Natural Semantics, Structural Operational Semantics

@techreport{ gp:sos,
    author="Gordon Plotkin",
    title="A structural approach to operational semantics",
    institution="{A}arhus {U}niversity, 
                {C}omputer {S}cience {D}epartment",
    number="DAIMI FN-19",
    year=1981
}

**Content**  Plotkin demonstrates how to create a “structural” operational semantics (sos) for programming languages. The “trick” (first insight) is to specify logical judgments and inference rules that use the environment on the left side of the turn style and that switch it to the right (and back) as needed. From here it is straightforward to see how to code up a semantics for store-based and continuation-based languages, too. In essence, the concrete domains of sos mimic the denotational domains without any need for domain theory and the inference rules of sos mimic the meaning function of a denotational semantics.

@inproceedings{ gk:ns,
    author = "Gilles Kahn",
    title = "Natural semantics",
    booktitle = {STACS ’87: Proc. Fourth Annual Symposium on Theoretical Aspects of Computer Science},
    year = {1987},
    pages = {22--39},
    publisher = {Springer-Verlag}
}
Kahn’s natural semantics is an alternative development of structural operational semantics. The term “small step” and “large step” semantics seems to have originated with Kahn’s development of natural semantics, which is contemporary to Plotkin’s development.