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DFA 5-Tuple specification

DFA = (Q, Σ, δ, q0, F)

Q = {q1, q2, q3, …, q9}

Σ = {a, b, c, …, z} U {.} U {@}

q0 = q1

F = q8

δ =

| Transition Function | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **q1** | **q2** | **q3** | **q4** | **q5** | **q6** | **q7** | **q8** | **q9** |
| **Γ** | q2 | q2 | q4 | q4 | q4 | q4 | q4 | q4 | q9 |
| **o** | q2 | q2 | q4 | q4 | q6 | q4 | q4 | q4 | q9 |
| **r** | q2 | q2 | q4 | q4 | q4 | q7 | q4 | q4 | q9 |
| **g** | q2 | q2 | q4 | q4 | q4 | q4 | q8 | q4 | q9 |
| **Φ** | q9 | q3 | q9 | q9 | q9 | q9 | q9 | q9 | q9 |
| **Δ** | q9 | q1 | q9 | q5 | q9 | q5 | q5 | q5 | q9 |

I have set up the table in a way that if o, r, or g are specified to take the current node to a different state other than Γ, Γ accounts for the Γ-o,r,g state.

For example, the q5 node’s transition of Γ-o goes to q4 along with the r and q transition. For this reason, Γ, r, and q point to q4 while o points to q6.