Grammar Analysis

Examples of Semantics and Rules as Data

- Rules can be directly represented as data.
- Each rule name is checked to be unique.
- The propensity and update functions are lambdas an injected into the approximate algorithm.
    - DGGML enforces constraints on the input and output, but not on functions contents.
- Rules may share isomorphic connected components of LHS or RHS graphs.
    - Efficient analysis takes advantage of this.

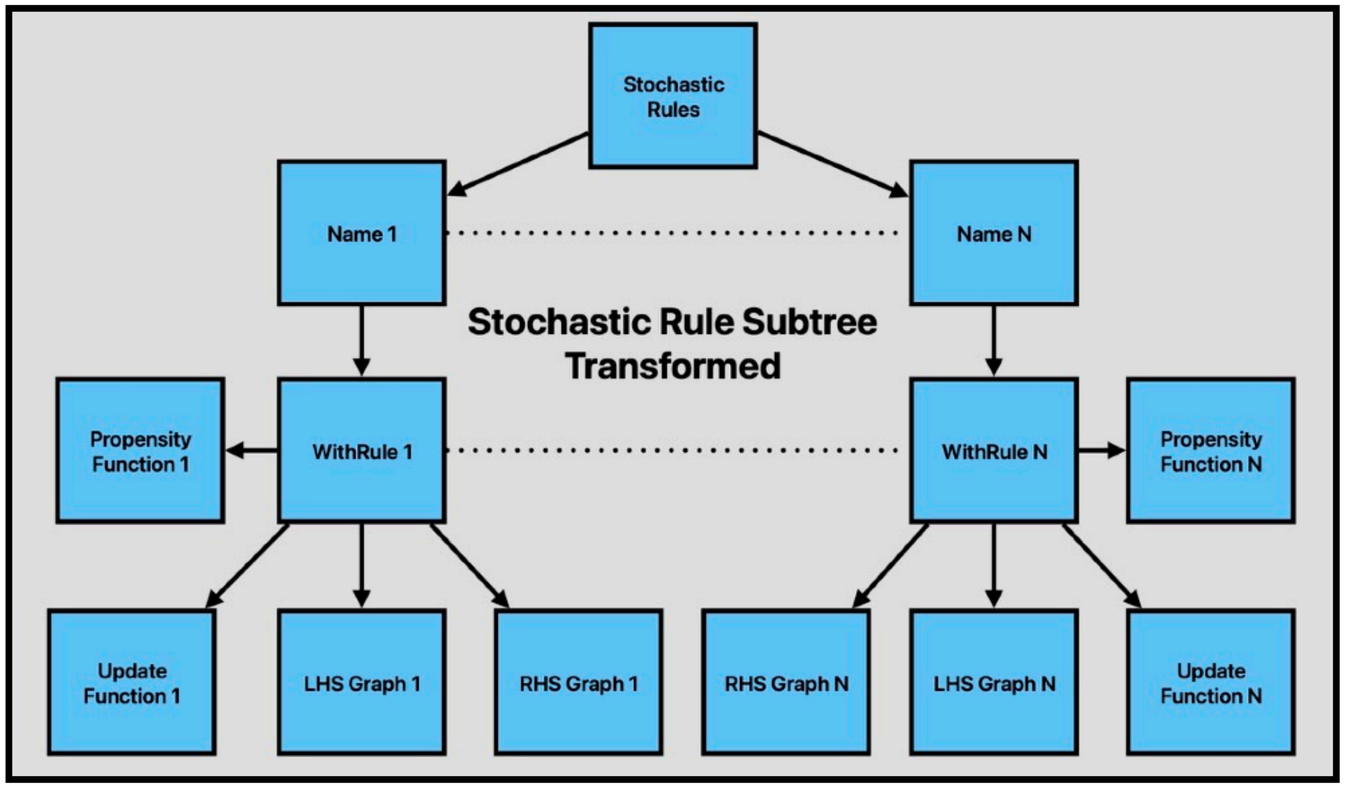

Figure 21: A transformed stochastic rule subtree, originating from an abstract syntax tree representing a grammar.

