

Accounting for the Structure of Modal Knowledge

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CLPS Seminar, 2018/10/19

Metaepistemology

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Metaepistemology

Epistemology as ameliorative and revisionary

The goal of studies should be the direction of the natural intelligence towards the formation of solid and true judgements about all things that occur to it.
(Descartes, Rules..., Rule One)

The normative component of epistemology is (mostly)

- **ameliorative**,
in that it is intended to improve our epistemic condition,
- **preemptive**,
in that it should prepare us for epistemic challenges.

An epistemological project that puts emphases on these points can be **revisionary** and **constructive** (cf. McKenna & Fassio (2015)).



How to achieve our epistemological aims?

An epistemology is individuated by a (meta-)strategy to do so. Three elements:

- 1) A selection of **targets**
- 2) A **background theory** about those targets ('metaphysics')
- 3) A set of **principles** (or a procedure to determine them) that can cohere with the background theory, and which, under certain **constraints**, yield prescriptions and criteria for evaluating and modifying the status of our judgements and other attitudes about those targets.

We cannot establish the metaphysics independently of having an epistemology, we will have to bootstrap the whole thing from non-ideal standpoints (Neurath's raft).

Closed vs open-ended epistemologies

When the target is determinate and fixed (does not change or we don't expect it to change), we would like our epistemologies to be **closed**, or **complete**.

When it isn't, we would like our epistemologies to be *reasonably* **open-ended** (a closed epistemology for an open-ended target is defective).

‘Modal epistemology’ is ‘the epistemology of modality’, where modal matters are the target.

But what is modality, to begin with?

Different types of modal epistemologies correspond to different constraints on strategies:

- Rationalism vs. Empiricism
- Possibility-based vs. Necessity-based
- Exceptionalism vs. Anti-Exceptionalism

Question (revisionary): **Are these the right ways to define the relevant strategies?**

Worries about structure

The targets of our epistemologies can be complex/structured.

We can ask:

- What is that structure?
- How to represent it?
- How do the different parts hang together? Why?
- What makes the different parts distinct?
- and so on...

‘Metaphysical’ distinctions will generate epistemological ones.

Let's consider Williamson's (2007) modal epistemology.

- His target:
metaphysical modal knowledge (Strohming (forthcoming))
generalizes this to knowledge of objective modality)
- His constraints: realism, anti-exceptionalism, ordinariness.
- His principles: equivalence of modal operators
and counterfactual constructions, use of the imagination, etc.



- 1) Specify an admissible *basis* of broadly modal knowledge, as a type of modal judgement that we are knowledgeable of, and an account of how we are so knowledgeable,
- 2) Set up *bridge principle*-schemata between different types of modal claims, including those in the basis,
- 3) Show that these bridge principles can be applied to support some *target* types of modal knowledge.

An alternative implementation: Vetter

Barbara Vetter

(2016) offers a different way to fulfill Williamson's constraints.

- The *basis*:
ordinary judgements about potentialities, 'can' statements.
- *Bridge principles*:
generated by abstraction, removing parameters of sensitivity.
- How to get to the target: knowledge of metaphysical modality is the limit case of abstraction.



Another implementation: judgement about the future

(This is my idea, but I'm not wedded to it as a general epistemology of modality)

- The *basis*: ordinary judgements about the future.
- *Bridge principles*:
 - a) Particular judgements about the future can fail even if they are justified. When generalized, they can be true at different times. The future is epistemically *open* as a set of alternatives.
 - b) Imagining the future after a pre-condition, abstraction (as in Vetter's)
- How to get to the target: Assuming uniformity, possibility is truth at some alternative from some point in the branching structure of time, and necessity is truth in every alternative from any point in the branching structure of time.

The Williamsonian strategy relies on various strong assumptions about the structure of modality:

- 1) The structure is unitary.
- 2) The structure can be surveyable from the basis.
- 3) The type of links between parts of the structure is homogeneous.
- 4) and so on...

A worry about modality in a broad sense

Nolan (2014) argues that a range of metaphysical notions should be analysed in hyperintensional terms: essence, causality, ground, intrinsicality, dispositions, etc.

The notions Nolan promotes are still 'modal' in an extended, broad sense; at least, they have modal profiles (some people argue that whatever is essential is necessary, for example).

