

Lewis's *Aufbau*

David Chalmers

Carnap' s *Aufbau*

- Rudolf Carnap (1928) *Der Logische Aufbau der Welt* (“The Logical Structure of the World”)
- Aims for a characterization of the world in terms of a minimal vocabulary, from which all truths about the world can be derived.

The Vocabulary

- Carnap has one non-logical primitive:
 - The relation of recollected phenomenal similarity (between elementary experiences).
- The world-description is given using an term for this relation, and first-order logical expressions.
 - $\exists x, y, z, \dots R(x,y) \ \& \ \sim R(x,z) \ \& \ \dots$

The Austere Vocabulary

- Carnap eventually removes the primitive relation, yielding pure logic
 - $\exists R, x, y, z, \dots: R(x,y) \ \& \ \sim R(x,z) \ \& \ \dots$
- This threatens vacuity (Newman's problem), so he appeals to naturalness:
 - $\exists R, x, y, z, \dots: \text{natural}(R) \ \& \ R(x,y) \ \& \ \sim R(x,z) \ \& \ \dots$
 - $\exists_{\text{natural}} R \ \exists x, y, z, \dots: R(x,y) \ \& \ \sim R(x,z) \ \& \ \dots$

The Derivation Relation

- All truths are held to be derivable from the world-description plus definitional sentences for non-basic vocabulary.
- Guiding idea: Non-basic expressions are definable in terms of more basic expressions.
- Progressively define/derive: qualia, spacetime, external objects, other minds, culture, values, ...

Problems for the *Aufbau*

- (1) Goodman's critique (construction of the visual field)
 - (2) Quine's critique (definition of spatiotemporal location)
 - (3) Doubts about phenomenal reduction
 - (4) Newmans problem for structuralism
 - (5) Doubts about analyticity and definitions
- (1)-(4) leave open alternative bases?

Lewis's Program

- David Lewis's life's work: A program for semantic/epistemological/metaphysical reduction
 - Humean supervenience via conceptual analysis
- Q: Might the Lewis's project be used to vindicate Carnap?
 - A minimal world-description that definitionally entails all truths?

Lewis's Reductions

- Lewis reduces
 - the social and normative to the mental
 - the mental to the causal
 - the causal to the counterfactual
 - the counterfactual to the modal and the nomic
 - the modal and the nomic to the spatiotemporal and the natural

Lewis's Analyses

- Lewis's reductions are usually grounded in definitional conceptual analyses
 - Often via Ramsey-sentence definitions
- Definitions are held to be necessary, a priori, analytic?

Lewis on Necessity and Apriority

- Lewis held something like:
 - When S doesn't have 2D structure, S is necessary iff S is a priori
 - When S has 2D structure, S is analytically equivalent to a description using 2D structure plus indexicals.
- So: supervenience on base B yields a priori entailment by B plus indexicals.

Lewis's Supervenience Base

- Lewis's Humean supervenience base
 - Natural properties distributed in a spatiotemporal mosaic
- Yields necessitation of all truths by spatiotemporal/naturalness truths plus a totality truth.

Lewis's A Priori Entailment Base

- Lewis's definitional entailment base:
 - Humean supervenience base plus indexical truths: 'I am ...', 'Now is ...'.
- Lewis's primitive ideology:
 - Logical expressions
 - Spatiotemporal expressions
 - 'Perfectly natural'
 - 'I', 'now'.

Lewis's Construction

- Objective world-sentence:
 - $\exists_{\text{natural}} \Phi_1, \Phi_2, \dots R(\Phi_1, \Phi_2, \dots)$
 - There exist natural properties Φ_1, Φ_2, \dots distributed in spacetime such that $R(\Phi_1, \Phi_2, \dots)$
- Subjective world-sentence: Objective world-sentence plus 'I am...', 'Now is...'
- All truths (relative to speaker) definitionally entailed by subjective-world sentence?

Complication: Modal Realism

- Lewis's reduction of modality:
 - $\Box p$
 - iff p is true in all possible world
 - iff p is true in all spatiotemporal islands.
- But: ' p is true in all spatiotemporal islands' surely (?) doesn't analytically entail ' $\Box p$ '.

Complication: Quiddities

- Lewis on Ramseyan humility:
 - ‘ $R(\text{mass, charge, ...})$ ’ necessitates all truths
 - ‘ $\exists_{\text{natural}} \Phi_1, \Phi_2 R(\Phi_1, \Phi_2, \dots)$ ’ does not [permutation, aliens].
- But: this is consistent with the claim that ‘ $\exists_{\text{natural}} \Phi_1, \Phi_2 R(\Phi_1, \Phi_2, \dots)$ ’ a priori entails all expressible truths.
 - ‘mass’, ‘charge’, etc have 2D structure
 - Forget inexpressible truths.

Narrowing the Base

- Lewis's Humean base:
 - $\exists_{\text{natural}} \Phi_1, \Phi_2, \dots R(\Phi_1, \Phi_2, \dots)$
 - R appeals to spacetime, logic, and indexicals
- Q: can we get rid of spacetime
 - $\exists_{\text{natural}} \Phi_1, \Phi_2, \Phi_3, \Phi_4, \dots R(\Phi_1, \Phi_2, \Phi_3, \Phi_4, \dots)$
 - R appeals to logic and indexicals?

Analysing Spacetime

- This needs a definition of spatiotemporal properties/relations in terms of naturalness plus logic
 - Collect structural platitudes about space and time.
 - E.g. time = that dimension in which things evolve in a predictable way?
 - Space = nontemporal dimensions in which things are distributed?

Lewis on Spacetime

- Q1: Does Lewis ever suggest this or any sort of analysis of spatiotemporal concepts?
- Q2: Is the analysis plausible?

Austere Base

- Austere Base:
 - $\exists_{\text{natural}} \Phi_1, \Phi_2, \Phi_3, \Phi_4, \dots R(\Phi_1, \Phi_2, \Phi_3, \Phi_4, \dots)$ & 'I am...' & 'Now is ...'
 - There exist such-and-such natural properties and relations distributed in such-and-such way with respect to each other (and I am ... and now is ...).
- Like Carnap's final base in the Aufbau: logic, naturalness [plus indexicals].
- A pure structure sentence?
- An austere base for constructing the world.

Challenges

- Does the austere Lewisian *Aufbau* work?
 - One might challenge the analysis of the spatiotemporal, the nomic, the mental, ...
 - One might also challenge the appeal to definitions
- This depends on substantive commitments
- It also leaves open less austere *Aufbaus*
 - Nomic, phenomenal, spatiotemporal in base?
 - A priori entailment rather than definition?

Conclusion

- Lewis's life's work offers the materials for a Carnapian construction of the world.