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Nonminimal Derivations in Unification-based Parsing

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Shieber's abstract parsing algorithm (Shieber 1992) for unification grammars is an extension of Earley's algorithm (Earley 1970) for context-free grammars to feature structures. In this paper, we show that, under certain conditions, Shieber's algorithm produces what we call a nonminimal derivation: a parse tree which contains additional features that are not in the licensing productions. While Shieber's definition of parse tree allows for such nonminimal derivations, we claim that they should be viewed as invalid. We describe the sources of the nonminimal derivation problem, and propose a precise definition of minimal parse tree, as well as a modification to Shieber's

algorithm which ensures minimality, although at some computational cost.

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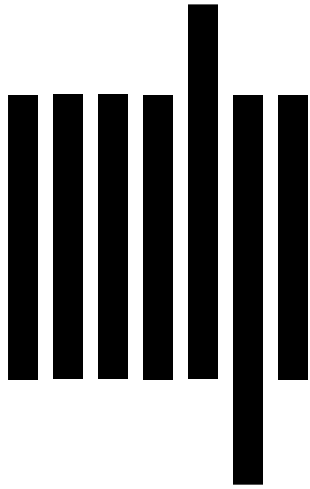
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