What to make of them from the perspective of modal epistemology?

How do they *fit*?



Synchronic structure

The Williamsonian strategy as an indispensability argument

An implementation of Williamson's strategy specifies a certain type of dependency relation between different types of knowledge. This is **synchronic** structure.

A suggestion: these dependencies encode *indispensability* claims:

Indispensability α is indispensable for β iff it is not possible* to realize β without realizing α .

The function of modal thought

In particular, we want to consider *conceptual* and *practical* indispensability.

Modal thought serves certain functions: it is involved in planning, decision-making, theorizing, and so on. Concepts involved in those tasks have modal profiles: ability, alternative, robustness, choice, etc.

Some of these are what Enoch & Schechter (2008) call **rationally required projects**: we would be criticizable as rational agents if we did not engage in them.

Following Enoch & Schechter, we can think of the question of whether modal thought is at all dispensable for rationality (the question follows Kant's treatment of modal categories), in terms of whether it is indispensable for rationally required projects.

- On the one hand, the involvement of modal thought in those projects appears as systematic and non-accidental.
- On the other, the notion of a project itself has a modal profile.

If we can make distinctions between different targets, we can carve up the set of targets in different ways.

What is the relation between the carvings of the targets and the projects in which they are involved?

For a carving P of an structure M (modal thought) with roles R :

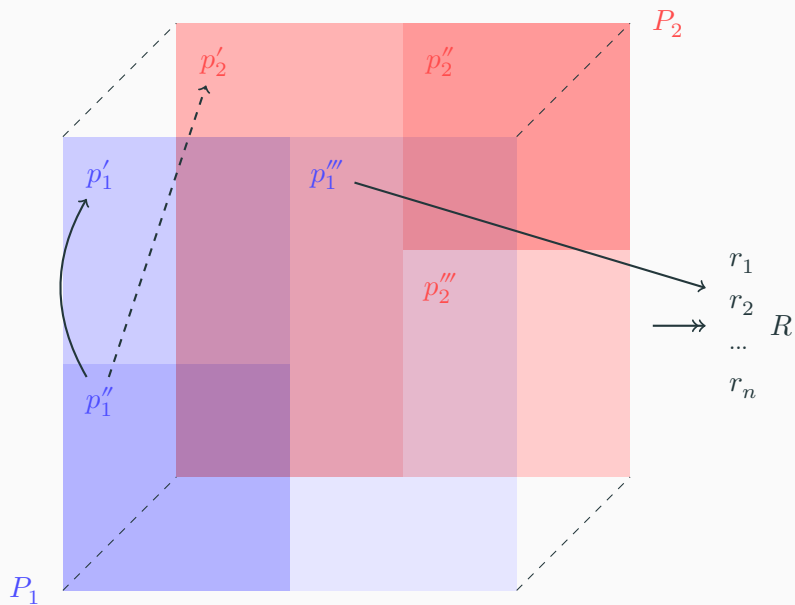
E-indispensability m is e-indispensable iff $m \in P$ and m is indispensable for the realization of some project j .

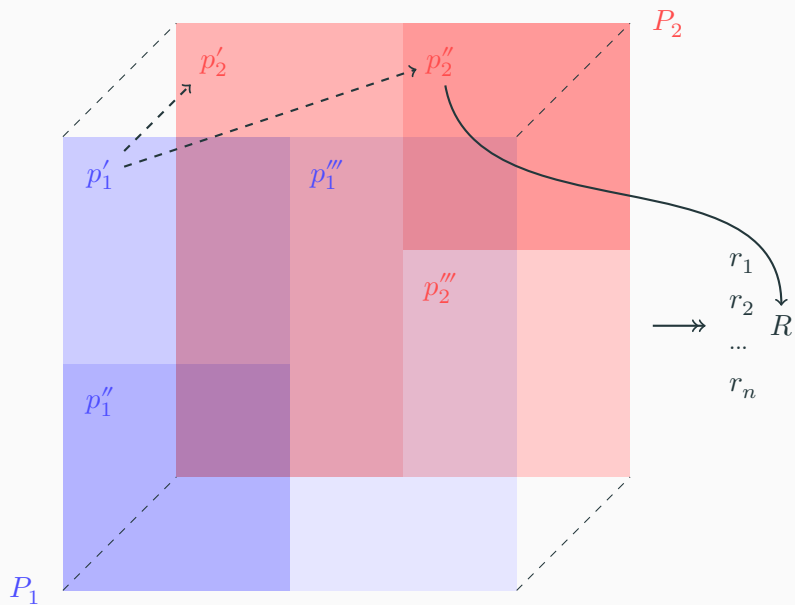
I-indispensability m is i-indispensable (for M) iff $m \in P$ and m is indispensable for the realization of some of the roles of an m' such that $m \in P$ and $m' \neq m$.

