as evidence.
 - (2) Intuitions **are** evidence. (Denial of (2) → self-defeat!)
 - (3) Intuitions are evidence, **because** they have a reliable modal **tie to the truth** (Modal Reliabilism)
- That intuitions have this tie to the truth is shown by a theory of understanding (DCP).

Difficulties: Do we have DCP?
 “ideal conditions” – demarcation line?

Overview

Different accounts in ME

1 Conceivability-based accounts ✓

1.1 Stephen Yablo ✓

1.2 David Chalmers ✓

2 Understanding-based accounts

2.1 George Bealer ✓

2.2 Ch. Peacocke

3 Counterfactual-based accounts

3.1 T. Williamson

4 ME as epistemology of essence

4.1 Anand Vaidya

4.2 E. J. Lowe

5 Non-rationalist accounts

5.1 S. Roca-Royes

2.2 Peacocke's *understanding*-based ME

Introduction

Integration Challenge for the philosophy of modality:

→ providing a **simultaneously acceptable metaphysics** and **epistemology** of modality

Peacocke: Meeting the *Integration Challenge* has the purpose of **avoiding Benacerraf-style problems** in the philosophy of modality.

Thesis: Someone who understands modal discourse has **tacit knowledge** or **implicit understanding** of
→ *Principles of Possibility (PoP)*.

2.2 Peacocke's *understanding*-based ME

Principles of Possibility (PoP)

(GP) A specification of a state of affairs is a **genuine possibility** *iff* it is **in accord with all the PoP**.

- Peacocke characterizes metaphysical possibility in terms of PoP.
- PoP fix modal truth. ($\diamond p$ iff p is in accord w/ all PoP.)

Principles of Possibility (PoP)

- 1) The Modal Extension Principle (MEP)
- 2) Constitutive Principles (CP)
- 3) The Principle of Constrained Recombination (PCR)

2.2 Peacocke's *understanding*-based ME

Some technical terms

Genuine Possibility:

(GP) A specification of a state of affairs is a **genuine possibility** *iff* there is some **admissible assignment** which counts as true all the propositions in that specification.

An **assignment** s assigns to each atomic concept C a **semantic value**.

→ $val(C,s)$

Semantic values ~ Fregean *Bedeutungen*

Admissibility (technical term): What it means for an assignment to be **admissible** is determined by the **entirety of all PoP**.

2.2 Peacocke's *understanding*-based ME

Principles of Possibility (PoP)

- 1) The Modal Extension Principle (MEP)
 - 2) Constitutive Principles (CP)
 - 3) The Principle of Constrained Recombination (PCR)
- An assignment is admissible iff it is in accord with all PoP.
- So the PoP are **constraints on admissibility**.

2.2 Peacocke's *understanding*-based ME

1) The Modal Extension Principle (MEP)

Idea: For a specification of a state of affairs to be genuinely possible it has to **respect the semantic rules that govern the concepts** used in the specification.

Example: Suppose following specification of a state of affairs:
All bachelors are married women.

This specification (situation) is **not a genuine possibility** according to **(MEP)**, since it does not respect the semantic rule that governs the concept 'bachelor' (in our actual world).

2.2 Peacocke's *understanding*-based ME

1) The Modal Extension Principle (MEP)

Idea: For an assignment to be admissible it has to **respect the actual rule that governs the respective concept**.

Example: $val(bachelor, s)$ = the set of all married people

according to (MEP): ***s* is *not* admissible**

because: $val(bachelor, s) \neq$ the result of the **same rule R**, that is applied in determining the **actual sem. value** of *bachelor*.

(MEP) is a **necessary condition** for an assignment to be admissible.

(MEP) An assignment s is admissible *only if*: for any concept C , $val(C, s)$ = the result of R , where R is the rule applied in determining the sem. value of C in the actual world.

2.2 Peacocke's *understanding*-based ME

2) Constitutive Principles (CPs)

Idea: For a specification of a state of affairs to be genuinely possible it has to **respect what it makes an object, a relation or a property *what it is*** (i.e. what is **constitutive** for O, R or P).

Example: Suppose following specification of a state of affairs:
Michi Wallner is not a human (but a dog).

