Reanimating Ayer's Significance Criterion
James Justus, philosophy, Florida State University, Tallahassee, USA

The unmitigated failure of A. J. Ayer's significance criterion in Language, Truth, and Logic reveals the fundamental folly of any attempt to formulate such a criterion. This is the familiar, critical appraisal of the historically contentious search for a precise litmus test that would distinguish statements empirical observation bears on from others. But neither the specific indictment of Ayer's efforts nor the negative assessment of the general project should be accepted. Ayer's original proposals were certainly inadequate, but it is far from clear the deficiencies cannot be remedied by well-motivated amendments. Alonzo Church's decisive criticism was an early volley in a more than half-century exchange between proponents and detractors. Calling that series of conceptually and technically intricate maneuvers "the sorry history of unintuitive and ineffective patches," (Lewis 1988, 4) is neither charitable nor accurate. The project also merits a more receptive assessment in another respect. Before Ayer's and then Carnap's efforts, seemingly rudderless debates about what modalities were relevant in gauging empirical significance had made the need for precision, ideally formal precision, manifest. Rather than reflect reckless antimetaphysical fervor, compelling epistemological and methodological concerns rightly catalyzed the search for a formal criterion of empirical significance.

The Principle of Observability, the “Stage of Empirical Weightlessness of a Theory”, and “Constructive Empiricism”
Andrey Pavlenko, Ontology, Institute of Philosophy, Moscow, RUSSIAN FEDERATION (See page 3)

Suppes' latest production: probabilistic empiricism and experimental practices beyond formal methods
Roberta Ferrario, Institute of Cognitive Sciences and Technologies, Italian National Research Council, Trento, ITALY
Viola Schiaffonati, Dip. di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Milano, ITALY

Patrick Suppes has certainly played a key role for the introduction of formal methods to discuss the foundations of science in the philosophical debate already from the last years of the 1950s, by proposing the use of set-theoretical methods, given their power in expressing systematic scientific results. We believe, however, that a better characterization of Suppes’ approach can be found in his attempt to reconcile formal methods with empirical practice in the representation of science, which is evident in the latest production, especially in his attention to the theory of experimentation as a way of treating empirical practices through the use of formal methods. According to Suppes, such theory should include: - a deep consideration of apprenticeship as a ‘learning by doing’ activity, which cannot be left out from the analysis; - a theory of
experimental design, that should include the search for alternative hypotheses or methods and the establishment of a suitable test in order to choose the most efficient in terms of explanatory power or positive results;

- an appropriate theory of error, as an intrinsic constituent of the scientific inquiry, enabling to distinguish between genuine errors, that may be the result of an incorrect application of experimental procedures, and correct, though unusual, results of a measurement. Within this framework, we aim at re-reading Suppes' probabilistic empiricism and the philosophical implications of his 'probabilistic turn' in sciences in the light of his recent studies on brain, rationality and behavior. A point of our contribution is to show how the indeterministic view and probabilistic empiricism together give as a consequence a new way to conceptualize causality, anchored on prediction, rather than on explanation.
Abstract

The Principle of Observability, the “Stage of Empirical Weightlessness of a Theory”, and “Constructive Empiricism”

This work aims at analyzing the “principle of observability” (PO) from the formal point of view, making use of its explicit (ontological and epistemological) definitions: 1) The Strong Ontological Principle of Observability (SOPO); 2) The Week Ontological Principle of Observability (WOPO); 3) The Strong Epistemological Principle of Observability (SEPO); 4) The Weak Epistemological Principle of Observability (WEOP). It will be show that our contemporary interpretation of PO is directly associated with the so called “stage of empirical weightlessness of a theory” (SEWT).

SEWT : 1) The new theory solves all or most part of the problems in the previous theory; 2) The new theory agrees with the principles of symmetry and the laws of conservation (of the other contiguous theories); 3) The new theory includes the previous theory as a limitary case in its own explanation of the object reality; 4) The new theory has a heuristics of its own (can predict new empirical facts(\(\phi\))); 5) The new theory is accepted (provided it possesses the above qualities) by the majority of the research community \(E\) in this field of science; But! 6) The new theory \(T_{\text{new}}\) does not have by far a single empirical verification for the newly predicted facts. The fact that SEWT exists allows us to give the weak epistemological formulation PO.

It will be shown, too, that it is SEWT exactly that offers ample opportunities in both justification of PO and justification of B.v. Fraassen’s thesis:

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\text{Emp Ad}(L) \rightarrow \text{Real}(X) \land \neg \text{Obs}(X).
\]

Literature
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