How Analytic Philosophy Has Failed Cognitive Science

Concept-use is intrinsically stratified. It exhibits at least four basic layers, with each capacity to deploy concepts in a more sophisticated sense of ‘concept’ presupposing the capacities to use concepts in all of the more primitive senses. The three lessons that generate the structural hierarchy oblige us to distinguish between:

- concepts that only label and concepts that describe,
- the content of concepts and the force of applying them, and
- concepts expressible already by simple predicates and concepts expressible only by complex predicates.

AI researchers and cognitive, developmental, and animal psychologists need to take account of the different grades of conceptual content made visible by these distinctions.

Classification as the exercise of reliable differential responsive dispositions (however acquired) is not by itself yet a good candidate for conceptual classification, in the basic sense in which applying a concept to something is describing it.

It is only because the expressions in terms of which we describe objects, even such basic expressions as words for the perceptible characteristics of molar objects, locate these objects in a space of implications, that they describe at all, rather than merely label.


1] I will write a book about Hegel.
2] I foresee that I will write a book about Hegel.

...there are two ways in which the content of two judgments may differ; it may, or it may not, be the case that all inferences that can be drawn from the first judgment when combined with certain other ones can always also be drawn from the second when combined with the same other judgments…I call that part of the content that is the same in both the conceptual content [begriffliche Inhalt]. [Frege, Begriffsschrift (hereafter BGS), section 3.]

Discursive intentional phenomena (and their associated concepts), such as assertion, inference, judgment, experience, representation, perception, action, endorsement, and imagination typically involve what Sellars calls “the notorious ‘ing’/’ed’ ambiguity.” For under these headings we may be talking about the act of asserting, inferring, judging, experiencing, representing, perceiving, doing, endorsing, and imagining, or we may be talking about the content that is asserted, inferred, judged, experienced, represented, perceived, done, endorsed, or imagined. ‘Description’ is one of these ambiguous terms (as is ‘classification’).

The inferential consequences of applying a classificatory concept, when doing that is describing and not merely labeling, can be either semantic consequences, which turn on the content of the concept being applied, or pragmatic consequences, which turn on the act one is performing in applying it.

3] If the Frege is correct, then conceptual content depends on inferential consequences.
4] If she is happy, then John should be glad.
5] If being trustworthy is good, then you have reason to be trustworthy.
6] Labeling is not describing.
7] I believe that labeling is not describing.
8] If labeling is not describing, then labeling is not describing.
9] If I believe that labeling is not describing, then labeling is not describing.

Any user of descriptive concepts who can also form compound sentences, paradigmatically conditionals, is in a position to distinguish what pertains to the semantic content of those descriptive concepts from what pertains to the act or pragmatic force of describing by applying those concepts. This capacity is a new, higher, more sophisticated level of concept use. It can be achieved only by looking at compound sentences in which other descriptive sentences can occur as unasserted components.

Descriptive concepts bring empirical properties into view. Embedding those concepts in conditionals brings the contents of those concepts into view. Creatures that can do that are functioning at a higher cognitive and conceptual level than those who can only apply descriptive concepts, just as those who can do that are functioning at a higher cognitive and conceptual level than those who can only classify things by reliable responsive discrimination.

10] It is nice here.
11] It is nice where I am.
12] It is always nice here.
13] It is always nice where I am.

Creatures that can not merely label, but describe are rational, in the minimal sense that they are able to treat one classification as providing a reason for or against another. If they can use conditionals, they can distinguish inferences that depend on the content of the concept they are applying from those that depend on what they are doing in classifying something as falling under that concept. But the capacity to use conditionals gives them more than just that ability. For conditionals let them say what is a reason for what, say that an inference is a good one. Creatures that can use this sort of sentential compounding operator are not just rational, but logical creatures. They are capable of a distinctive kind of conceptual self-consciousness. For they can describe the rational relations that make their classifications into descriptions in the first place, hence be conscious or aware of them in the sense in which descriptive concepts allow them to be aware of empirical features of their world.

