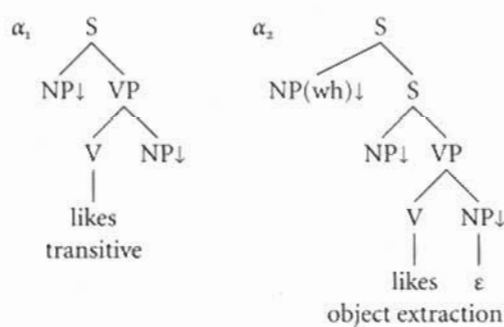


Fig. 26.6 Adjoining arises out of lexicalization

26.1.3 Lexicalized tree-adjoining grammars

Rather than giving formal definitions for LTAG and derivations in LTAG we will give a simple example to illustrate some key aspects of LTAG. We show some elementary trees of a toy LTAG grammar of English. Fig. 26.7 shows two elementary trees for a verb such as *likes*. The tree α_1 is anchored on *likes* and encapsulates the two arguments of the verb. The tree α_2 corresponds to the object extraction construction. Since we need to encapsulate all the arguments of the verb in each elementary tree for *likes*, for the object extraction construction, for example, we need to make the elementary tree associated with *likes* large enough so that the extracted argument is in the same elementary domain. Thus, in principle, for each 'minimal' construction in which *likes*

Fig. 26.7 LTAG: Elementary trees for *likes*

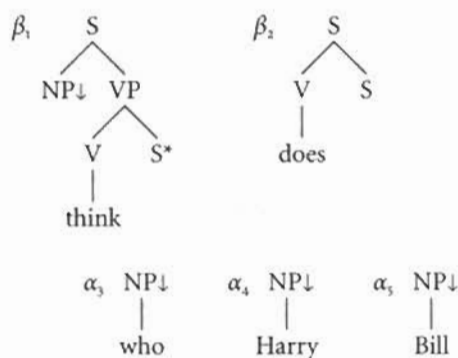


Fig. 26.8 LTAG: Sample elementary trees

can appear (for example, subject extraction, topicalization, subject relative, object relative, passive) there will be an elementary tree associated with that construction. By 'minimal' we mean when all recursion has been factored away. This factoring of recursion away from the domain over which the dependencies have to be specified is a crucial aspect of LTAGs as they are used in linguistic descriptions. This factoring allows all dependencies to be localized in the elementary domains. In this sense, there will, therefore, be no long-distance dependencies as such. They will all be local and will become long distance on account of the composition operations, especially adjoining.

Fig. 26.8 shows some additional trees. Trees α_3 , α_4 , and α_5 are initial trees and trees β_1 and β_2 are auxiliary trees with foot nodes marked with *. A derivation using the trees in Fig. 26.7 and Fig. 26.8 is shown in Fig. 26.9. The trees for *who* and *Harry* are substituted in the tree for *likes* at the respective NP nodes, the tree for *Bill* is substituted in the tree for *think* at the NP node, the tree for *does* is adjoined to the root node of the

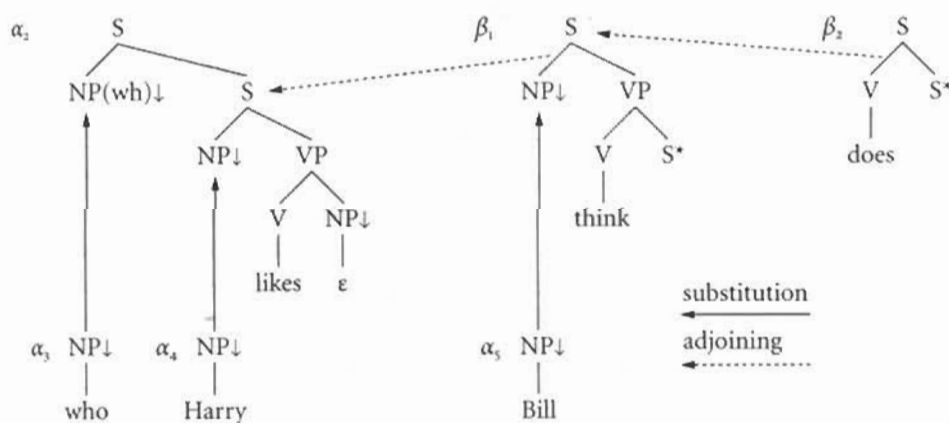


Fig. 26.9 LTAG derivation for *who does Bill think Harry likes*