This specification (situation) is **not a genuine possibility** since there is a constitutive principle about fundamental kinds.

(CP)_{Fundamental Kind} If P is a property which is an object x 's fundamental kind, then a specification is impossible, if it counts the proposition x is P as false.

2.2 Peacocke's *understanding*-based ME

2) Constitutive Principles (CPs)

→ (CPs) are about **objects, properties and relations**

Idea: For an assignment to be admissible it has to **respect what it makes an object, a relation or a property *what it is*** (i.e. what is **constitutive** for O, R or P)

Incomplete list of (CPs) (as **necessary conditions** for admissibility):

(CP1)_{Fundamental Kind} If P is a property which is an object x 's fundamental kind, then an assignment is inadmissible if it counts the proposition x is P as false.

(CP2)_{Origin} If a actually develops from b and c , then an assignment is inadmissible if it both counts the proposition a exists as true and the proposition a develops from b and c as false.

2.2 Peacocke's *understanding*-based ME

3) The Principle of Constrained Recombination (PCR)

→ Metaprinciple

Idea: For a specification of a state of affairs to be genuinely possible it has to **be in accord with all PoP**.

2.2 Peacocke's *understanding*-based ME

3) The Principle of Constrained Recombination (PCR)

→ (PCR) expresses a **sufficient condition** for an assignment to be admissible.

(PCR) An assignment s is admissible *if* it **respects the set of conditions on admissibility given in the PoP.**

Peacocke's truth conditions for modal operators:

(ChP) A proposition is **possible** iff it is true according to **some** admissible assignment.

(ChN) A proposition is **necessary** iff it is true according to **all** admissible assignments.

2.2 Peacocke's *understanding*-based ME

Peacocke's ME

Integration Challenge: matching modal metaphysics w/ ME

ME: To understand metaphysical modalities is to have **tacit knowledge of the PoP**.

Question of ME: **How** can certain particular **methods succeed** in producing **knowledge of modal truths**?

Peacocke: An ***appropriate*** application of our **implicit knowledge** of PoP we will produce knowledge, since it's the very PoP that fix modal truth.

2.2 Peacocke's *understanding*-based ME

Criticism

1) Can tacit knowledge/implicit understanding provide us with **reasons to believe a modal proposition**?

We have to distinguish two questions:

Q1: **How *can*** certain particular methods succeed in producing knowledge of modal truths? (*metaphysical question*)

Q2: **What *justifies* us in believing that** certain particular ***instances*** of methods succeed in producing knowledge of modal truths? (*epistemological/evidential question*)

2) **Circularity?** – If *PoP presuppose modal knowledge*, tacit knowledge of *PoP* cannot ground modal knowledge.

(For further criticism see Rosen 2002, Williamson 2002 and Wright 2002.)

2.2 Peacocke's *understanding*-based ME

Criticism

- 1) Can tacit knowledge/implicit understanding provide us with **reasons to believe a modal proposition**?

In the case of possibility, there will be **some conception of a possible state of affairs in which the possibility obtains**; in the case of a reasonable judgement of necessity, there will be some *informal demonstration or proof* of the proposition, or **some reasonable belief that one exists**. (Peacocke 1999, 164; *my emphasis, M.W.*)

- What makes the belief in the existence of a proof reasonable?
(modal intuition?)
- “conception of a poss. state of affairs” = conceivability?

2.2 Peacocke's *understanding*-based ME

Criticism

1) Can tacit knowledge/implicit understanding provide us with **reasons to believe a modal proposition**?

We have to distinguish two questions:

Q1: **How *can*** certain particular methods succeed in producing knowledge of modal truths?

Q2: **What *justifies* us in believing that** certain particular ***instances*** of methods succeed in producing knowledge of modal truths?

→ Q1 is the question how the Integration Challenge can be met and is answered by Peacocke's account.

→ But maybe Q2 cannot be answered by Peacocke's account.

2.2 Peacocke's *understanding*-based ME

Criticism

2) Circularity? – reductive or non-reductive account?

Peacocke explains **modality** in terms of **admissibility** and admissibility in terms of his **PoP**.

→ To not run in a circle PoP must not rely on modal notions.
(Problem: the list of PoP is *incomplete*.)

