



The Ideal Language Tradition

Carnap's Adoption of the Programme

The Aufbau continued...



- The overall plan of the *Aufbau* is to constitute the world in three phases:
 - A. the lower levels: autopsychological objects (phenomenal qualities)
 - B. the middle levels: physical objects and their properties
 - C. the upper levels: psychological objects (other minds) and cultural objects
- A detailed constitution is only provided for the first steps of the lower levels; all other constitutions are merely sketched.

From qualities to senses



- At the lower levels, we have seen that Carnap started with the *erlebs* of one individual.
- The quasi-parts of these *erlebs* are then interpreted as qualities.
- After that, a similarity relation between qualities can be defined: two qualities Q and Q' are similar iff every *erleb* of Q is similar to every *erleb* of Q' and vice versa.

From qualities to senses

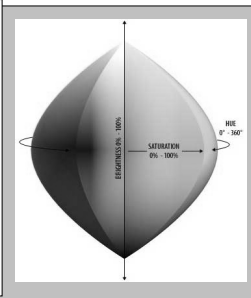


- This way we can obtain the different senses. Two qualities Q and Q' belong to the same sense class iff there is a chain of similarities (a chain of pairwise similar qualities) such that the first element of the chain is Q and the last Q' .
- Every colour can, by gradual changes, be transformed into every other colour, but a colour cannot by gradual changes be turned into a sound. Sounds, however, are quasi-parts of *erlebs* just as colours are.

From qualities to senses



- Now, within such a sense-class we can structure the qualities.
- For example, we can characterise the sense Sight as a five-dimensional space: every colour is defined by the three dimensions of the colour solid, viz. hue, saturation, and brightness, and the two (spatial) dimensions of the visual field.



From senses to the autopsychological world



- Accordingly, we can constitute all autopsychological objects, all perceptions of the constituting individual.
- The constitution of the autopsychological objects is the constitution of an individual, multi-dimensional state space in which for every point of space-time there is a vector which describes the experience of the constituting individual at that point.

From the autopsychological world to the physical world



- Of course, this multi-dimensional space is an entirely subjective entity. It constitutes the solipsistic world of one single individual.
- How can all these multi-dimensional spaces be brought together to make possible one intersubjective, common physical world?
- For this step Carnap introduces a new method of constitution which is *prima facie* alien to the idea of quasi-analysis.

From the autopsychological world to the physical world



- He postulates a mapping between the solipsistic space and the objective physical world, expressed by statements of the form 'Quality q is at space-time point (x,y,z,t) '.
- As Quine and others have emphasised, this is incompatible with the project to build up the world only from sense data (or *erlebs*, for that matter) with the help of logical and mathematical constructions.
- Such a mere mapping of qualities to points of space-time cannot belong to a quasi-analytic constitution.

Is this a problem?



- However, as we have indicated repeatedly, it is not completely clear that Carnap was really attempting to realise Russell's programme as sketched in *Our Knowledge of the External world*.

Other Minds and Intersubjectivity



- The constitution of the third phase is only sketched by Carnap.
- The world is not only objective in the sense that it is independent of our subjective world (this much is achieved by the second phase), but it is objective in the sense that it is intersubjective, a world that many individuals can participate in.
- Carnap tried to represent this intersubjectivity by constituting the world of the other minds within the solipsistic world.

Other Minds and Intersubjectivity



- Paula, for example, has her autopsychological world represented by her five-dimensional state space.
- This she maps onto the four-dimensional physical space and thereby constitutes the physical world.
- Now the autopsychological world of her friend Peter is the five-dimensional state space of Peter, and Peter constitutes the physical world by mapping it onto physical space as well.
- However, the intersubjective world of Peter and Paula is a construction *within* the worlds of Peter and Paula.
- Paula constitutes Peter's world within her world and vice versa.

Other Minds and Intersubjectivity



- If in Paula's system 'Quasi-object a has quasi-property Q ' is a truth, and 'Quasi-object a^* has quasi-property Q^* ' is a truth of Peter's system, there is an intersubjective mapping between a and a^* and Q and Q^* such that the conjunct of these sentences is *intersubjectively true* for Peter and Paula.

The Significance of the Aufbau



- Standard accounts of the history of philosophy notwithstanding, the Aufbau continued to be the paradigm for philosophical analyses.
- The project of logical analysis is still continued in modern analytic philosophy.
- What is not continued is the ambitious project to build a constitutional system in complete.

Problems in the Aufbau



- The problems that convinced many that the Aufbau and the project that comes with it is dead, are technical problems of the specific way it was done (but not problems with the project as such).
- We will briefly look at two such problems, which were emphasized by Goodman (who was – BTW – a defender of the project as such).