14] If someone is loved by everyone, then everyone loves someone.
15] If everyone loves someone, then someone is loved by everyone.

Our first grip on the notion of a predicate is as a component of sentences.

16] Kant admired Rousseau.
17] Rousseau admired Rousseau.
18] Kant admired Kant.
19] Someone admired himself.
20] If someone admires himself then someone admires someone.
21] If someone admires someone then someone admires himself.

What [17] and [18] share that distinguishes them from [16] is not a component, but a pattern. More specifically, it is a pattern of cross-identification of the singular terms that two-place predicate applies to. The repeatable expression-kind ‘admires’ is a simple predicate. It occurs as a component in sentences built up by concatenating it appropriately with a pair of singular terms. ‘x admires x’ is a complex predicate. A number of different complex predicates are associated with any multi-place simple predicate.

22] John enjoys music recorded by Mark and books recommended by Bob.
Complex concepts can be thought of as formed by a four-stage process.

- First, put together simple predicates and singular terms, to form a set of sentences, say \{Rab,Sbc,Tacd\}.
- Then apply sentential compounding operators to form more complex sentences, say \{Rab \rightarrow Sbc, Sbc \& Tacd\}.
- Then substitute variables for some of the singular terms (individual constants), to form complex predicates, say \{Rax \rightarrow Sxy, Sxy \& Tayz\}.
- Finally, apply quantifiers to bind some of these variables, to form new complex predicates, for instance the one-place predicates (in y and z) \(\exists x[Rax \rightarrow Sxy], \forall x \exists y[Sxy \& Tayz]\).

The result of all these considerations, which have been in play since the dawn of analytic philosophy, well over a century ago, is a four-stage hierarchy of ever more demanding senses of “concept” and “concept use”:

- **A)** At the bottom are concepts as reliably differentially applied, possibly learned, *labels* or classifications.
- **B)** At the next level, concepts as *descriptions* emerge when merely classifying concepts come to stand in inferential, evidential, justificatory relations to one another—when the propriety of one sort of classification has the practical significance of making others appropriate or inappropriate, in the sense of serving as *reasons* for them.
- **C)** Building on the capacity to use inferentially articulated descriptive concepts to make propositionally contentful judgments or claims, the capacity to form sentential *compounds*—paradigmatically conditionals, which make endorsements of material inferences relating descriptive concept applications propositionally explicit, and *negations*, which make endorsements of material incompatibilities relating descriptive concept applications propositionally explicit—brings with it the capacity to deploy a further, more sophisticated, kind of conceptual content: *ingredient* (as opposed to free-standing) content. Conceptual content of this sort is to be understood in terms of the contribution it makes to the content of compound judgments in which it occurs, and only thereby, indirectly, to the force or pragmatic significance of endorsing that content. Ingredient conceptual content is what can be *negated*, or *conditionalized*.

The first step was from merely *discriminating* classification to rational classification (‘rational’ because inferentially articulated, according to which classifications provide reasons for others). The second step is to *synthetic logical* concept formation, in which concepts are formed by logical compounding operators, paradigmatically conditionals and negation. The final step is to *analytical* concept formation, in which the sentential compounds formed at the third stage are *decomposed* by noting invariants under substitution.

- **D)** Systematically assimilating sentences into various equivalence classes accordingly as they can be regarded as substitutional variants of one another is a distinctive kind of *analysis* of those compound sentences, as involving the application of concepts that were not *components* out of which they were originally constructed. Concepts formed by this sort of analysis are substantially and in principle more expressively powerful than those available at earlier stages in the hierarchy of conceptual complexity.

This hierarchy is not a *psychological* one, but a *logical* and *semantic* one. Concepts at the higher levels of complexity presuppose those at lower levels not because creatures of a certain kind cannot in practice, as a matter of fact, deploy the more complex kinds unless they can deploy the simpler ones, but because in principle it is impossible to do so. Nothing could count as grasping or deploying the kinds of concepts that populate the upper reaches of the hierarchy without also grasping or deploying those drawn from its lower levels. The dependencies involved are not empirical, but (meta)conceptual.