Or **can** PoP rely on modal notions?

Peacocke: PoP provide **non-reductive** explanations of modality.

If a complete list of PoP could be given → **reductive** expl.

→ Do **non-reductive** accounts of modality have to worry about **(vicious) circularity**?

2.2 Peacocke's *understanding*-based ME

Criticism

2) Circularity? – reductive or non-reductive account?

metaphysical level: If we take modal notions to be primitive, no reductive analysis of modality can be had, i.e. any analysis will presuppose modal notions.

epistemolog. level: Something cannot function as basic source of justification in ME, if it presupposes modal notions.

If PoP presuppose modal notions, then tacit knowledge of PoP is modal knowledge and cannot ground modal knowledge.

(For further criticism see Rosen 2002, Williamson 2002 and Wright 2002.)

2.2 Peacocke's *understanding*-based ME

Upshot of Peacocke's account

Peacocke: We can & do have modal knowledge. (He tries to avoid Benacerraf-style problems.)

Epistemic work in ME is done by: **tacit knowledge/understanding of PoP**

- (1) The Modal Extension Principle (MEP)
 - (2) Constitutive Principles (CP)
 - (3) The Principle of Constrained Recombination (PCR)
- appropriate usage of our TK of PoP yields modal knowledge, because it are the PoP that fix modal truth

Difficulties: Can tacit knowledge provide evidence/justification?
Circularity?

Overview

Different accounts in ME

1 Conceivability-based accounts ✓

1.1 Stephen Yablo ✓

1.2 David Chalmers ✓

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2.1 George Bealer ✓

2.2 Ch. Peacocke ✓

3 Counterfactual-based accounts

3.1 T. Williamson

4 ME as epistemology of essence

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4.2 E. J. Lowe

5 Non-rationalist accounts

5.1 S. Roca-Royes

3 *Counterfactual*-based accounts in ME

... **reductively** explain modality in terms of **counterfactual conditionals**.

- Christopher Hill (2006)
- Timothy Williamson (2007a, 2007b)

3.1 Williamson's *counterfactual*-based ME

Introduction

Thesis: ME is a special case of the **epistemology of counterfactuals**.

→ **reductive explanation** of modality in terms of counterfactuals (on the *metaphysical* and *epistemological* level).

counterfactual conditionals

→ conditionals with an antecedent that is contrary to the fact

(CC₁) If *A were* the case, *B would be* the case.

(CC₂) If *A had been* the case, *B would have been* the case.

(CC) (A $\square\rightarrow$ B) [*read*: 'A counterfactually implies B']

3.1 Williamson's *counterfactual*-based ME

Metaphysical reductivism

$$(NEC) \Box p \leftrightarrow (\neg p \Box \rightarrow \perp)$$

Intuitively: The necessary is that whose negation would imply a contradiction.

$$(POS) \Diamond p \leftrightarrow \neg(p \Box \rightarrow \perp)$$

Intuitively: The possible is that who does not counterfactually imply a contradiction.

Williamson: Since modality is reducible to CC, **ME is reducible to the epistemology of counterfactuals.**

3.1 Williamson's *counterfactual*-based ME

The epistemology of counterfactuals

Example:

(R) If the bush had not been there, the rock would have ended in the lake.

How do you come to know (R)?

→ by using your **imagination**

→ But imagination is **unconstrained**, how can it justify (R)?

Williamson: If you seriously use your imagination to evaluate CC, you allow your it to be **constrained** by your ***background information***.

3.1 Williamson's *counterfactual*-based ME

The epistemology of counterfactuals

Example:

(R) If the bush had not been there, the rock would have ended in the lake.

Evaluation of CC:

- we **imaginatively suppose** the antecedent
- we **counterfactually develop** the supposition (CD)
 - by adding further judgments by reasoning & off-line mechanisms (**background information**)
- If (CD) leads to the consequent → we **assent to CC**
- If not → we **dissent from CC**

3.1 Williamson's *counterfactual*-based ME

Epistemological reductivism

(NEC) $\Box p \leftrightarrow (\neg p \Box \rightarrow \perp)$

(POS) $\Diamond p \leftrightarrow \neg(p \Box \rightarrow \perp)$

We accept ' $\Box p$ ' if the counterfactual development (CD) of the supposition ' $\neg p$ ' generates a contradiction.

