Abstractions

A2.12 Philosophical Logic

Generalized Dialetheism and Curry's Paradox

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Dialetheism is the view that the premises and inferences of paradoxical arguments should be accepted, full stop. In paradigm cases this carries a commitment to outright inconsistency, e.g. the claim that the Liar sentence is true and the claim that the Liar sentence is false. According to the dialetheist, we ought to accept such inconsistent claims while `isolating' them from the rest of our discourse by adopting a paraconsistent logic. This strategy generalizes neatly to a host of famous paradoxes including Russell's paradox, Grelling's paradox, and the Knowability paradox. There is, however, a fly in the ointment: Curry's paradox. The premises and inferences of a Curry-paradoxical argument seem to be flatly unacceptable because they carry directly incoherent commitments. For example, consider a Curry sentence, such as the sentence K as follows: "If K is true, everything is true." By the disquotational role of truth and the rule of contraction, we can infer that K is true, which carries a commitment to the incoherent claim that everything is true. It seems that solving this paradox requires that we reject one of the premises or inferences involved in this argument. Curry's paradox, thus, has the dubious honor of being insoluble by dialetheic methods. Many consider this to be the single, greatest weakness of dialetheism, as it dashes any hope of a unified dialetheic solution to the paradoxes. (See, e.g., Goodship (1996) and Whittle (2004) on the challenge to dialetheism from taking a fragmented approach to paradox.) In this paper, I argue that the critics are wrong: there is a coherent generalization of the dialetheic perspective that circumvents the problem above. The key is to restrict structural contraction in the context of reasoning with such concepts as truth and membership. I show how the Liar and Curry's paradox are amenable to the same type of solution once this restriction is in place.

Graphs, naive truth, and well-behaved conditionals

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Many philosophers and logicians are interested in the so-called “naive” notion of truth, which can be roughly described as follows: every declarative sentence “A” of a language L is equivalent to “‘A’ is true”, for some notion of equivalence, where “‘A’ is true” is also a sentence of L. In this paper, I discuss the theories of naive truth developed by Kripke and Field and I address “Field’s challenge”, a research project aimed at adding a well-behaved conditional connective to Kripke's theory of truth. To this aim, I develop a semantics based
on some graph-theoretical intuitions and tools. The resulting model shows that Field’s challenge can be met respecting some natural criteria on the characterization of the logical constants (including the conditional), criteria which arguably are not met by Field’s theories. At the same time, this construction contributes to the semantics of naive truth with some specific results, e.g.: (i) natural partial versions of every Lukasiewicz semantics are proven consistent and omega-consistent with naive truth (non-partial versions of finitely valued Lukasiewicz semantics are inconsistent with naive truth, and the continuum valued one is omega-inconsistent with it); (ii) a unique operator for “determinateness” can be defined that applies to every sentence receiving a truth-value, possibly including the determinateness operator itself, consistently with naive truth. Such operator avoids revenge paradoxes and is strikingly simple. Such a strong operator is unavailable in Kripke’s setting and inconsistent with Field’s theory. Finally, I show how the semantics proposed here allows us to make some new distinctions between semantic paradoxes that are usually conflated together, accounting for the differences between liar-like paradoxes, Curry-like paradoxes, truth-teller-like paradoxes, McGee-like paradoxes, Yablo-like paradoxes and more.

Saving tolerance from paradox; a game semantics for tolerance

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Saving tolerance from paradox; a game semantics for tolerance  Tolerance principles – such as “anyone who is 1cm shorter than a tall man is tall, too” – are highly intuitive. Dominant theories of vagueness, however, argue against the consistency of tolerance on the basis that these principles generate sorites paradoxes. In reaction, there are two comprehensive works on how to save tolerance from paradox: Zardini (2008) and van Rooij (2010). In the first part of this paper we argue that neither theory succeeds. We raise a common objection against them: Both theories are based on a model-theoretic semantics with a non-standard definition for validity. By model-theoretic semantics we mean a semantics which is based on assigning a cluster of sets of objects to any predicate. It is argued that in all model-theoretic semantics there exists sharp boundary for each predicate F in the sense that there are two adjacent objects in the relevant soritical chain that one of them is F and it is not the case that the other is F. It is argued also that existence of sharp boundary entails that the relevant tolerance principle is not true. Consequently, both theories falsify tolerance. Besides this common objection there is a distinctive objection against van Rooij’s theory. Van Rooij’s theory has more than one notion of validity and it validates tolerance just in the weakest sense. This consequence assimilates the theory with dominant theories of vagueness which falsify tolerance but satisfy a weaker version of it. In the second part of the paper we propose that in order to save tolerance from paradox a more deviation from classical semantics is to be appealed. We propose that one should abandon the picture of language as a representator of something else. Instead the picture of language as a rule governed activity (game) is more tenable for the sake of modeling tolerance. We first consider concrete examples of tolerant predicates and then abstract general rules from them. The most important rule is: In general, whenever “a is F” is assertible, a is close enough to b, b is close enough to c and
there is a tolerance principle at hand, it is assertible that b is F too, but it is not warranted to assert that c is F. This rule mandates 1) that the logic of tolerance should not be transitive; and 2) that there are levels of warranted assertion: plain assertion (including asserting Fa when a is a paradigm case of F) and weak assertion (including asserting Fb in the above mentioned rule); and 3) that sometimes argumentation play role in applying tolerant predicate to something. We then introduce a semantic for non-transitive logic in the category of game semantics (namely what is known as dialogical semantics).

According to the proposed semantics there are levels of assertion and there are some strategic rules governing how and when the levels of assertion change. These rules in the formal semantics are parallel to the rules which are abstracted from the concrete examples. A valuable feature of the proposed semantics is that it does not change the definition of validity. At the end of the paper we argue that the formal semantics introduced is not suffered from the sharp boundary objection. Indeed, the semantics resolves the problem, since (despite model-theoretic semantics) there is no extension for predicates that has or does not have sharp boundary.

A Revision-Theoretic Supervaluational Theory of Truth

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Many semantic approaches to the Liar paradox and self-referential truth fall under one of two major paradigms: Kripke's Outline of a theory of truth (1975) and The revision theory of truth, the latter introduced by Herzberger and Gupta, independently, in 1982. Both approaches are instantiated in the literature by a copious variety of proposals, however some distinctive mathematical features typifying them can be easily identified.

A Kripke-style approach is characterised by a monotonic operator (called a "jump" operator) on partial interpretations for a truth-predicate. A revision-theoretic approach, on the other hand, is characterised by a collection of ordinal-length iterations of an operator (called the "revision" operator) defined on total interpretations of the truth-predicate. One way of mathematically contrasting the two approaches is through the notions of groundedness and stability: a sentence is "grounded" if it belongs to the least fixed point of the jump operator, while it is "stable" if it eventually receives the same truth value in all revision iterations. The formalisation of revision through transfinite iterations has to face with the problem of what to do at limit stages. Further, the resulting theory has a degree of mathematical and logical complexity which is scarcely compatible with the purpose of simply finding a predicate of sentences for expressing first-order truth.

In my talk I will present a fresh proposal, called Revision-theoretic supervaluation, which aims to preserve the fundamental insights and goals of revision but, formally, working in a Kripke-style framework. I will present my proposal in some details and I will sketch the proofs of some result connecting it with Kripke's theory when the jump operator is defined by using van Fraassen's supervaluation. The presentation is intended to stimulate a
discussion about to what extent this mathematical construction can capture the philosophical content of revision.