Chapter 14, Problem 3: Subject Gaps

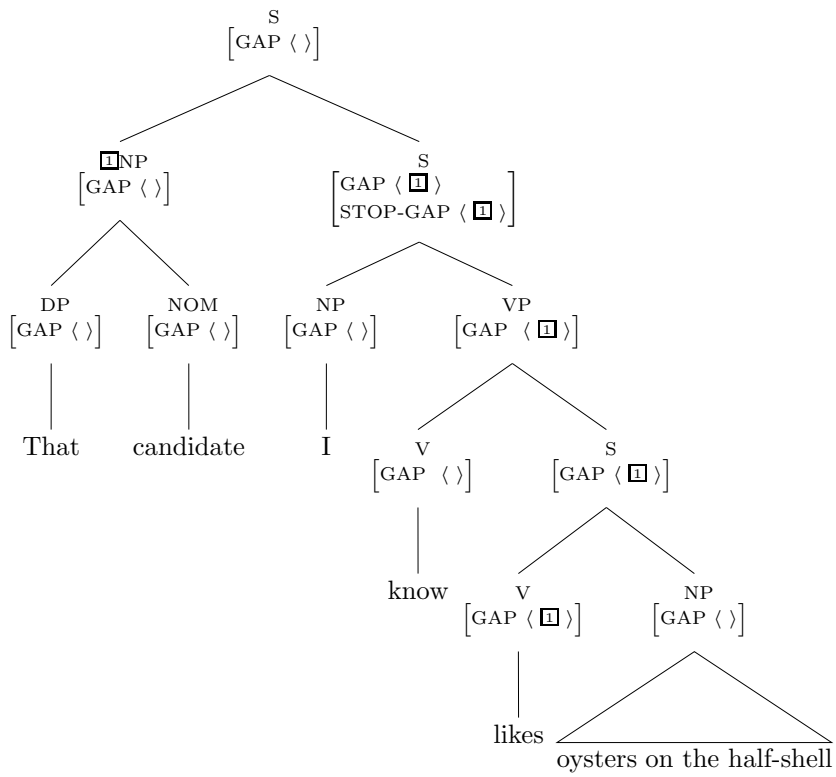
A.

$$\left\langle \text{likes} , \begin{bmatrix} \textit{word} & \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \\ \text{FORM} & \text{fin} \\ \text{AGR} & \boxed{2}\textit{3sing} \end{bmatrix} \\ \text{SPR} & \left\langle \boxed{1}\text{NP}\begin{bmatrix} \text{CASE} & \text{nom} \\ \text{AGR} & \boxed{2} \end{bmatrix} \right\rangle \\ \text{GAP} & \langle\ \rangle \end{bmatrix} \\ \text{ARG-ST} & \langle\ \boxed{1}\ , \text{NP[acc]}\ \rangle \\ \text{SEM} & \left[\ldots\right] \end{bmatrix} \right\rangle$$

B.

$$\left\langle \text{likes} , \begin{bmatrix} \textit{word} & \\ \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \\ \text{FORM} & \text{fin} \\ \text{AGR} & \boxed{2}\textit{3sing} \end{bmatrix} \\ \text{SPR} & \langle\ \rangle \\ \text{GAP} & \left\langle \boxed{1}\text{NP}\begin{bmatrix} \text{CASE} & \text{nom} \\ \text{AGR} & \boxed{2} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{ARG-ST} & \langle\ \boxed{1}\ , \text{NP[acc]}\ \rangle \\ \text{SEM} & \left[\ldots\right] \end{bmatrix} \right\rangle$$

C.



The GAP value for the word structure for *likes*, introduced by the Subject Extraction Lexical rule, is the same as that in all of its dominating nodes up to second highest S node. This is because of the GAP Principle, which guarantees that the GAP value for any node is the sum of the GAP values of its daughters, minus the STOP-GAP value of the head-daughter (and because all the other nodes have empty GAP lists). The very top of the tree is licensed by the Head-Filler Rule, which requires the initial NP to be identical to the GAP value of its sister.

C. Yes, we properly rule out **Those candidates, I think likes raw oysters.* The crucial thing to notice in this example is that the word structure for *likes* requires a third-person singular NP in its GAP, and that information is shared with all of the nodes on the path up to the top of the tree. *Those candidates* is [AGR *non-3sing*], so it cannot unify with the NP in the GAP value of the S node that is its sister. But the Head-Filler Rule requires the initial constituent to unify with the GAP value of its sister. Hence, the example will not be generated.