A Fregean Perspective on Analytic Philosophy

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Fregean tenet #1: Precision and rigor

Dummett claimed that the defining feature of analytic philosophy is the "linguistic turn", namely the idea that the philosophy of language should replace metaphysics or epistemology in the privileged role as our official "first philosophy".

(Føllesdal, 1996, 199) gave a better answer:

> *The answer [. . .] is, I believe, that analytic philosophy is very strongly concerned with argument and justification.*

Frege was driven by questions about the epistemological status of different branches of mathematics.

This suggested a return to, and strengthening of, the old Euclidean ideal of precision and rigor.

On this, Frege's positive influence continues unabated.

This promotes collaborative research in philosophy and more cumulative progress.

Fregean tenet # 2: Logic and formalized languages

Frege took the Euclidean ideal to an extreme by insisting on ‘gapfree’ proofs.

This led to an emphasis on logic and formalized languages:

> *So that nothing intuitive could intrude here unnoticed, everything had to depend on the chain of inferences being free of gaps. In striving to fulfil this requirement in the strictest way, I found an obstacle in the inadequacy of language: however cumbersome the expressions that arose, the more complicated the relations became, the less the precision was attained that my purpose demanded. Out of this need came the idea of the present Begriffsschrift. (Frege, 1879, iii)*

Dummett's characterization of analytic philosophy doesn't even fit Frege:

> *If it is a task of philosophy to break the power of words over the human mind, by uncovering illusions that through the use of language often almost unavoidably arise concerning the relation of concepts, by freeing thought from the taint of ordinary linguistic means of expression, then my Begriffsschrift, further developed for these purposes, can become a useful tool for philosophers. (ibid., vi–vii)*

The second Fregean tenet too has been enormously influential: formal languages, formalization, and logic are now central and indispensable tools of philosophy.

Higher-order languages

Consider the statement that Socrates thinks, which we formalize as:

$$\textsc{Think}(\text{Socrates}) \tag{1}$$

First-order logic allows us to generalize into the noun position occupied by 'Socrates' to conclude:

$$\exists x\, \textsc{Think}(x) \tag{2}$$

Second-order logic allows us to generalize into the predicate position occupied by '$\textsc{Think}$' in (1) to conclude:

$$\exists F\, F(\text{Socrates}) \tag{3}$$

Plural logic thus allows us to infer from (1) that there are one or more objects *xx* that think:

$$\exists xx \forall y \, (y \prec xx \rightarrow \textsc{Think}(y)) \tag{4}$$

Further generalizations are possible as well:

- generalize into the positions occupied by higher-level predicates
- combine plural and higher-order logics

Philosophical uses of HOL

- *Make the world safe for absolutely general discourse*: although a universal domain cannot be represented by a set, it may well be represented by a plurality or a Fregean concept. (Williamson, 2003)
- *Respond to various paradoxes*; e.g., the semantic values of predicates are Fregean concepts, not objects; indeed, there are more concepts than objects.
- Higher-order logic is now a *pillar of various metaphysical arguments*; see e.g. (Williamson, 2013), but also A. Bacon, C. Dorr, P. Fritz, J. Goodman, N. Jones, A. Rayo, G. Uzquiano.

Formal philosophy beyond logic

It has become increasingly clear that logic is not the only way to pursue the Euclidean ideal of precision and rigor.

- mereology (metaphysics, philosophy of language)
- probability and Bayesian methods (formal epistemology)
- measurement theory and representation theorems (philosophy of science, metaphysics)

These formal tools supplement those of logic. There is no reason to think that Frege would have regarded this supplementation as problematic.

A closely related theme is what Timothy Williamson has labeled **model building** (Williamson, 2018):

- to provide simple but mathematically precise models of complex systems,
- thus enabling a proper mathematical investigation of some of the system's key features,
- even though many details inevitably are left out.

Openness to science and interdisciplinary research

We are seeing a confluence of various branches of philosophy with adjacent branches of science.

- philosophy of language and linguistics
- philosophy of X and X itself, for $X =$ physics, biology, psychology, etc.
- political philosophy and politics & economics

Fregean tenet # 3: "Logic first"

When Frege assigns to logic a privileged role, he goes to an extreme.

