Generalized LL For CF Languages Intersection

Semyon Grigorev

February 2, 2017

Let we have two CF grammars G_1 and G_2. Both this grammars can be presented as deterministic recursive finite automaton. Position in grammar is number of automata state.

We will use two different GSS for construction of G_1 and G_2 intersection.

Let descriptor is (g_1, p_1, g_2, p_2) where g_1 and g_2 are GSS nodes, p_1 and p_2 are positions in grammars. Each triple (g_1, p_1, p_2) and (g_2, p_2, p_1) can be considered as descriptors in origins GLL (GSS node, position in grammar, position in input).

Let we have a descriptor of form (g_1, p_1, g_2, p_2). Possible cases.

- There are token edges from p_1 and p_2 which are labelled with same tokens. For each pair of edges $(p_1, t, q_1)(p_2, t, q_2)$ create a descriptor (g_1, q_1, g_2, q_2)
- Other cases can be processed independently by the similar to classical GLL way.

Is it possible to store U and P in GSS-s?

Complexity?

Correctness?

Formalize in Coq?