Categories, Natural Semantics, and Natural Kinds

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**Abstract:**

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# Introduction

Consider the following argument:

1. Grass is green
2. Green is a color
3. Therefore, grass is a color

Leaving aside ambiguities caused by growing up with a super-cool 120 ct. Crayola crayon box, grass is not a color. Grass grows. The color green does not grow. Grass is eaten by cows, the color green is not eaten by cows, etc. Sure, *something* green – i.e. grass – is eaten by cows, but cows do not eat green.

On the other hand, there isn’t anything *formally* wrong with the argument: As far as its structure is concerned, it goes through just as easily as familiar examples concerning Socrates’ mortality and the coloring of Brunellus’ fur.

Most medieval logicians called the mistake made in the above deduction a *fallacia per accidens*, and the fallacy was usually regarded as a *material* fallacy, or fallacy outside of language, as opposed to a formal one.[[1]](#footnote-1) Though each of the premises is true, the predications in them are different enough in kind that they cannot unfailingly lead to a true conclusion. Since modes of predication represent modes of being, this means that the manner in which green inheres in grass diverges from that according to which green is a color: the first is accidental, while the second is essential. Hence, as Aristotle puts it, “no syllogism occurs.”[[2]](#footnote-2)

When ordinary language arguments are brought forth as counterexamples to argument forms widely accepted as valid, philosophical logicians have tended to respond in one of the following three ways. The first response has been to deny the validity of the form, and aim at a better, but still generalized, account that drops the rule or axiom in question. This partially feeds the proliferation of non-classical logics such as intuitionist logic, as well as the different conditional, relevant, many-valued logics, each at least *prima facie* aiming to be the one true logic for everything.

The second response has been to restrict the scope of the entailment to a particular domain. This tendency accelerates the proliferation of different domain-specific logics: provability, temporal, deontic, epistemic logics, and so on. It also provides part of the rationale behind the techniques of super- and sub-valuations.

The third response has been to take the occasion as one for finding what one originally took to be the *explanandum* of the whole project – ordinary language, normatively valid reasoning, ‘what follows from what’, or what have you – faulty, or otherwise incapable of doing its job, if that *explanandum* is regarded as a medium for getting at something more difficult to obtain; or opaque, if it is taken as the transcendent end that would be obtained via that medium. Regardless of the philosophical merits of such a response, its result (and I cannot help but think it the real intent of those putting it forth) is to insulate the philosopher’s preferred logic from external critique.[[3]](#footnote-3) I take this faultfinding to be not particularly well-grounded; and since it provides a breeding ground for many of the more common vices in philosophical debate, I think conclusions of this sort are better avoided if they can be.

I do not take these responses to be exhaustive, but they pretty well sum up those that remain most dominant in debates about or otherwise involving philosophical logic.

Each of these responses corresponds to a different characterization of logic as *formal*: the first, to the concept of formal as all-encompassing, or universal; the second, to the concept of formal as pertaining to the *eidos* of a type; the third, to the notion of the formal as meaningless. Thus, despite the wealth of difference between these responses, what they maintain this much in common.

In what follows, I aim to make the case that these responses are deficient not where they disagree, but in what they agree on.

To the degree that the above responses remain those that, by virtue of their dominance, govern the shape of research on logic today, they invariably force the following false trichotomy: either retain the universality of the logic and weaken it; or retain the strength of a particular logic while restricting it’s domain of application; or cease to be concerned with the question of how or whether the logical system under review applies to anything, and simply treat the system itself as the immanent subject under discussion. I have spoken above against the third option. Now, I make the case against the first two.

## On Logic and Domain Restriction

There is nothing wrong *per se* with developing formal systems to capture important notions such as obligation, provability, knowledge, and so on. But the very proliferation of such systems *does* bring with it a very real danger: that we lose sight of the very sense in calling these systems *logical*. Talk of adapting different logics for different domains or occasions has some sense to it only on the presupposition that these different logics are, in some higher sense, the same. Otherwise, these engagements will not be adaptations *of* *logic*, but simply different activities.

, ;and to the degree that logic is said to be formal, it will follow that it cannot adequately distinguish between different material contexts in which arguments of the form

A is B

B is C

A is C

go through, and those in which they don’t.

The unfortunate end result of all of this is that there is an ever widening gap between *logics* and *reasoning*. Otherwise put, the failure to attend to the question of what logic is supposed to be about in the first place is the deficient cause of the rise of logical pluralism, and the pragmatic attitude that nourishes it.

# Categories and Natural Kinds

Alcuin’s *Dialectica*: More than half of it is taken up with Categories

# Intuitionistic Type Theory

# Garson’s Natural Semantics

Histories

# A Unified Theory of Types and Categories

## Outline of Theory

## Examples and Applications

# Conclusion

# References

1. Cf. Thomas Aquinas, *De Fallaciis,* ch. 11-12. Fallacies outside of [↑](#footnote-ref-1)
2. On sophistical refutations [↑](#footnote-ref-2)
3. Tarski, “Concept of truth”; Frank Jackson, error theory of the conditional. This is not to say that it isolates the logic from *any* critique: internal critique is still available. But this just means that critique itself becomes a kind of servitude, wherein the only concessions made are those that are pleasing to the aims of the master. [↑](#footnote-ref-3)