

SALZBURG CONFERENCE FOR YOUNG ANALYTIC PHILOSOPHY 2011

## Armchair Philosophy Naturalized

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2011-09-09

# Introduction

Two kinds of naturalism:

- Ontological naturalism
- Methodological naturalism

One motivation for methodological naturalism:

- Science produces better results than philosophy
- ↪ Philosophy should be scientific

Previous arguments for methodological naturalism assume that scientific claims are synthetic:

- Show that traditional philosophy is synthetic
- Make philosophy synthetic (experimental philosophy)

This approach:

1. Suggest artificial language methodology (ALM) for philosophy  
⇒ philosophy is analytic
2. Show that science often relies on ALM

## Assumptions

- Synthetic=factual=empirical,  
analytic=conventional=language choice
- Language choice includes logic (Principle of Tolerance)
- Simple case: fixed logic, fixed basic terms  $\mathcal{B}$
- ↪ choice of meaning postulates for auxiliary terms  $\mathcal{A}$   
(explication)
- Meaning postulates accommodate (synthetic) basic sentences

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$$\forall x \left( \bigvee_{1 \leq i \leq m} D_i x \leftrightarrow Dx \right) \wedge \forall x \left( \bigwedge_{1 \leq j \leq n} A_j x \leftrightarrow Ax \right) \wedge \forall x (Dx \rightarrow Ax)$$

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$$\bigwedge_{1 \leq i \leq m} \forall x (D_i x \rightarrow P x) \wedge \bigwedge_{1 \leq j \leq n} \forall x (P x \rightarrow A_j x)$$

## A formalism

### Semantics:

- Possible interpretations of  $\mathcal{B}$ -terms given by the set  $\mathbf{M}_{\mathcal{B}}$  of intended  $\mathcal{B}$ -structures of the language
- Empirical claims given by further restriction on  $\mathbf{M}_{\mathcal{B}}$
- Intended structures  $\mathbf{M}_{\mathcal{B} \cup \mathcal{A}}$  for  $\mathcal{B}$  and  $\mathcal{A}$ -terms given by expansions of elements of  $\mathbf{M}_{\mathcal{B}}$  to models of the meaning postulates
- Meaning postulates for  $\mathcal{A}$ -terms must not restrict  $\mathbf{M}_{\mathcal{B}}$

Solution for general postulates  $\Theta(\bar{B}, \bar{A}) = \Theta(B_1, \dots, B_k, A_1, \dots, A_l)$ :

Synthetic component:  $R(\Theta) \models \exists \bar{X} \Theta(\bar{B}, \bar{X})$  (Ramsey sentence)

Analytic component:  $C(\Theta) \models R(\Theta) \rightarrow \Theta$  (Carnap sentence)

- $R(\Theta)$  entails the same  $\mathcal{B}$ -sentences as  $\Theta$
- $\Theta \models R(\Theta) \wedge C(\Theta)$
- $\models R(C(\Theta))$

## Empirical research

Stotz (2009, §4):<sup>1</sup> “[A] particular scientific concept reflects the scientific knowledge at a point in time”. “[T]he molecular gene concept is not a good tool for some kinds of research. The [...] Mendelian gene remains the best tool in [some] fields[.]”


Chang (2004, 213):<sup>2</sup> “[T]here are no pre-existing values of abstract concepts that we can try to approach; [...] the ‘real’ values only come into being as a result of a successful operationalization.”

Justus (forthcoming):<sup>3</sup> “Analyses of complex concepts in empirical sciences” show that Carnap’s theory of explication describes “how concepts should be characterized”

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<sup>1</sup>Experimental philosophy of biology. *Stud Hist Phil Sci*, 40:233–237

<sup>2</sup>*Inventing Temperature*. Oxford University Press

<sup>3</sup>Carnap on concept determination. *Eur J Phil Sci* 


## Conceptual arguments I

Carnap, Rozeboom, Przełęcki: Semantic empiricism

van Fraassen\*: Constructive empiricism does not allow  
determining extensions for unobservable objects

Sober\* (1990, 404):<sup>4</sup> “Contrastive empiricism [...] states that  
science is not in the business of discriminating  
between empirically equivalent hypotheses.”

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<sup>4</sup>“Contrastive empiricism” in: *Minn Stud Phil Sci XIV*. U. Minn. Press. 