Quasi-Analysis again



- We have introduced this method earlier with an example of *proper* analysis.
- In that case there was a series of erlebs of a certain kind as experienced by Paula, which had real parts, namely different colours.
- The task was to retrieve the real parts from only limited information, the information stored in the *Rs* relation.
- In the example that we discussed above, this seemed largely unproblematic. We were able to retrieve all colour information from the *Rs* relation alone.

Quasi-Analysis – the Rule

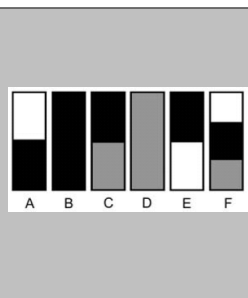


- The rule we used was simply this: single out those classes of erlebs which are all pair wise *Pi* related and for which there is no erleb outside the class which is *Pi* related with each erleb in the class.

Unfavourable Circumstances I



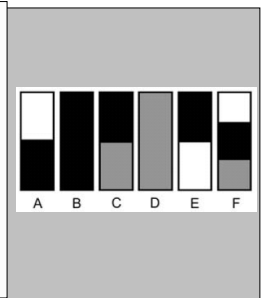
- But now consider a case in which the following unfavourable circumstances obtain:
- This time, Paula starts with six slightly different erlebs. Obviously the extension of the *Pi* relation would be this:



Unfavourable Circumstances I

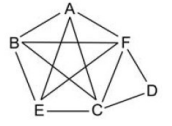
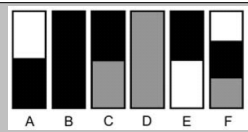


- The extension of the *Pi* relation would be this:



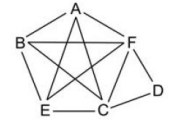
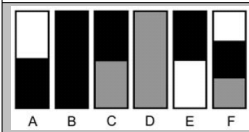
Unfavourable Circumstances I

- Or as a graph:



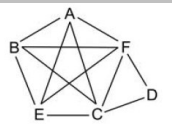
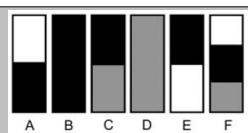
Unfavourable Circumstances I

- But now, applying our rule to categorise the erlebs into the right colour classes would give us all colour classes except the class {A, E, F}, the colour class for 'white'. Why is that so?



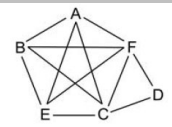
companionship difficulty

- Well, in the circumstances described, white only appears in constant companionship with the colour black. So B cannot be excluded from the class {A, E, F}, for B is part identical to each member of the class. This problem is called 'companionship difficulty'.



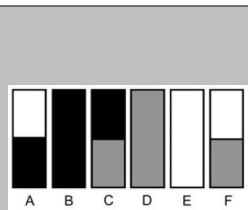
companionship difficulty

- Carnap had noticed this problem, but thought that it should not occur provided the number of erlebs is sufficiently high.
- It is, however, far from obvious that this really is the case.
- It is perfectly conceivable, for example, that a certain shade of blue always co-occurs with another shade of blue. But then those two colours will not be quasi-analyzable into two colours by Carnap's method.



Unfavourable Circumstances II

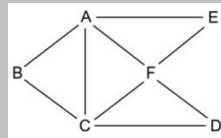
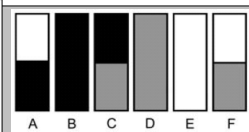
- Consider also the following situation:
- This time, Paula has another six slightly different erlebs.



Unfavourable Circumstances II

- Ordered by part-similarity, we obtain the following list:

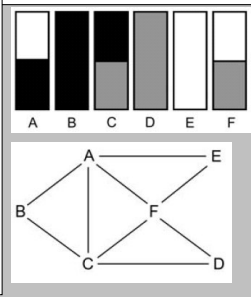
{<A, A>, <A, B>, <A, C>, <A, E>, <A, F>, <B, A>, <B, B>, <B, C>, <C, A>, <C, B>, <C, C>, <C, D>, <C, F>, <D, C>, <D, D>, <D, F>, <E, A>, <E, E>, <E, F>, <F, A>, <F, C>, <F, D>, <F, E>, <F, F>}



Unfavourable Circumstances II



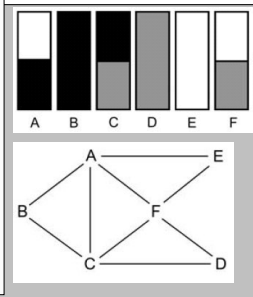
- Given this list and our rule, {A, C, F} should be a colour class. All elements are pairwise *Pi* related and no other erleb outside the class is pairwise *Pi* related with all elements of it.
- But what colour is common to A, C, and F?



the difficulty of imperfect community



- Well, obviously none at all. This is called 'the difficulty of imperfect community'. Again, it seems that Carnap has no clear way out of this problem.