On his view, logic codifies "the basic laws" of all rational thought, and the laws of logic must therefore be presupposed by all other sciences.

> *I take it to be a sure sign of error should logic have to rely on metaphysics and psychology, sciences which themselves require logical principles. (Frege, 2013, xix)*

"Logic first!"

This Fregean tenet was initially influential: early Wittgenstein, Carnap, neo-Fregean movement in the philosophy of mathematics.

However, Frege's "logic first" view has been challenged—with two separate lines of attack.

Critical views of logic: logic is entangled with mathematics, semantics, or metaphysics (Parsons, 2015).

- Brouwer (entanglement with mathmatics): intuitionistic logic
- Dummett (entanglement with semantics): intuitionistic logic
- Poincaré and Weyl (paradoxes + entanglement with mathematics): predicativity, i.e. a mathematical definition is not permitted to quantify over a totality to which the defined entity would belong.

Abductive justification of logic

- Quinean holism, which assimilates logic and mathematics to the theoretical parts of empirical science.
- Williamson, e.g. (Williamson, 2017)
- Priest, etc.

Non-classical logic

There has recently been a surge of interest in non-classical logics, often involving far more dramatic revisions of classical logic than those advocated by the critical views: relevant logics, paraconsistent logics, substructural logics, etc.

These logics are often motivated by a perceived need for:

- a naive theory of truth, which upholds the unrestricted T-schema

$$T(\ulcorner A \urcorner) \leftrightarrow A$$

- a naive theory of sets or properties, which upholds unrestricted set or property comprehension:

$$\exists y \forall x (x \in y \leftrightarrow \phi(x))$$

This use of non-classical logics is often methodologically problematic: changing the logic has global repercussions, unlike changing our naive theory of truth or sets (Williamson, 2017).

Much of the work on non-classical logics fails to integrate properly their proposed logical revision with

- metaphysics
- existing science, esp. mathematics

Fregean tenet # 4: abstraction

Recall one of the central questions of Frege's *Grundlagen*:

> *How, then, are the numbers to be given to us, if we cannot have any ideas or intuitions of them? (Frege, 1953)*

Frege's next sentence proposes an answer:

> *Since it is only in the context of a sentence that words have any meaning, our problem becomes this: To explain the sense of a sentence in which a number word occurs.*

$$\#F = \#G \leftrightarrow F \approx G \qquad \text{(HP)}$$

Left unconstrained, Frege's method of abstraction leads straight to paradox. Recall his Basic Law V:

$$\hat{x}.Fx = \hat{x}.Gx \leftrightarrow \forall x(Fx \leftrightarrow Gx) \tag{V}$$

which gives rise to Russell's paradox.

Is there a principled distinction between good and bad forms of abstraction?

A hierarchical conception of reality

Reality isn't "flat", as Frege and others have assumed, but hierarchically structured into distinct layers or stages. (Fine, 2012), (Rosen, 2010), (Schaffer, 2009)

- Objects stand in relations of *dependence*; e.g. a set or plurality depends on each of its members.
- Truths stand in relations of *grounding*; e.g. a conjunction is grounded in each of its conjuncts.

Despite a huge amount of activity, we still lack compelling applications, especially ones that make serious use of the proposed logics of ground.

Putting the hierarchical conception to better use

Dynamic abstraction: every atomic statement about the "new" objects obtained by abstraction must receive a truth-condition that is concerned solely with the "old" objects. (Linnebo, 2018b)

A superior response to various paradoxes: a bottom-up explanation of every entity and every truth. This motivates some modest departures from classical logic—with some important similarities with *the critical views of logic*:

- every plurality is bounded by a stage (Linnebo, 2010)
- some predicativity-like restriction on intensional collections, incl. those of higher-order logic (Fine, 2005), (Linnebo, 2006)
- some universal generalizations cannot be grounded in each of their instances, e.g. $\forall p(p \vee \neg p)$. *Non-instance-based generality*. (Linnebo, 2018a)

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