## Conceptual arguments II


Andreas\* (2010, 533):<sup>5</sup> Let  $\mathfrak{M}_{\mathcal{B}}$  be a single intended structure of  $\mathcal{B}$ . Define two sets of  $\mathcal{B} \cup \mathcal{A}$ -structures:

$$\mathbf{M}_1 = \{\mathfrak{A} : P^{\mathfrak{A}} = P^{\mathfrak{M}_{\mathcal{B}}} \text{ for all } P \in \mathcal{B}, \text{dom}(\mathfrak{M}_{\mathcal{B}}) \subseteq \text{dom}(\mathfrak{A}), \mathfrak{A} \models \Theta\}$$

$$\mathbf{M}_2 = \{\mathfrak{A} : P^{\mathfrak{A}} = P^{\mathfrak{M}_{\mathcal{B}}} \text{ for all } P \in \mathcal{B}, \text{dom}(\mathfrak{M}_{\mathcal{B}}) \subseteq \text{dom}(\mathfrak{A})\}$$

The *admissible structures*  $\mathbf{M}$  for  $\mathcal{B} \cup \mathcal{A}$  are  $\mathbf{M}_1$  if  $\mathbf{M}_1 \neq \emptyset$ , and  $\mathbf{M}_2$  otherwise.

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<sup>5</sup>“Semantic holism in scientific language” *Phil Sci* 77(4):524 

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### Claim

*The admissible structures are the structures determined by  $C(\Theta)$  and a specific set of intended  $\mathcal{B}$ -structures for the language:*

$$\mathbf{M}_{\mathcal{B}} = \{\mathfrak{A} : P^{\mathfrak{A}} = P^{\mathfrak{M}_{\mathcal{B}}} \text{ for all } P \in \mathcal{B}, \text{dom}(\mathfrak{M}_{\mathcal{B}}) \subseteq \text{dom}(\mathfrak{A})\}$$

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## “The Ramsey sentence is too weak”

Demopoulos’s observation (roughly):  $C(\Theta) \models R(\Theta) \rightarrow \Theta$

Demopoulos (2003, 388):<sup>6</sup> ALM “cannot account for our naive confidence in the belief that our theories, if true, contain significant theoretical truths about the world.”


- Just an intuition, developed for  $\Theta$ , not  $C(\Theta)$
- $C(\Theta)$  developed *to accommodate*  $R(\Theta)$ .

Demopoulos (2008, 381):<sup>7</sup> This “is hardly what we take the truth of theoretical claims to consist in, since we characteristically—and rightly—distinguish them from those of pure mathematics. ”

- Mathematical sentences  $\Sigma$  are true independently of  $\mathcal{B}$ -sentences, unlike  $\mathcal{A}$ -sentences:  $C(\Theta \wedge \Sigma) \models R(\Theta) \rightarrow \Theta \wedge \Sigma$
- Mathematical terms are not partially interpreted by  $\mathcal{B}$ -terms

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<sup>6</sup>“On the rational reconstruction of our theoretical knowledge” BJPS

<sup>7</sup>“Some rem. on the bearing of model th. on the th. of theories” *Synt* 

## “The Carnap sentence is too weak”

Papineau (2009, 9):<sup>8</sup> “The Ramsey sentence expresses the substantial commitments of the theory—there is an entity which. . .—while the Carnap sentence expresses the definitional commitment to dubbing that entity ‘F’.”

His example (“damage causes pain, pain causes avoidance”):

$$\Theta \models \forall x(Dx \rightarrow Px) \wedge \forall x(Px \rightarrow Ax), \mathcal{A} = \{P\}$$

But:


$$R(\Theta) \models \exists X [\forall x(Dx \rightarrow Xx) \wedge \forall x(Xx \rightarrow Ax)] \models \forall x(Dx \rightarrow Ax)$$

$$C(\Theta) \models \forall x(Dx \rightarrow Ax) \rightarrow [\forall x(Dx \rightarrow Px) \wedge \forall x(Px \rightarrow Ax)]$$

- $X$  is bound in  $R(\Theta) \Rightarrow$  no backreference possible
- Existential claim in  $R(\Theta)$  purely logical

$\Rightarrow$  Other existential claims possible, no existential claim necessary

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<sup>8</sup>“The poverty of analysis.” *Arist. Soc. Sup. Vol.*, 83(1):1 

## Results

- Possibility for methodological naturalism in philosophy:  
ALM in philosophy and the sciences
- $\mathbf{M}_{\mathcal{B}}$  and  $\mathbf{C}(\Theta)$  provide a formalism for ALM
- Andreas's formalism implicitly introduces an analytic/synthetic distinction
- Demopoulos's criticism rests on a weak intuition and a weak analogy
- Papineau's criticism rests on a misreading of the Carnap- and Ramsey-sentences

# Implications

- Analytic claims *suggested* by synthetic claims  $\rightsquigarrow$  a priori/a posteriori distinction unhelpful
  - Criteria of empirical significance may exclude theoretical sentences
  - Empirical content does not always distinguish between theoretical science and metaphysics
- $\rightsquigarrow$  Ontological naturalism questionable