Ordered semantic hyper-linking permits the use of semantics in a goal-directed, propositionally efficient theorem proving system. Semantics specifies the meanings of the predicate and function symbols in a theorem. This approach has led to good performance of OSHL on planning problems and situation calculus problems, among others. These results are extended to set theory problems, using two decidable semantics for fragments of set theory. This extension utilizes not only semantics but also heuristics for favoring certain terms. These heuristics can be generated from the axioms in a systematic way, in most cases. However, it is possible that the same heuristics used with a resolution theorem prover would yield comparable performance. (Received January 07, 2002)