1056-03-262 **Philip Ehrlich*** (`ehrlich@ohio.edu`), Department of Philosophy, Ohio University, Athens, OH 45701. *Surreal Numbers, Conway Names, and the Simplicity Hierarchy.*

J. H. Conway's ordered field No of surreal numbers is so remarkably inclusive that, subject to the proviso that numbers–construed here as members of ordered "number" fields–be individually definable in terms of sets of NBG, it may be said to contain "All Numbers Great and Small." In addition to its inclusive structure as an ordered field, No has a rich algebraico-binary tree-theoretic structure, or simplicity hierarchy, that emerges from the recursive clauses in terms of which it is defined. Among the striking simplicity-hierarchical features of No is that every surreal number can be assigned a canonical "proper name"–called its Conway name (or normal form)–that is a reflection of its characteristic simplicity-hierarchical properties. In the present talk, answers are provided for the following two questions that are motivated by No's structure as an ordered binary tree:

(i) Given the Conway name of a surreal number, what are the Conway names of its two immediate successors?

(ii) Given a chain of surreal numbers of infinite limit length, what is the Conway name of the immediate successor of the chain? (Received August 21, 2009)