For a pair of carving P_1 and P_2 which share the same roles (or similar):

Cross-indispensability m is cross($P_1 - P_2$)-indispensable iff $m \in P$ and the extension of m is indispensable for the realization of some of the roles of an m' such that $m \in P_2$

Cross-indispensability is particularly important for revisionary projects (it suggests we should **refine** or **unify** carvings).





An example: counterfactual and essentialist thought

Williamson assumes that counterfactual evaluation requires evaluation of constitutive/essential facts.

Roca-Royes (2011) wants to resist this (I think she's right).

This dispute is about the synchronic structure of modal thought.

Another example: logical and non-logical necessity

Hale (2013/2015) also presents the issue of modality in terms of indispensability.

His argument is stronger for the case of logical necessity.

He also wants to extend it to the metaphysical case; indeed, he conceives of logical necessity as a species of metaphysical necessity.

This is also a problem about the synchronic structure.

Diachronic structure

The Williamsonian strategy as a naturalistic hypothesis

It is plausible that modal knowledge also has **diachronic** structure.

Williamsonian accounts can be developed as *developmental* hypotheses, at least at two scales:

- 1) As hypotheses on conceptual/language acquisition
- 2) As hypotheses about the origin of modal concepts/language

Does ontogeny recapitulate phylogeny here?

The problem of the origin of modality

How did modal thought come to have the shape it currently has?

This point is important in the context of naturalized epistemology.

(The revisionary offshoot: How can it develop in the future?)

Modal sensitivity: Martinez and bet-hedging

Recently, Manolo Martinez has developed a model for **modal-sensitivity** in minimal agents.

The idea is that some form of modal sensitivity is exhibited by the adoption of **bet-hedging** strategies. Indeed, the constitution of mechanisms to hedge bets is suggested as the way in which modal sensitivity evolved.

A model bet-hedging strategy:

	<i>risk + wins</i>	<i>risk + no win</i>
<i>bets hedged</i>	$e - h$	$-(b - h)$
<i>bets not hedged</i>	e	$-b$

(Following this strategy seems to adhere to a maximin principle, and is coherent with the pessimism-optimism rule)

A favored trait for bet hedgers would consist in making the hedges sensitive to the context:

- a) When the risk rises, hedge more (so in the no win scenario less is lost),
- b) When the risk decreases, hedge less (so the reward is greater)

Martinez dynamic model exhibits these features (importantly, no rational mechanisms are required).

Animal modal knowledge?

Bet-hedging is exhibited by a vast array of organisms, so if Martinez is right, there should be a wide array of organism which had the capacity to be sensitive to modal facts.

How do we pass from modal sensitivity to modal knowledge? Is animal modal knowledge possible?

Dohrn (2018): we can't, knowledge is more demanding (in particular, it is *anatomic*); the idea of animal modal knowledge is absurd.

My response:

- a) It is unclear that knowledge is anatomic in the way Dohrn supposes,
- b) Knowledge is not the only epistemically significant notion
(Hetherington: know-how is more fundamental than knowledge-that).

One upshot of the previous pertains to the notion of **actuality**.

Agents in Martinez cases are not just sensitive to modal features of their environments, they also track a notion of actuality that's thicker than simple *truth*.

This notion of actuality is that of a realized objective *alternative*: actuality is the way the world could be that the world *is* like.

(This is the notion of actuality as a *point* in modal space).

Whatever is actual is possible

This can explain the validity of the inference from actuality to possibility:

$$\phi \rightarrow \Diamond \phi$$

In my sketch of an account, the inference is a conceptual truth, but its recognition has a natural explanation.

