ABSTRACTS
B2.1 Formal Philosophy of Science and Formal Epistemology

Coherentism, pluralism and the problem of measure sensitivity
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Propositions cohere to the extent they agree or dovetail with each other. The concept of coherence plays an important role in the theory of epistemic justification, theory appraisal and legal reasoning. The last 15 years have seen a large number of probabilistic proposals trying to explicate the notion of coherence, which is notorious for its elusiveness. In evaluating these proposals, the reference to particular test cases has more and more been replaced by a study of adequacy constraints. Unfortunately, however, it turned out that for each adequacy constraint there is at least one extant measure violating it. Moreover, it can easily be shown that the set of common adequacy constraints, albeit intuitively well-motivated, is plainly inconsistent. In this talk I discuss some recent results that are intimately connected with the problem of measure-sensitivity, as prominently discussed in the literature on Bayesian confirmation theory. To this end I focus on adequacy constraints highlighting the relationship between coherence on the one hand and concepts such as probabilistic independence, logicality, truth- and reliability-conduciveness, inconsistency and disagreement on the other.

After presenting some formal results I address the question of how to interpret them. More precisely, I argue that the problem of measure sensitivity, as it affects probabilistic measures of coherence, should be considered an argument for (a moderate) pluralism with respect to the underlying explicatum.

Carnap's Relevance Measure as Probabilistic Measure of Coherence
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It is generally assumed that Tomoji Shogenji was the first author to present a probabilistic measure of coherence suggesting to calculate the coherence of a set of propositions in terms of the deviation from their joint probabilistic independence. This paper, however, points out that roughly half a century earlier Rudolf Carnap already had a function based on the very same idea, namely his well-known relevance measure. This function is often overlooked in the coherence debate because it has been proposed as a measure of evidential support and still is misconceived as such. The goal of this paper is therefore to show that Carnap's measure is better understood as a probabilistic measure of coherence. For this purpose the measure is generalized and shown to be closely related to Shogenji's coherence measure: both measures satisfy and violate a similar collection of adequacy constraints and perform similarly in a series of test cases for probabilistic coherence measures; Carnap's measure even performs slightly better than Shogenji's in certain respects. Moreover, by conducting a Monte Carlo simulation Carnap's and Shogenji's measure can be shown to be highly correlated with each other and with several prominent probabilistic coherence measures such as e.g. Douven and Meijs', Fitelson's, Glass' and Olsson's and Roche's.