More ambitious uses of the Aufbau



- Nowadays the *Aufbau* is also taken to be obsolete for the fact that Carnap wanted to apply it for the dissolution of philosophical problems.
- Since this dissolution involved the (in)famous verifiability criterion, which is nowadays considered hopeless, this application was later given up (also by Carnap himself).

Pseudoproblems



- Carnap is showing in some detail how he thought about the dissolution of philosophical problems in his *Pseudoproblems in Philosophy*, the first in a series of attempts to replace traditional philosophy with a new project.
- Other such attempts that we will have a look at in what follows is his *Logical Syntax of Language* and his famous paper 'Testability and Meaning'.

Pseudoproblems in Philosophy



- Carnap starts his investigation by defining the subject of Epistemology:
 - The aim of epistemology is the formulation of a method for the justification of cognitions. Epistemology must specify how an ostensible piece of knowledge can be justified, that is, how it can be shown that it is authentic knowledge. [...] In order to analyze the contents of cognitions, epistemology must investigate the objects (concepts) of (empirical) science in its various subdivisions (natural and cultural science) ...

Pseudoproblems in Philosophy



- It must ascertain to which other objects the cognition of any given object may be "reduced". Hence, an "analysis" of objects is undertaken where the "higher" objects are reduced to the "lower" ones. Those objects which can no longer be reduced are called "(epistemologically fundamental)" objects.
- Carnap takes this description of the aim of epistemology to be uncontroversial. The problematic part is how to explicate the words in quotation marks. Unless there is a clear meaning to these terms the aim of epistemology "has not been formulated at all".

Pseudoproblems in Philosophy



- Science has long been in the possession of a great number of results in epistemological analysis. She had the answers without being in the possession of the questions, that is to say, without being able to indicate the precise sense of these answers.
- To give precise sense to the questions of epistemology is the aim of Carnap's logical and epistemological analysis.

Logical Analysis



- The first step is the logical analysis of the contents of experiences.
- In this analysis the content of a given experience is divided up into the "sufficient constituent" and the "dispensable constituent".

Logical Analysis: dispensable constituents



- To say that a constituent *b* of an experience is dispensable relative to constituent *a* is to say that *b* does not give me any information that is not already contained in *a* together with my prior knowledge; in other words: *a* and my prior knowledge logically contain *b*.

Logical Analysis – Rational Reconstruction



- Of course, *a* and *b* are both experienced. The logical analysis is just a fictitious analysis. *b* could be known through *a* and my prior knowledge alone – this does not tell anything about the way I really happen to know *b*.

Side Note



- After introducing this distinction, Carnap makes an interesting observation that experiences are logically independent and hence can never contradict one another. It thus follows (a) that there can never be an empirical reason to accept true contradictions, and (b) that our theoretical choices are always underdetermined by observation (Duhem-thesis).

Epistemological Analysis



- The logical analysis is only the first part, so far it is only distinguished between sufficient and dispensable constituents. However for a given pair *a* and *b*, *a* could be dispensable given *b* and *b* dispensable given *a* on the basis of the same background knowledge.

Nucleus and Secondary Part



- We make a distinction between the logical analysis of the content of an experience (into a sufficient constituent and a constituent that is dispensable relative to it) and the epistemological analysis into "nucleus" and "secondary part". The latter is a special case of the former: if the constituents a and b are to be called "(epistemological) nucleus" and "secondary part", then, to begin with, b must be a dispensable constituent relative to a. In addition [...] b must epistemically "reduce" to a, that is, the cognition of b must "rest upon" the cognition of a, a must be "epistemically primary".

Two Criteria



- Carnap gives us two criteria how to decide which constituent is the nucleus: *justification* and *immunity from error through misrepresentation*.

Justification



- In the sciences we find standards that tell us how to justify certain claims based on our experiences. If we find that a claim involving b is standardly justified by referring to a, a is the nucleus. In the rational reconstruction, a reflective equilibrium between accepted practices and codified rules will make a normative methodology possible.

Immunity from error through misrepresentation



- It seems that Carnap also wants to claim that the nucleus - as the experiential given - is not (at least not in the same way) a possible subject to error through misrepresentation. If we find that we could have erred in b on the basis of the experience we have made, b is the secondary part of that experience.

Application: Knowledge of the Heteropsychological



- With these distinctions Carnap tries to solve the problem of other minds. He claims:
 - The epistemological nucleus of every concrete cognition of heteropsychological occurrences consists of a perception of physical phenomena, or, to put it otherwise, the heteropsychological occurs only as an (epistemologically) secondary part of the physical.