Again, by abstraction we can obtain a notion of actuality that is indexed to non-realized possible worlds (a 2-dimensional notion of actuality).

Whatever we can say of the actual world as such, we can say of an arbitrary point: in this sense, we can *shift* the actual world.

The time/modality parallel again

This account of the origin of the thick concept of actuality is importantly similar to the future-based version of the Williamsonian strategy: there, instead of a notion of actuality, we have one of a *present* time.

Does the modal conceptual apparatus arise from the interaction between these two (arguably non-modal) conceptual bases?

Dual conceptual source hypothesis For the concept of *actuality* to be implemented, one has to have a notion of an *alternative*. The future-based account can provide this notion through an account of how the future is open and can contain (in predictions, at least) facts that go unrealized (fail to be true).

(A third source: the evaluation of conditionals under a supposition, to extract information from world-shifts).

Recognition of unrealized predicted futures can come from failed **expectations** (this is the *objective* story) or from failed **tries** (this is the *agentive* story).

I prefer the agentive story:

- 1) From the developmental side, there is some evidence that children tend to learn how to use *negative* agentive and deontic modal expressions first, such as “can’t” (Stephany 1979/1986; Papafragou 1998).
- 2) It offers a more unified picture of the temporal, modal and deontic parts of our language/thought (cf. Sellars)

Suggestion: the notion of a **try** becomes central to the development of modal thought and knowledge.

Trying is, in an important sense, conceptually neutral to the agent to have a competence to succeed. It can be **rational** to attempt something one cannot do as a way to probe the possibility.

The origin of modal notions should correlate with the engagement in projects to organize action reliably. These projects shade off into the behavioural tendencies of our ancestors.

Williamson (2007):

Our overall capacity for somewhat reliable thought about counterfactual possibilities is hardly surprising, for we cannot know in advance exactly which possibilities are or will be actual. We need to make contingency plans. In practice, the only way for us to be cognitively equipped to deal with the actual is by being cognitively equipped to deal with a wide variety of contingencies, most of them counterfactual.

Modal sensitivity and knowledge are core for our practical engagement with the world.

Pluralism?

A new worry: unificationism vs. pluralism

If the source of modal thought lies in minimal agential sensitivity, how did it diversify in content and methods? (The agential story tries to explain how come we have modal thought *at all*, not necessarily how modality is evaluated)

How diverse is modal thought really?

The revisionary twist: How diverse *should* it be?

The diversity in modal thought makes a form of **pluralism** appealing.

The Kripkean observation that necessities can be known *a posteriori* suggests the possibility of epistemological pluralism.

Williamsonians, who treat metaphysical modality as the most general type of modality, often endorse a variety of methods of modal belief formation (each of which tracks objective modality), like counterfactual reasoning, suppositional thought, imagination, and so on.

Each of those, by gaining access to some parcel of objective modal truths, gives access to metaphysical possibility.

Roca-Royes (2016) suggests that modal knowledge is pluralist in a more substantive sense.

In her view, knowledge of *de re* concrete possibility is obtained by entirely different means than modal knowledge about abstract objects.

She also argues (2011, 2012) that counterfactual thinking and essentialist thinking can come apart.

Antonella Mallozzi (ms.) also suggests a form of pluralism on the basis of metaphysical distinctions.

The instability of pluralism

Against the appeal of pluralism lies the intuition that modality presents at least *some* uniformity. Our clustering of modal notions is not meaningless.

If epistemological modal pluralism is true, we cannot refer to epistemological distinctions in order to justify this clustering, however.

Other ways to cluster modal notions (syntactical, inferential, functional, metaphysical) are either inadequate or suspect.

We face a dilemma.

Or do we? Is it possible to make room for both intuitions?

Is modality is a Wittgensteinian **city planning disaster**?

Modal language and thought is the sedimented result of some of our attempts at expressing and engaging with the features of our world.

As long as we are engaged in this project (which is inescapable), the possibility remains that we will have to extend this structure.

This is why we should expect it to be open, and why the unificationist intuition should not be pursued by means that cannot at the same time recover the pluralist intuition.

Modal language and thought are **adaptive** (cf. Ganesalingam (2013)).

Thanks!