# Review of Closure, Non-Closure Properties; Let L1, L2 be Non-Regular CFLs; R1, R2 be Regular; Answer is about S

| Definition of S / Characterization of S | Always Regular | At worst a CFL | Might not be CFL |
|---|---|---|---|
| S = R1 ∪ R2 | X | | |
| S = R1 ∩ R2 | X | | |
| S = Complement of R1 | X | | |
| S = Reversal of R1 | X | | |
| S = L1 ∪ L2 | | X | |
| S = L1 ∩ L2 | | | X |
| S = Complement of L1 | | | X |
| S = Reversal of L1 | | X | |
| S = R1/R2 | X | | |
| S = L1/R1 | | X | |
| S = L1 – R1 | | X | |
| S = R1 – L1 | | | X |
| S = max(R1) | X | | |
| S = min(L1) | | | X |
| S ⊊ R1 | | | X |

# Review of Closure, Non-Closure Properties; Let L1, L2 be non-Regular CFLs; R1, R2 be Regular; Answer is about S

| Definition of S / Characterization of S | Might be Regular | Might be non-reg, CFL | Might not be CFL |
|---|---|---|---|
| S = L1 ∪ R1 | X | X | |
| S = L1 ∪ L2 | X | X | |
| S = L1 ∩ R1 | X | X | |
| S = L1 ∩ L2 | X | X | X |
| S = Complement of L1 | | X | X |
| S = Reversal of L1 | | X | |
| S = L1/R1 | X | X | |
| S = L1 – R1 | X | X | |
| S = R1 – L1 | X | X | X |
| S = max(L1) | X | X | X |
| S = min(L1) | X | X | X |
| S ⊊ L1 | X | X | X |