Grammar Analysis

Identifying the Connected Components

- All LHS connected components are identified and are ***motifs*** for the rule.
- The set of unique motifs are the fundamental patterns in the grammar.
- The ***component match set*** stores all instances of component matches.
- Combinations of matched instances of motifs are the rule instances.
- Rule instances are stored in the ***rule match set***.
- Taken together, these two sets are the ***match data structure***.

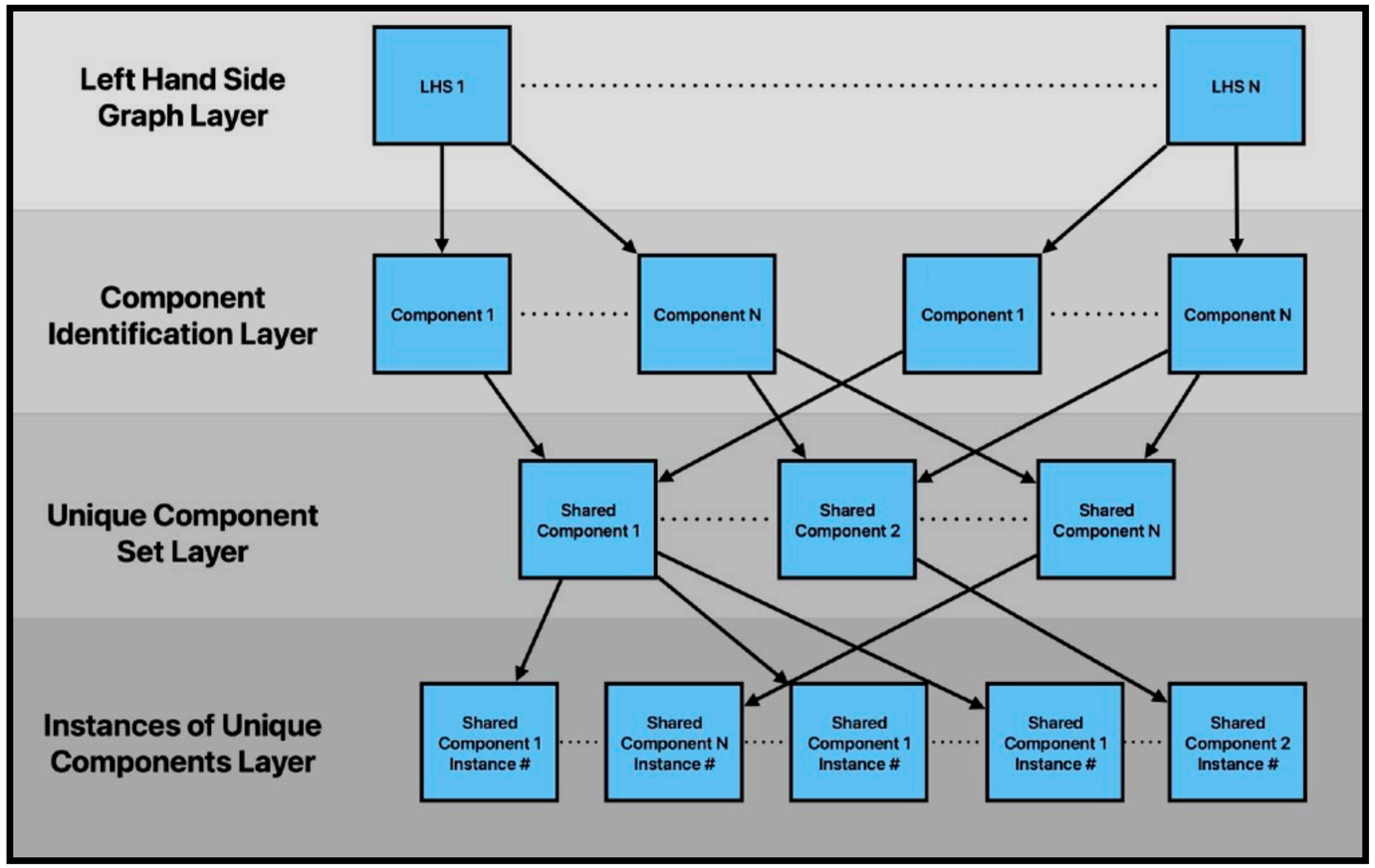

Figure 22: An overview of the “parsing” process and how component matches are stored.