

Lenguajes Regulares

Fuente: T.A. Sudkamp. Languages and Machines:

An Introduction to the Theory of Computer Science. Pearson, 3rd Edition (2005), pp. 59-61.

4. Let $X = (aa, bb)$ and $Y = \{\lambda, b, ab\}$.

a) List the strings in the set XY .

$\{aa, aab, aaab, bb, bbb, bbab\}$

b) How many strings of length 6 are there in X^* ?

$\{aaaaaa, bbbbbb, aaaabb, aabbaa, bbaaaa, aabbbb, bbbbaa, bbaabb\}$

c) List the strings in the set Y^* of length three or less.

$\{\lambda, b, ab, bb, bab, abb, bbb\}$

d) List the strings in the set X^*Y^* of length four or less.

X^* elements of length 4 or less = $\{\lambda, aa, bb, aaaa, aabb, bbaa, bbbb\}$

Y^* elements of length 4 or less = $\{\lambda, b, ab, bb, bab, abb, bbb, abab, babb, bbab, abbb, bbbb\}$

Therefore elements of X^*Y^* of length four or less are: $\{\lambda, b, ab, bb, bab, abb, bbb, abab, babb, bbab, abbb, bbbb, aa, aabaaab, aabb, aaaa, aabb, bbaa\}$

14. The set of strings over $\{a, b, c\}$ in which all the a 's precede the b 's, which in turn precede the c 's. It is possible that there are no a 's, b 's, or c 's.

$a^* b^* c^*$

15. The same set as Exercise 14 without the null string.

$a^+ b^+ c^+$

16. The set of strings over $\{a, b, c\}$ with length three:

$(a+b+c)(a+b+c)(a+b+c)$

17. The set of strings over $\{a, b, c\}$ with length less than three:

$(\epsilon + a + b + c)(\epsilon + a + b + c)$

18. The set of strings over $\{a, b, c\}$ with length greater than three.

$(a + b + c)(a + b + c)(a + b + c)(a + b + c)^+$

19. The set of strings over $\{a, b\}$ that contain the substring ab and have length greater than two.

$(a + b)^*a(a + b)^*b(a + b)^*$