

Title	後期パースにおける仮説選択基準としての内在的価値
Author(s)	村中, 達矢
Citation	
Issue Date	2000-03
Type	Thesis or Dissertation
Text version	author
URL	<a href="http://hdl.handle.net/10119/628">http://hdl.handle.net/10119/628</a>
Rights	
Description	Supervisor: 下嶋 篤, 知識科学研究科, 修士

# Intrinsic value as an criterion of hypothesis-selection in the late Peirce

Tatsuya Muranaka

School of Knowledge Science,  
Japan Advanced Institute of Science and Technology  
March 2000

Keywords: experiential character of a hypothesis, choice of a hypothesis, intrinsic value of a hypothesis, abduction, C. S. Peirce

Generally, a more general and abstract science lays principles to a more special and concrete science, as mathematics lays principle to natural sciences and economics. Therefore, as logic is a field of philosophy that claims the highest generality and abstractness among all sciences, a discussion in logic concerning the criteria for hypothesis selection is meaningful in that it lays principles for hypothesis selection in sciences of lower generality and abstractness.

According to the Peirce's treatise "On the Logic of Drawing History from Ancient Documents, Especially from Testimonies" (1901), we cannot tell how long it takes before we light upon the hypothesis that resists all tests. But we hope we will eventually do so. Thus, to reach a hypothesis that resists all tests more quickly, Peirce proposes "three considerations that should determine our choice of a hypothesis." First, a hypothesis must be capable of being subjected to experimental testing. Secondly, a hypothesis must be such that it will explain the surprising facts we have before us. And thirdly comes the consideration of economy. According to Peirce,

economy, in general, depends upon three kinds of factors: cost; the value of the thing proposed in itself; and its effects upon other projects.

Elsewhere in the same paper, where Peirce discusses "experiential character of the hypothesis," cost is discussed as cheapness for testing a hypothesis, value as the intrinsic value of a hypothesis, and effects upon other projects as relations among different hypotheses. In the present thesis, I take up the issue of the intrinsic value of a hypothesis.

According to Peirce, intrinsic values are "considerations which we tend toward an expectation that a given hypothesis may be true." These considerations are of two kinds: the purely instinctive and the reasoned. The former is called "naturalness," and the latter is called "likelihood." Naturalness is the character of the hypotheses that naturally recommend themselves to our mind; it is a manifestation of our natural instinct for truth.

Likelihood is an indication that the hypothesis accords or disaccords with our preconceived ideas, which are presumably based upon some experience. Because of this character of likelihood, Peirce claims, if other things are equal, there will be, in the long run, some economy in giving a hypothesis a place in the order of precedence in accordance with its likelihood.

In this thesis, I investigate the mechanism underlying the likelihood of a hypothesis and clarify the following points:

1. Considerations of economy in Peirce's sense are pertinent to the very process of framing a hypothesis, as well as to the process of choosing one hypothesis out of alternative hypotheses already framed.
2. In Peirce's conception, the mechanism underlying likelihood of a hypothesis structurally corresponds to the procedure of justification of hypothesis. This is so because Peirce himself uses this correspondence to argue that likelihood of a hypothesis is an indication of its proximity to verification.
3. Likelihood and naturalness are independent properties of a

hypothesis. In particular, the former cannot be considered as a more specific description of the latter. For, as Peirce describes it, naturalness can indicate the truthfulness of a hypothesis only if one has given the due analysis to it and one is "unswayed" by presumptions. Yet likelihood necessarily involves the accordance with one's preconceived ideas, that is, presumptions. Thus, if likelihood were a mechanism underlying naturalness, naturalness would never indicate the truthfulness of a hypothesis. This is clearly against Peirce's view of naturalness.

4. Likelihood of a hypothesis may involve three different kinds of reasoning as the case may be:
  - 1 It may involve a deduction from the hypothesis to the preconceived ideas. In this case, the "accordance" that Peirce presumes between the hypothesis and the preconceived ideas amounts to a consequence relation from the former to the latter.
  - 1 It may involve an induction from the preconceived ideas to the hypothesis. In this case, the "accordance" amounts to the fact that the hypothesis is a generalization of some of the preconceived ideas.
  - 1 It may involve an abduction from the preconceived ideas to the hypothesis. In this case, the "accordance" amounts to the fact that the hypothesis explains the preconceived ideas in one way or another.

These last points require two qualifications, however. First, the three forms of reasoning involved in this process are not of the kind that generates a certain conclusion from premises, but of the kind that lets one perceive the logical relationship between them. In particular, abductive reasoning involved in this process is not of the kind that generates an explanation in the face of a surprising fact; it only checks the existence of an explanatory relation from the hypothesis to preconceived ideas.

Secondly, the relation of "accordance" is generally a symmetric

relation. Yet according to our interpretation, it amounts to a non-symmetric relation such as a generalization relation, or an explanatory relation. Thus, although our view gives a quite specific idea about the relationship that Perice described as "accordance," it has its own logical problem. The solution of this problem is left for future research.

Copyright © 2000 by Tatsuya Muranaka