1 Generating Items

(1) Add all grammar rules, as items, to the item set I_0.

(2) Let I_n be a variable reflecting the 'source' item set, which shall be initialised as I_0. Consequently, I_{n+1} will reflect the 'current' item set.

(3) Obtain a set of the indexed characters of I_n. For simplicity let this set be called A.

(4) For every item in A, A_x, find all productions in I_n that have, as the indexed character, A_x. If there are any such productions, copy them into I_n and advance the indices of the copies *if and only if* there is no identical production (that is, with the index being a characteristic feature on top of the actual production) in the union of all items until now created. In any case, then exhaust the possibilities in A.

Note here that items are *by no means* prohibited from having appended items that are already in the union of all items (cfr. rule (5), whereby items can be duplicated if they are of index 0).

(5) Loop through I_{n+1} now and, wherever the indexed character happens to be a *nonterminal*, append to it from I_0 the productions (with index 0) whose left-hand-sides are that same nonterminal.

(6) Increment n, and repeat from (2) to (5) until there are no more items to be created.