On Syntax Analysis of LL Scattered Context Grammar decided in second component

This paper deals with LL Scattered Context Grammars (LL SCG) with postponed decision rule selection. We call them *postponed LL Scattered Context Grammars*.

The reason to investigate LL version of scattered context grammar is the ability to provide deterministic syntax grammar analysis.

A basic LL SCG analysis uses approach similar to LL analysis of context free grammars. Based on the top of the pushdown and the symbol under the reading head the production rule is selected. When the production rule is selected all the parts are applied at one derivation step. The decision is made at the first component (the first part of production rule).

The initial hypothesis claims that we are able to postpone, if we need it, the production rule selection to the second and even to further components.

Next, we provide a conversion algorithm for transformation of scattered context grammars into postponed LL Scattered Context Grammars. The table-driven parsing algorithm of LL SCG has also been updated to handle the postponed LL SCG.

 The coexistence of these algorithms is following:

- If the given grammar is already LL SCG no further transformation is needed. This production is handled as for LL SCG.
- If several production rules have the same first component this component is used. The rest is replaced with new component. This new component works such as placeholder for some of handled productions.

The generative power of grammars which are able to select production rules in the second component is at least the same as the generative power of the basic LL SCG. Simply, the decision is made in the first component.

Further research leads to generalization of these results and usage alongside with lazy evaluation of LL SCG. What is the generative power of these postponed LL Scattered Context Grammars? And what influence has the number of decision components on generative power of these grammars?

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