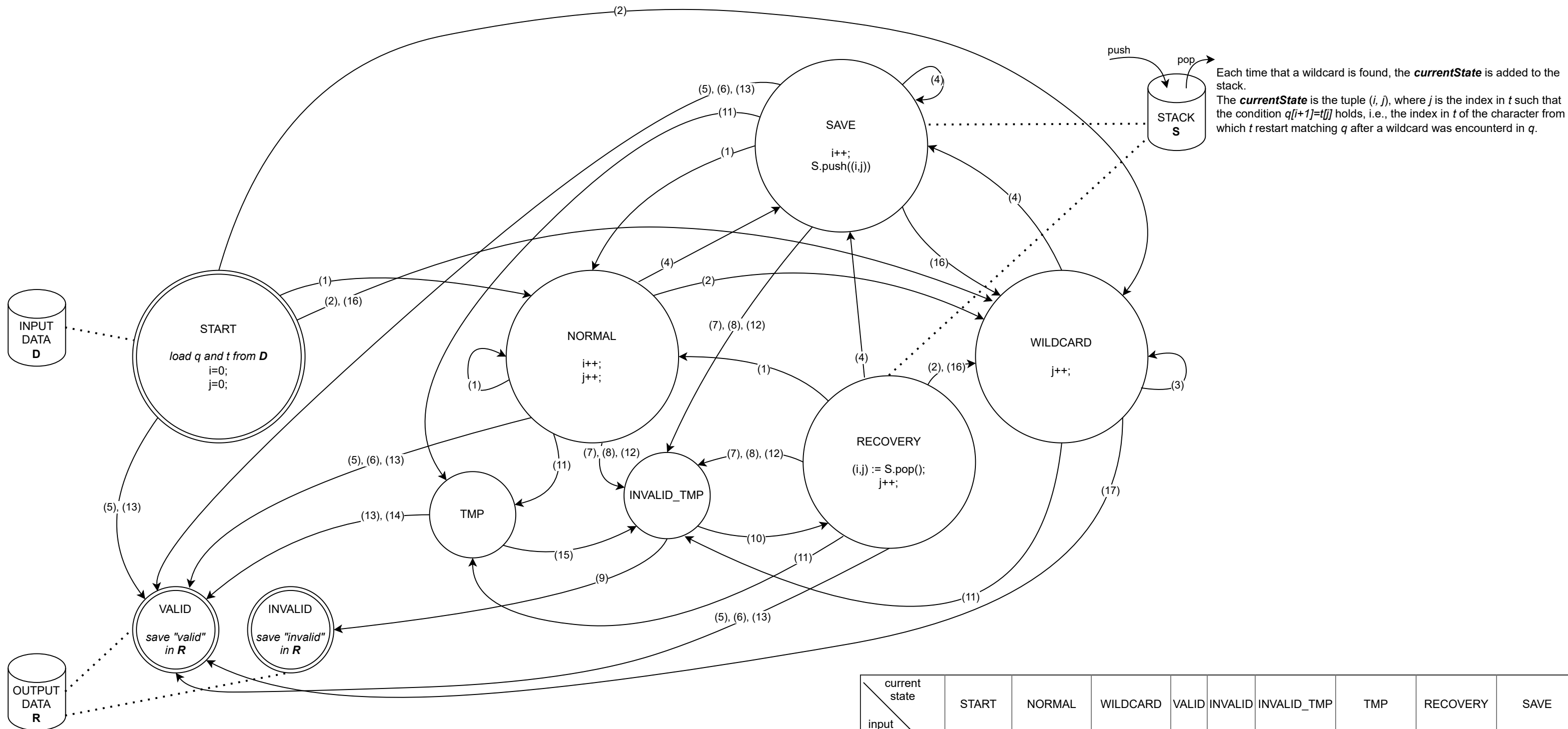


GOAL: Given an un-stemmed wildcard query q and a stemmed token t , return true if the wildcard query is compatible with the given stemmed token, false otherwise.

This problem is solved using an implementation of a modified finite-state machine, where each state can take some input parameter and its state evolves dynamically according to its current state and the input parameters.



- (1) $i < q.length$ AND $j < t.length$ AND ($q[i] = t[j]$ OR $stem(t.substring(0,j) + q.substring(i).replaceAll(".*")) = t$)
- (2) $i < q.length-1$ AND $j < t.length$ AND $q[i] \neq t[j]$ AND $q[i] = '*'$
- (3) $i < q.length-1$ AND $j < t.length$ AND $q[i+1] \neq t[j]$
- (4) $i < q.length-1$ AND $j < t.length$ AND $q[i+1] = t[j]$
- (5) $i = q.length$ AND $j = t.length$
- (6) $i = q.length-1$ AND $j < t.length$ AND $q[i] \neq t[j]$ AND $q[i] = '*'$
- (7) $i = q.length-1$ AND $j < t.length$ AND $q[i] \neq t[j]$ AND $q[i] \neq '*'$
- (8) $i < q.length-1$ AND $j < t.length$ AND $q[i] \neq t[j]$ AND $q[i] \neq '*'$
- (9) $S.isEmpty()$
- (10) $! S.isEmpty()$
- (11) $i < q.length$ AND $j = t.length$
- (12) $i = q.length$ AND $j < t.length$
- (13) $j = t.length$ AND $i < q.length$ AND $stem(t + q.substring(i).replaceAll(".*")) = t$
- (14) $q[i] = '*'$ AND $i = q.length-1$
- (15) $q[i] \neq '*'$ OR $i < q.length-1$
- (16) $i < q.length-1$ AND $j < t.length$ AND $q[i] \neq t[j]$ AND $q[i+1] = '*'$ AND $q[i] \neq '*'$
- (17) $j = t.length$ AND $i < q.length$ AND $stem(t + q.substring(i+1).replaceAll(".*")) = t$

current state \ input	START	NORMAL	WILDCARD	VALID	INVALID	INVALID_TMP	TMP	RECOVERY	SAVE
no input (unstable state)	-	-	-	end	end	-	-	-	-
(1)	NORMAL	NORMAL	-	-	-	-	-	NORMAL	NORMAL
(2)	WILDCARD	WILDCARD	-	-	-	-	-	WILDCARD	-
(3)	-	-	WILDCARD	-	-	-	-	-	-
(4)	-	SAVE	SAVE	-	-	-	-	SAVE	SAVE
(5)	VALID	VALID	-	-	-	-	-	VALID	VALID
(6)	-	VALID	-	-	-	-	-	VALID	VALID
(7)	-	INVALID_TMP	-	-	-	-	-	INVALID_TMP	INVALID_TMP
(8)	-	INVALID_TMP	-	-	-	-	-	INVALID_TMP	INVALID_TMP
(9)	-	-	-	-	-	INVALID	-	-	-
(10)	-	-	-	-	-	RECOVERY	-	-	-
(11)	-	TMP	INVALID_TMP	-	-	-	-	TMP	TMP
(12)	-	INVALID_TMP	-	-	-	-	-	INVALID_TMP	INVALID_TMP
(13)	VALID	VALID	-	-	-	-	VALID	VALID	VALID
(14)	-	-	-	-	-	-	VALID	-	-
(15)	-	-	-	-	-	-	INVALID_TMP	-	-
(16)	WILDCARD	WILDCARD	-	-	-	-	-	WILDCARD	WILDCARD
(17)	-	-	VALID	-	-	-	-	-	-