



















































- $C$ : a finite set of  $p$ -contexts (i.e., a  $p$ -dimensional vector whose components are contexts) over  $\Sigma$ , called the set of contexts of  $G$ .

Here is an example. Let us assume we have a SEC grammar with 2 dimensions, where:  $\Sigma = \{a, b, c\}$ ,  $B = \{(\lambda, \lambda)\}$ , and  $C = \{c_1 = [(a, b), (c, \lambda)]\}$ . Starting from the base  $(\lambda, \lambda)$ , if we apply the context once we obtain the 2-word  $(a\lambda b, c\lambda\lambda) = (ab, c) = abc$ . Now, starting from  $(ab, c)$ , if we again apply the context we obtain  $(aa\lambda bb, cc\lambda\lambda\lambda) = (aabb, cc) = aabbcc$ . Note that by using this grammar, we can generate the following non-CF language:  $L = \{a^n b^n c^n \mid n \geq 0\}$ . The generation process is depicted in Figure 8.

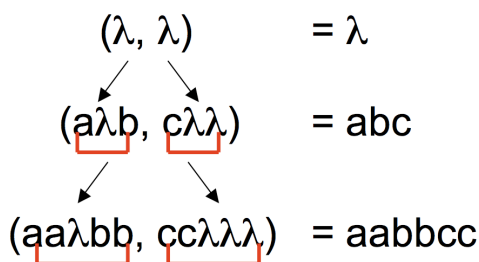


Fig. 8. Derivation process of the SEC grammar  $G = (\Sigma = \{a, b, c\}, B = \{(\lambda, \lambda)\}, C = \{c_1 = [(a, b), (c, \lambda)]\})$

Becerra-Bonache [7] proved that SEC can generate MCS languages and occupies an orthogonal position in the Chomsky hierarchy (see Figure 9). Moreover, the learnability of SEC from positive data has been studied in [8, 12, 30].

## 5.2 Learning from Positive Data and Corrections

As we have seen in the section above, studies on children's language acquisition show that corrections are available to children. Although the main source of information received during the process of natural language acquisition is positive data, corrections could play a complementary role in the process. Therefore, it is of great interest to study the effects of corrections on language learning.

Taking all this into account, Becerra-Bonache [7] tried to apply the idea of corrections to GI studies, and more concretely to the query learning model