We reject ' $\Box p$ ' if the CD of the supposition ' $\neg p$ ' fails to generate a contradiction (*in a reasonable time*).

We accept ' $\Diamond p$ ' if the CD of the supposition ' p ' fails to generate a contradiction (*in a reasonable time*).

We reject ' $\Diamond p$ ' if the CD of the supposition ' p ' generates a contradiction.

→ So, all there is to modal judgment is counterfactual evaluation.

3.1 Williamson's *counterfactual*-based ME

Criticism

- 1) **Imagination** plays a central role. Why isn't conceivability (imaginability) the basic source of evidence on this account?
W: The capacity to evaluate CC recruits all our cognitive capacities to evaluate sentences, not just conceivability.
- 2) Does **epistemological** reductivism follow from **metaphysical** reductivism?
- 3) Does the evaluation of CC presuppose modal knowledge?
(**Circularity** worry)

3.1 Williamson's *counterfactual*-based ME

Criticism

2) Does **epistemological** reductivism follow from **metaphysical** reductivism?

Counterexample (Casullo 2012, 259ff)

- Suppose Frege succeeded in deriving the main principles of arithmetic from principles of 2nd order logic.
- The **truths of arithmetic** were *reducible* to the **truths of logic**.
- Would that mean that the **epistemology of arithmetic** were just a *special case* of the **epistemology of logic**?
- Would that mean we knew '2+2=4' by deriving its log. analogue?

Casullo: **No**, because most literate adults don't know anything about 2nd order logic, but they know that 2+2=4.

3.1 Williamson's *counterfactual*-based ME

Criticism

3) Does the evaluation of CC presuppose modal knowledge?
(**Circularity** worry) (Casullo 2012, 201, 265ff)

(G) Gold is the element with the atomic number 79.

→ How do we know that (G) is necessary?

→ Williamson: the CD of $\neg(G)$ yields a contradiction

→ But we also need to add further **background information** to the CD to get the contradiction. → What **background information**?

→ W: The **constitutive facts** about gold are to be held fixed in CD.

→ “constitutive facts” = **essential features** of gold

→ We have to presuppose modal knowledge (ess. features) in CD.

3.1 Williamson's *counterfactual*-based ME

Upshot of Williamson's account

Williamson: We can & do have modal knowledge (because modal knowledge = knowledge of CC).

Primary source of justification: **imaginative CD of CC**

- (1) Modality is metaphysically reducible to CC.
- (2) So, ME is just a special case of the epistemology of CC.
- (3) Knowledge of CC is achieved by an imaginative CD of CC.

Difficulties: The role of imagination and conceivability
Does metaph. reductivism entail epistem. reductivism?
Circularity in the CD of CC?

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4 ME as epistemology of essence

4.1 Anand Vaidya

4.2 E. J. Lowe

5 Non-rationalist accounts

5.1 S. Roca-Royes

4 ME as the epistemology of essence

... do not conceive ME to be (primarily) an epistemology of possibility and necessity but of essence.

- Anand Vaidya (2010)
- E. J. Lowe (2008)

modalist accounts: ground essences in possibility & necessity

essentialist accounts: ground possibility & necessity in essences

BEWARE: 2 notions of “essentialism” on the market:

a) **Kripke-Putnam** style essentialism

essential properties of O = prop. O has in **every poss. world**

b) **Kit Fine** style essentialism (*Neo-Aristotelian* essentialism)

essential properties of O = properties belonging to the **essence**
(i.e. the ***Whatness***) of O

4 ME as the epistemology of essence

Why Fine thinks that not all nec. properties are essential:

(cf. Fine 1994 and Vaidya 2010)

- (1) Socrates has the property of being a member of the singleton set $\{Socrates\}$.
- (2) Socrates has this property in every possible world in which Socrates exists.
- (3) So, Socrates has the property of being a member of the singleton set $\{Socrates\}$ **necessarily**.
- (4) But the property *being a member of the singleton set containing Socrates* **does not capture the *whatness*** of Socrates and does therefore **not belong to the essence** of Socrates.
- (5) So, it might be necessary for an object O to have a specific property P, without P being an essential property of O.

