Some environmental ethicists and economists argue that attributing infinite value to the environment – claiming that it is priceless – is a good way to ensure an absolute obligation to protect it in the context of environmental decision-making (Hargrove 1989; Bulte & van Kooten 2000). Colyvan et al. (2010) argue against modeling the value of the environment in this way: the assignment of infinite value, even if meaningful, leads to immense technical and philosophical difficulties that undermine the environmentalist project. First, there is a problem of discrimination: saving a large region of habitat is surely better than saving a small region, yet if both outcomes have infinite value then decision theory appears to prescribe indifference. Second, there is a problem of swamping probabilities: an act with a small but positive probability of saving an endangered species appears to be on par with an act that has a high probability of achieving this outcome, since both have infinite expected value. Colyvan et al. raise further doubts about the coherence of the concept of infinite value, and conclude that it is a mistake to model the natural environment as infinitely valuable (rather than as having a large but finite value). Building on recent non-standard decision theory, our paper shows that a relative (rather than absolute) concept of infinite value is well-defined. When applied to certain features of the natural environment, it provides just the right model for securing the priority of the natural environment and avoids the failures of discrimination noted by Colyvan et al. Our claim is not that the relative infinite utility model gets every detail correct, but rather that it provides an important and rigorous philosophical framework for thinking about decisions affecting the environment.

The paper aims to explore new directions of research in the borderland between philosophy and science that are concerned with the problems of epistemological accessibility of the abstract objects and rational justification of formal (ironic, like string theory) science. We are following Jerrold Katz’s [2000] dualistic view about the ontology of
science. The formal science study abstract objects and the natural (empirical) sciences study concrete and composite (Reichenbachian) objects. The most common objection against the realist interpretation of formal science is that the perceptual inaccessibility of abstract object refutes realism because it exposes realist epistemology as a form of mysticism. Following Katz this argument rests on the false assumption that information from casual interaction with natural objects is necessary feature of justification in any form of knowledge. The knowledge in formal science asks which supposition is necessary, but not which possibility is actual. If we treat ironic science as a science of a special kind, for example, assuming Extended Hypothetical-Deductive model (mostly R.Dawid): theoretical schemes are underdetermined by theoretical underdetermination as well, etc., we may introduce an epistemological function of a “formal science object” which plays a leading role in the empirical procedure to choose between the appropriate epistemic stances aiming at the justification of the necessity of properties of such an object that revealed to us (Kosso). It is claimed that the epistemological function of the intellectual contact with an abstract object may be evaluated as a part of empirical procedure of interrogative games (Hintikka) concerning the justification of the ontological commitments in such a “strange” science. The ironic science is pretty effable, we just need to be more careful about what objects and what science we are talking about. Realism assumption will follow automatically as a good explanation of the progress of such a formal (ironic) science.

Inference based on content relations

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Inference has not been the object of much investigation lately. According to one approach, inference is based on particular concepts, and depends on the contents of certain premises. According to the opposite, more popular view, it does not depend on any concept but on applying a rule. Paul Boghossian, John Broome and Crispin Wright all have argued for such a (Wittgensteinian) conception of inference.

But they all face difficulties. Broome claims that a full-fledged theory of reasoning is required in order to define rationality. Boghossian’s account may seem the most convincing one, but his “Taking Condition” is still very problematic. Because of such limits, I want to take a new glance at the somewhat overlooked view of inference as based on contents. Inferring q from p supposes that one 1) believes that p 2) believes that p justifies q (is a good reason for q—even though the basic relation may be discussed in this context) 3) believes that q 4) believes that q because of the belief that p is a good reason for q.

I examine several “formal” candidates for these four conditions. Following a rule is eventually dismissed. So is the approach is terms of logical form and in terms of truth values, according to the results of my analysis. I thus turn to “material” candidates, in the footsteps of Sellars’ 1953 analysis of inference and meaning. I build the notion of “causal history” in order to express the material relation between premises and a conclusion, and
test its efficacy on the famous example of Linda the bank clerk. I eventually make some restrictions on causal history in order to beat back relativism and maintain the requirement of normativity in reasoning.

**Great Expectations**

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Although expected utility theory has proven a fruitful and elegant theory in the finite realm, attempts to generalize it to include infinite utilities and infinite state spaces have resulted in many paradoxes. Nevertheless, some of the most venerable decision problems like the St. Petersburg Game and Pascal's Wager employ exactly these things. In this paper, we argue that the use of John Conway's surreal numbers allows us to provide a firm mathematical foundation for transfinite decision theory. To that end, we prove a surreal representation theorem, show that surreal decision theory respects dominance reasonings even in the infinite case, and bring our new resources to bear on one of the most puzzling and oft-discussed problems in the literature: Hajek and Nover's Pasadena Game. We show how to give the game a systematic, consistent value. Thus, we provide a fruitful new framework for thinking about infinite decision problems.