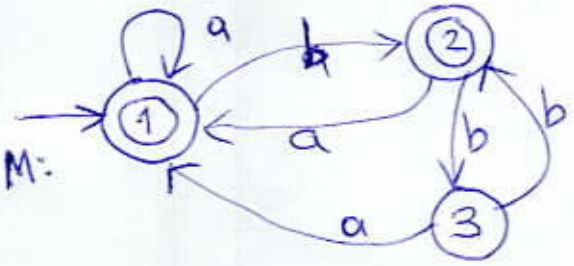
Kleene – 2

$$L(M) = \bigcup \{ L(q_0, q) \mid q \in F \}$$

$$L(P, q, k+1) = L(P, q, k) + L(P, k+1, k) \, L(k+1, k+1, k)^* \, L(k+1, q, k)$$



P	r(P,1,0)	r(P,2,0)	r(P,3,0)
1	$a + \Lambda$	b	$\emptyset$
2	a	Λ	b
3	a	b	Λ

	r(P,1,1)	r(P,2,1)	r(P,3,1)
1	a^*	$a^* b$	$\emptyset$
2	aa^*	$\Lambda + aa^* b$	b
③	aa^*	$a^* b$	Λ

	r(P,1,2)	r(P,2,2)	r(P,3,2)
1	$a^* (baa^*)^*$	$a^* (baa^*)^* b$	$a^* (baa^*)^* bb$
2	$aa^* (baa^*)^*$	$(a a^* b)^*$	$(aa^* b)^* b$
3	$aa^* + a^* baa^* (baa^*)^*$	$a^* b (aa^* b)^*$	$\Lambda + a^* b (aa^* b)^* b$

$$r(M) = r(1,1,3) + r(1,2,3)$$

$$r(1,1,3) = r(1,1,2) + r(1,3,2) \cdot r(3,3,2)^* \, r(3,1,2)$$

$$r(1,2,3) = r(1,2,2) + r(1,3,2) \, r(3,3,2)^* \, r(3,2,2)$$

Bottom-up ①

$r(1,1,0) = \overbrace{r(1,1,0)}^{\text{temel.}} = \Lambda + a \quad | \quad r(1,2,0) = b \quad | \quad r(1,3,0) = \emptyset$

$r(2,1,0) = a \quad , \quad r(2,2,0) = \Lambda , \quad r(2,3,0) = b$

$r(3,1,0) = a \quad , \quad r(3,2,0) = b , \quad r(3,3,0) = \Lambda$

$r(1,1,1) = r(1,1,0) + r(1,1,0) r(1,1,0)^* r(1,1,0) = a^*$

$r(1,2,1) = r(1,2,0) + r(1,1,0) r(1,1,0)^* r(1,2,0) = a^* b$

$r(1,3,1) = r(1,3,0) + r(1,1,0) r(1,1,0)^* r(1,3,0) = \emptyset$

$r(2,1,1) = r(2,1,0) + r(2,1,0) r(1,1,0)^* r(1,1,0) = a a^*$

$r(2,2,1) = r(2,2,0) + r(2,1,0) r(1,1,0)^* r(1,2,0) = \Lambda + a a^* b$

$r(2,3,1) = r(2,3,0) + r(2,1,0) r(1,1,0)^* r(1,3,0) = b$

$r(3,1,1) = L(3,1,0) + L(3,1,0) L(1,1,0)^* L(1,1,0) = a a^*$

$r(3,2,1) = L(3,2,0) + L(3,1,0) L(1,1,0)^* L(1,2,0) = a^* b$

$r(3,3,1) = L(3,3,0) + L(3,1,0) . L(1,1,0)^* L(1,3,0) = \Lambda$

$r(1,1,2) = r(1,1,1) + r(1,2,1) r(2,2,1)^* r(2,1,1) = a^* (b a a^*)^*$

$r(1,2,2) = r(1,2,1) + r(1,2,1) r(2,2,1)^* r(2,2,1) = a^* (b a a^*)^* b$

$r(1,3,2) = r(1,3,1) + r(1,2,1) r(2,2,1)^* r(2,3,1) = a^* (b a a^*)^* b b$

$r(2,1,2) = r(2,1,1) + r(2,2,1) r(2,2,1)^* r(2,1,1) = a a^* (b a a^*)^*$

$r(2,2,2) = r(2,2,1) + r(2,2,1) r(2,2,1)^* r(2,2,1) = (a a^* b)^*$

$r(2,3,2) = r(2,3,1) + r(2,2,1) r(2,2,1)^* r(2,3,1) = (a a^* b)^* b$

Bottom-up ②

$r(3,1,2) = r(3,1,1) + r(3,2,1)\, r(2,2,1)^* r(2,1,1) = a^* + a^* baa^* (baa^*)^*$

$r(3,2,2) = r(3,2,1) + r(3,2,1)\, r(2,2,1)^* r(2,2,1) = a^*b (aa^*b)^*$

$r(3,3,2) = r(3,3,1) + r(3,2,1)\, r(2,2,1)^* r(2,3,1) = (aa^*b)^* b$

Sorumuzun cevabı

$r(M) = r(1,1,3) + r(1,2,3)$ idi.

$= r(1,1,2) + \underline{r(1,3,2)\, r(3,3,2)^*\, r(3,1,2)}$

$+ r(1,2,2) + \underline{r(1,3,2)\, r(3,3,2)^*\, r(3,2,2)}$

$= a^* (baa^*)^* + a^* (baa^*)^* bb \left(\lambda + a^*b (aa^*b)^* b\right)^* \left(aa^* + a^* baa^* (baa^*)^*\right)$

$+ a^* (baa^*)^* b + \cdots$

$= r(1,1,2) + r(1,2,2) + r(1,3,2)\, r(3,3,2)^* \left(r(3,1,2) + r(3,2,2)\right)$

$a^* (baa^*)^* (\lambda + b) + a^* (baa^*)^* bb \left(\lambda + a^*b (aa^*b)^* b\right)^* \left(\right.$

$\left. aa^* + a^*b (aa^*b)^* \right)$