4.1 Vaidya's epistemology of essence

Introduction

- Theses:
- A) “*Basic*” ME is done by “***variation-in-imagination***”.
 - B) The *target* of ME is not knowledge but **objectual understanding**.

Variation-in-imagination (VIM) (~ Husserlian “*eidetic variation*”)

→ By **varying properties** of a certain object in imagination we can judge which properties are **accidental** (the variant ones) and which are **essential** (the invariant ones).

4.1 Vaidya's epistemology of essence

Circularity problem of (VIM)

- **Knowledge is not compatible with epistemic luck.** (Gettier-cases)
- A method like (VIM) is only **knowledge-conducive** if its output is not true by luck but **true by the design** of the method/process.
- To be able to design (VIM) in a way that its output is not an accidentally true judgment but *knowledge*, **we need to know which properties of O we can vary and which not.**
- I.e. we need to know which of O's properties are **accidental** and which are **essential**.
- **This is circular!**

Vaidya **gives up** the presupposition that (VIM) is **knowledge-conducive**.

- Not knowledge but “**objectual understanding**” is the target of ME.

4.1 Vaidya's epistemology of essence

Objectual understanding (OU) (Kvanvig 2003, 2009)

Contrary to knowledge, OU is **compatible with epistemic luck**.

Variation of Goldman's fake barn example

- Silvia has excellent historical understanding of the Am. Civil War.
- Silvia learned this from her copy of a book.
- Strangely all **other books** about the civil war **contain wrong info**, **only Silvia's book** by chance contains the **right** ones.
- Silvia's body of info is **not knowledge**, because it's **not safe**.

Kvanvig: But Silvia possesses ***understanding*** of the Am. Civil War.

Vaidya: The target of (VIM) = OU (not kn.) → no circle!

4.1 Vaidya's epistemology of essence

Basic and non-basic ME

→ But that does not mean that we cannot acquire modal *knowledge!*

basic ME = EoE,
via: (VIM),
→ OU of essence

non-basic ME = epistemology of possibility and necessity,
via: mental operations such as conceivability,
imaginability, counterfactual reasoning, ...
→ knowledge or just. bel. about modal propositions

→ Basic ME *grounds* non-basic ME.

Because an individual has OU of O's essence, she can come through conceivability to be justified in believing that it's poss. for O to be P.

4.1 Vaidya's epistemology of essence

Upshot of Vaidya's account

Vaidya: We can & do have modal knowledge. (Vaidya explicitly tackles the “Benacerraf-style problem for modality”)

Basic target of ME: **objectual understanding (OU) of essence**

- (1) OU of essence is acquired by basic ME (VIM)
 - (2) basic ME grounds non-basic ME
 - (3) modal knowledge is acquired by non-basic ME
- Because we have OU of essence (through basic ME) we can acquire modal knowledge (through non-basic ME)

Difficulties: notion of “objectual understanding”?
compatibility with epistemic luck?

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2.2 Ch. Peacocke ✓

3 Counterfactual-based accounts ✓

3.1 T. Williamson ✓

4 ME as epistemology of essence

4.1 Anand Vaidya ✓

4.2 E. J. Lowe

5 Non-rationalist accounts

5.1 S. Roca-Royes

4.2 Lowe's epistemology of essence

Introduction

- Theses: A) Since modality is grounded in essences, we can have **modal knowledge** in virtue of **knowledge of essences**.
- B) To know an essence of an entity simply is to **understand *what the entity is*** – to know the entity's "real definition".

Lowe's "serious essentialism" ~ Fine's essentialism

- (L1) Essences are **not entities**.
- (L2) But all entities **have essences**.
- (L3) The essence of X is ***what X is, or what it is to be X***.
- (L4) X's essence is the very ***identity of X*** (not in the sense of the identity-relation).
- (L5) There are **general** and **individual** essences.

4.2 Lowe's epistemology of essence

Lowe's epistemological argument for essences

- (E1) We could not talk or think comprehendingly about Tom the cat if we didn't know anything about what kind of thing Tom is and about what distinguishes Tom in particular from other individual things of Tom's kind (i.e. if we didn't know anything about Tom's general and individual essence).
- (E2) We can talk and think comprehendingly about Tom.
- (E3) So, we must know at least something about Tom's general and individual essence.

