Charles Peirce, Inference and Category Theory

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1 Introduction

[1] Charles Sanders Peirce (1839-1914), Collected Papers of Charles Sanders Peirce, vols. 1-6 (Hartshorne, Charles and Weiss, Paul, eds. 1931-1935), vols. 7-8 (Burks, Arthur W., ed. 1958), 2.227 (1902).

"Here in Italy it is proposed that for Machinery and Dynamics we have three sciences, namely, Phoronomy, which treats of motion, Dynamics, which treats of the forces which produce motion, and Ergonomy, which treats of the laws of the production of motion by forces."

"Phoronomy is a purely mathematical science. Ergonomy is a purely physical science. Dynamics is a mixed science."

"Now in order to understand the laws of the production of motion by forces, we must first study the relations of the ideas of motion and of force. Ergonomy, then, presupposes Phoronomy and Dynamics."

[2] Tom Leinster, Rethinking set theory, 2014.

"Category theory takes for granted the notions of set, function, and composition of functions."

"A collection S and a function $f : S \to S$ are **definitions**, in particular, they are completely specified by finite amounts of information. Given S and f, we can talk about the iterates $f^n : S \to S$ ($n \in \mathbb{N}$) of f."

"If $\mathbb{N}$ and S are $\mathbb{N}$ and S as in the **definitions** in particular, then the iterates f^n are also completely specified by finite amounts of information, namely, those of $\mathbb{N}$ and S."

"Foundall 1: Everything is a set. Everything is a function. Everything is a function between sets. Everything is the composition of functions between sets."

"Foundall 2: Everything is a set. Everything is a function. Everything is a function between sets. Everything is the composition of functions between sets."

"Foundall 3: Everything is a set. Everything is a function. Everything is a function between sets. Everything is the composition of functions between sets."

"Foundall