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Editorial: Formal and Informal Representations of Science

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We are fortunate to present in this issue a number of high quality papers on many diverse foundational issues in science. A paper by Paul Agutter and Denys Wheatley discusses how the intentionality, or 'purposiveness', of biological systems is what distinguishes them from other physicochemical systems. Bruce Edmonds puts forth an exciting and pragmatic compromise between reductionism and holism. A paper by Francis Heylighen addresses the advantages and disadvantages of the process of formalization. Formalization generally increases the universality and clarity of an idea; however, by the time a result is encountered by fellow scientists, it has usually been formalized to the point that the circumstances through which it was discovered are obscured, or fully erased.

The process of formalization is an issue we too have been thinking about with respect to this journal. Our concern was that the distilled format of the scientific article provides no glimpse into the processes through which the result was discovered or invented. The 'ontogeny' of the result can be discerned more easily in informal writings, such as historical accounts of the events leading up to the result, or biographies of the scientists involved. Though these formats are not generally considered scientific, the insight they provide into the scientific process is of both interest and value to the scientist, as well as to the philosopher of science.

The standard format of a scientific article -- abstract, keywords, introduction, theoretical or experimental results, and conclusion -- has evolved through a process of cultural selection as a viable means of presenting scientific knowledge. However this does not necessarily mean that it is the optimal format for conveying all scientific information. Other formats, such as essays and interviews, may be appropriate for certain scientific pieces. It is for this reason that *Foundations of Science* will not rule out, and is willing to consider for publication, works in alternative formats.

In the 'Informal Aspects of Foundations of Science' section we present two examples of alternative formats. The first is an interview with Bruce Sawhill which discusses theoretical and practical applications of complexity theory. The second is a provocative piece by Toraldo Di Francia on strategic thought and behavior in humans and computers of which the

format is rather experimental and aimed especially at reflection and discussion of the mentioned aspects.