4.2 Lowe's epistemology of essence

Lowe's ontological argument for essences

- (O1) If Tom didn't have an 'identity' (i.e. essence), there were nothing to make Tom the particular thing that he is, as opposed to any other thing.
- (O2) But Tom clearly is *what he is and not another thing*.
- (O3) So, there must be an 'identity' (i.e. an essence) of Tom.

→ This commits Lowe to **realism about essences**.

4.2 Lowe's epistemology of essence

Serious essentialism – 3 principles

- (P1) Essences are not entities.
- (P2) Essence precedes existence (ontologically and epistemically).
- (P3) Essences are the ground of all metaphysical necessity and possibility.

At odds with the Kripke-Putnam account:

- (P1): essence of water \neq H₂O, since it cannot be an entity
- (P2): against causal theories of reference (that hold that it is not necessary to know what an entity is to refer to it)
- (P3): relation of grounding in K-P account is the other way round

4.2 Lowe's epistemology of essence

Critique against the Kripkean picture of modal knowledge

(HP) \Box (Hesperus = Phosphorus)

Kripke: We know (HP) by **combining**:

the **a priori knowledge**: (1) $\forall x \forall y (x = y) \rightarrow \Box (x = y)$

w/ the **empirical knowledge**: (2) Hesperus = Phosphorus

Lowe: To know (2) we need to know

(3) Material objects of the same kind **do not** exist at the same place at the same time.

But (3) is an inference from the following modal proposition:

(4) Material objects of the same kind **cannot** exist at the same place at the same time.

4.2 Lowe's epistemology of essence

Lowe's ME as an understanding-based EoE

To **know an essence** is **not** being acquainted with an entity. (cf. P1)
but to **understand** *what exactly that thing is*.

- **Knowledge of essence** is simply a **product of understanding**.
- no “spooky faculty”
- Essences are captured by “**real definitions**” of entities.

Criticism

- Some entities might **defy** “real (i.e. essential) definability”.

4.2 Lowe's epistemology of essence

Upshot of Lowe's account

Lowe: We can & do have modal knowledge in virtue of **knowledge of essences**.

Primary source of justification: **understanding of *what an entity is***

- (1) Essences are not entities.
 - (2) So, to know an essence \neq to be acquainted with an entity.
 - (3) The essence of X is ***what X is***.
 - (4) So, to know the essence of X = simply to understand what X is
- Essences are captured by understanding “real definitions”.

Difficulty: Some entities might defy “real definability”.

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4.2 E. J. Lowe ✓

5 Non-rationalist accounts

5.1 S. Roca-Royes

5 Non-rationalist accounts

... explain modal knowledge by mechanisms other than the a priori ones discussed so far. (Note: Williamson sees his CD as neither a priori nor a posteriori)

- Crawford Elder (2004)
- Rebecca Hanrahan (2009)
- O. Bueno and S. Shalkowski (2004, 2014)
- Sonia Roca-Royes (2007, 2010, 2011, forthcoming)

5.1 Roca-Royes' *similarity*-based ME

Introduction

Theses: We know about some entities' unrealized possibilities by extrapolation from knowledge about some other similar entities' realized possibilities. (Roca-Royes forthcoming)

Qualification: thesis about *de re* possibilities of *concrete* entities

„I know that the wooden table in my office, Messy, is not broken. How do I know that? I see it. Although not broken, Messy can break. How do I know that? Because the table I had before Messy, which we may call 'Twin-Messy', was a twin-sister of Messy, and it broke; and I know that Twin-Messy broke because I saw it.” (Roca-Royes forthcoming)

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A reconstruction of Roca Royes' Argument

- (S1) In the past *S* has seen, that *Twin-Messy* is actually broken.
- (S2) So, *S* is justified in believing that *Twin-Messy* is actually broken.
- (S3) If *Twin-Messy* is actually broken, it is possible for *Twin-Messy* to break.
- (S4) *Messy* and *Twin-Messy* are **relevantly similar**.
- (S5) If *S* knows that *Messy* and *Twin-Messy* are relevantly similar and that *Twin-Messy* is actually broken, *S* can come to know that it is possible for *Messy* to break.
- (S6) Therefore, *S* knows that it is possible for *Messy* to break.

