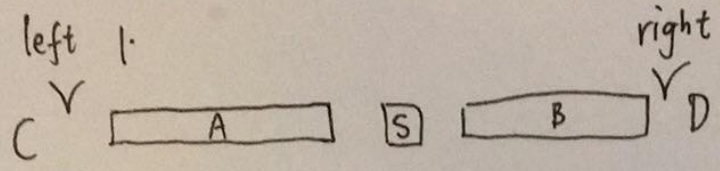


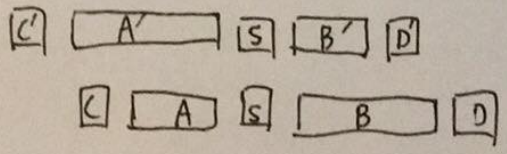
① if $\max(A) > \max(\max(B), D)$, shift right

② if $\max(B) > \max(\max(A), C)$, shift left

deterministic: condition ① & ② can't be true at same time

uniqeness: if ① & ② are both true, left is unique.

proof of uniqueness:



suppose $A > B+D$ && $B > A+C$, and $A' > B'+D'$ && $B' > A'+C'$

↳ $A' > B+D \rightarrow A'+C' > B'+D' \rightarrow A'+C' > B'$

contradicts with $B' > A'+C'$