Application: Knowledge of the Heteropsychological



- Carnap then applies first logical and then epistemological analysis to different situations in which we come to know heteropsychological facts on the basis of experiences.
- It turns out that the physical component is always analyzable as a sufficient constituent and - moreover - standardly referred to when we justify our claims about heteropsychological matters - it is thus the nucleus of the experiences in question.

The Relation to the Aufbau



- Not very surprisingly, Carnap offers a “stratified epistemological system of the four most important object types” in epistemological order:
 1. Autopsychological Objects
 2. Physical Objects
 3. Heteropsychological Objects
 4. Cultural Objects

The Meaning Criterion



- In the second part of *Pseudoproblems in Philosophy*, Carnap slightly changes the topic to the problem of meaning.
 - The meaning of a statement lies in the fact that it expresses a (conceivable [...]) state of affairs. If an (ostensible) statement does not express a (conceivable) state of affairs, then it has no meaning; it is only apparently a statement. ...

The Meaning Criterion



- If the statement expresses a state of affairs then it is in any event meaningful; it is true if this state of affairs exists, false if it does not exist. One can know that a statement is meaningful even before one knows whether it is true or false.

Defining the Meaning Criterion



- If a statement p expresses the content of an experience E, and if the statement q is either the same as p or can be derived from p and prior experiences, either through deductive or inductive arguments, then we say that q is “supported by” the experience E.
Note: the support relation is *not* verification, it might also be mere confirmation or even weaker relations. Since all background knowledge enters into the support p might support q in very indirect ways. Note also that analytic truths are always supported by any E.

Defining the Meaning Criterion



- A statement p is said to be “testable” if conditions can be indicated under which an experience E would occur which supports p or the contradictory of p.
Note: Mere “falsifiable” statements are not ruled out even by testability.

Defining the Meaning Criterion



- A statement p is said to have “factual content”, if experiences which would support p or the contradictory of p are at least conceivable, and if their characteristics can be indicated.
Note: (again) this does not rule falsifiable statements out as being devoid of factual content.

The Meaning Criterion in Pseudoproblems



- A statement is *meaningful* iff it has factual content.
- Given this criterion, the realism/antirealism debate and the problem of other minds (do they exist?) are meaningless. The respective claims that are in opposition in these debates do not have factual content.

Standard Criticism against the Meaning Criterion



- (Popper, Hempel, Patzig):
 - Scientific laws are universal and hence not verifiable by a finite set of experiences – thus they should be meaningless according to the criterion, but clearly aren't.
- Reply:
 - Scientific laws are supportable if there is an inductive logic (as Carnap believed). So in that case they *are* meaningful. If there is no inductive logic, but laws are only falsifiable, then their negation is supportable – in principle – and then they are again meaningful.

Standard Criticism against the Meaning Criterion



- (Strawman):
 - Logical and mathematical truths are meaningless on the basis of the verifiability criterion, but they aren't
- Reply:
 - Carnap probably would have said that analytic truths do not have a factual content indeed. For what it's worth, they are meaningful by the criterion presented here, since an analytic truth is derivable from any p and any set of background knowledge, hence it always supported. Logical contradictions are also meaningful by this criterion since their negations are always supported.

Standard Criticism against the Meaning Criterion



- (Hempel, Patzig):
 - Sentences with mixed quantifiers ('Everybody loves somebody sometimes') are meaningless since they are neither verifiable nor falsifiable.
- Reply:
 - Bite the bullet! In some cases (as in the case considered) they are supportable and hence meaningful, in case that we can in principle not even find conceivable experiences that would support such claim then, yes, they are meaningless.

Standard Criticism against the Meaning Criterion



- (Hempel, Patzig):
 - The meaning criterion has itself a dubious status. Since it is not analytic and not verifiable it should itself be meaningless.
- Reply:
 - Carnap gives at the end of *Pseudoproblems in Philosophy* a list of all logically possible reasons why one could hold that the meaning criterion is inadequate and also indicates under what circumstances this claim would be considered supported. It is hence itself meaningful.

So is it vindicated?



- The standard criticism against the meaning criterion is directed against less liberal versions that demand strict verifiability.
- This is not a position of Carnap's in this book.
- Anyway, there are other problems.

Trivializing the Criterion



- (Hempel):
 - Take some sentence that does not satisfy the criterion and conjoin it by conjunction or disjunction with a sentence that does. If you conjoin them by disjunction, the compound is meaningful, since it is supportable, if you conjoin them by conjunction the compound is meaningful, since its negation is supportable.
- Reply:
 - As we will see next week, this problem is avoided if we use more technical resources. We just need a language in which the problematic sentences fail to be expressible.
 - We will, however, also learn that even these further resources will not free us from all problems.