(Cf. Vaidya 2015)

5.1 Roca-Royes' *similarity*-based ME

Relevant Similarity

- a and b are **relevantly similar** when a and b are **counterparts**.
- The counterpart-relation involved in relevant similarity is **epistemic**, not metaphysical!
It is not because *Twin-Messy* broke that *Messy* can break.
It is because **I know** that *Twin-Messy* broke (and that TM and M are similar) that **I can come to know** that *Messy* can break

5.1 Roca-Royes' *similarity*-based ME

Criticism

- 1) What specific details of *relevant similarity* does one need to know to be in a position to make the relevant inference?
→ What is **relevant** similarity?
- 2) How does the theory account for knowledge of possibility across distinct types of entities?
→ What if Messy is the first table that I've seen, but I've seen a chair brake once?
- 3) How does knowledge of similarity allow us to gain knowledge of necessity?

5.1 Roca-Royes' *similarity*-based ME

Upshot of Vaidya's account

Roca-Royes: We can & do have modal knowledge (through extrapolation from past **empirical** knowledge about **similar** concrete objects)

Epistemic work is done by: **empirical knowledge and knowledge of relevant similarity**

- (1) I know that a is/was actually F.
- (2) I know that it is possible for a to be F.
- (3) I know that a and b are relevantly similar.
- (4) I know that it is possible for b to be F.

Difficulties: **relevant** similarity?
modal knowledge across distinct types?
knowledge of necessity?

Overview

Different accounts in ME

1 Conceivability-based accounts ✓

1.1 Stephen Yablo ✓

1.2 David Chalmers ✓

2 Understanding-based accounts ✓

2.1 George Bealer ✓

2.2 Ch. Peacocke ✓

3 Counterfactual-based accounts ✓

3.1 T. Williamson ✓

4 ME as epistemology of essence ✓

4.1 Anand Vaidya ✓

4.2 E. J. Lowe ✓

5 Non-rationalist accounts ✓

5.1 S. Roca-Royes ✓

Conclusion

Account	Qu. focussed on	Basic source of evidence	Thesis
S. Yablo	epistemological/ evidential qu.	conceivability	Conc. is a <i>guide</i> to possibility
D. Chalmers	metaphysical qu.	conceivability	Conc. entails possibility
G. Bealer	epistemological/ evidential qu.	modal intuitions	DCP grants tie betw. int. & truth
C. Peacocke	ont., skeptical & metaph. qu.	tacit knowledge/ implicit underst.	We have tacit underst. of PoP
T. Williamson	ont., skeptical, ep. & metaph. qu.	imaginative counterfact. dev.	ME = epistem. of counterfactuals
A. Vaidya	ont., skeptical, ep. & metaph. qu.	variation-in- imagination	Objectual underst. of essences (VIM)
E. J. Lowe	ont., ep. & metaph. qu.	understanding of essences	Grasping essence by „real definition“

Conclusion

Trends in ME:

The trend towards **epistemologies of essences** in ME correlates with a trend towards ***New Actualism*** in the metaphysics of modality.

New Actualism (NA): is a position inspired by Kit Fine's essentialism.
→ essences ground possibility and necessity
tries to conceive **modality without possible-world semantic**. (See Vetter 2011 for an overview.)

The accounts presented have been mostly **rationalistic**.
Sonia Roca-Royes works on an **empiricist account in ME**.

Conclusion

Questions that should be addressed:

Circularity:

- Relation between reductivism/non-reductivism and circularity?
- Is there a kind of circularity in ME that is not vicious?
- Can epistemologies of essences ground modalist ME (and solve their circularity worries)?

Pluralism:

- Might there be a pluralist account in ME?
- Might we need various methods to yield modal knowledge?
- Might different accounts be applicable in different cases?

Conclusion

Questions that should be addressed:

Realism:

- What does realism about metaphysical modality amount to?
- How realist do we have to be, to be able to conceive metaphysical modality as something mind-independent? (Benacerraf-style problem)

Naturalism:

- What makes a faculty “spooky”?

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