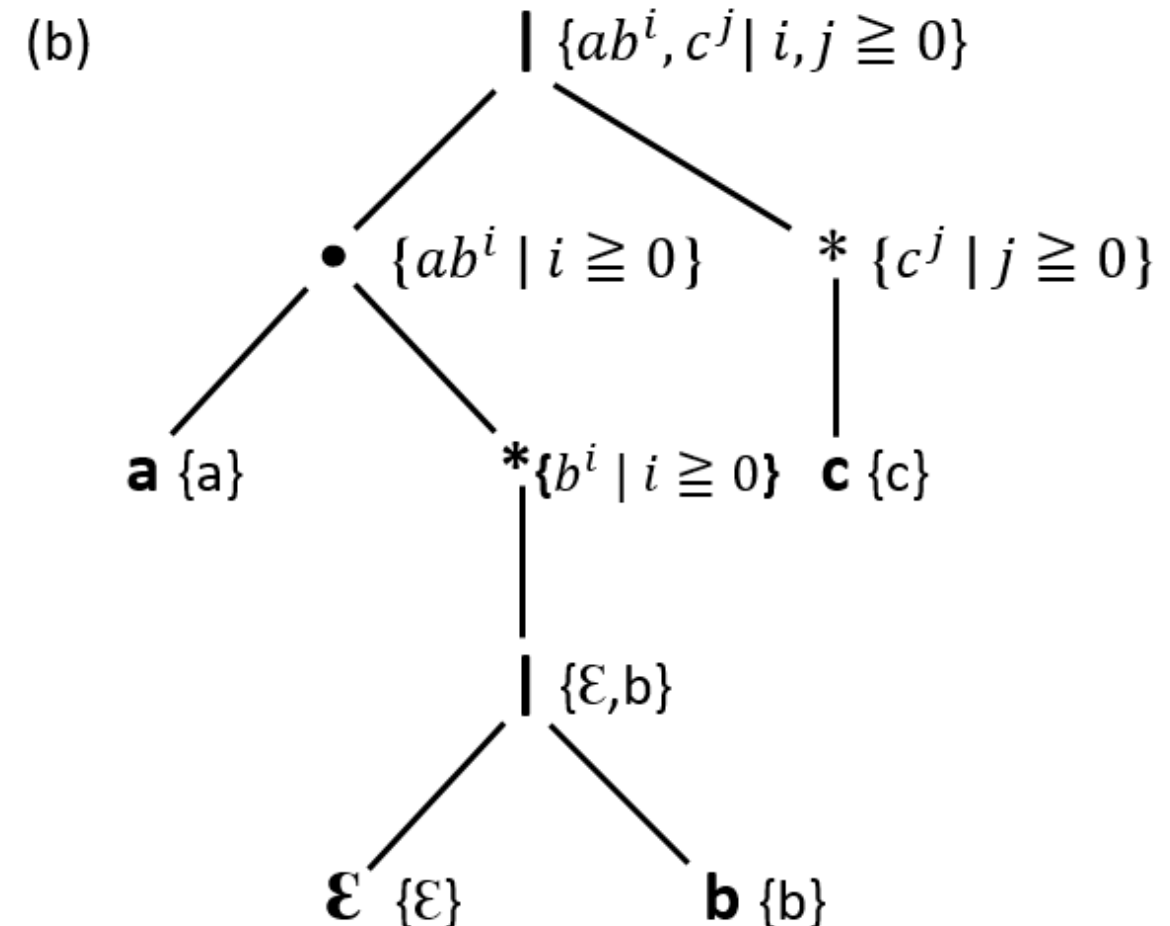
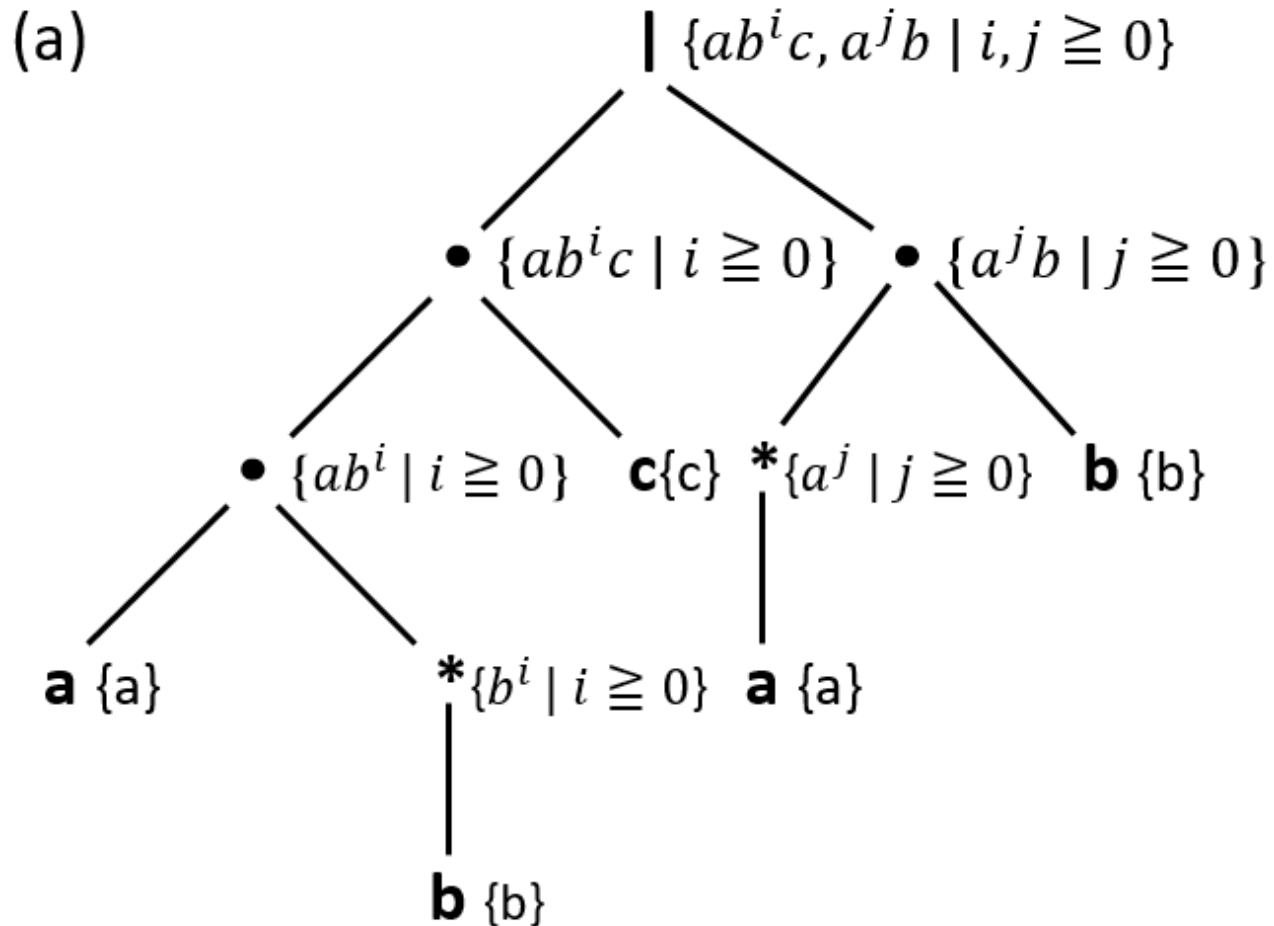


Solution for Assignment 1

1. Give the tree representation for each of the following regular expressions, and give the set representation for the language associated with each node of the tree.

(a) $a b^* c \mid a^* b$

(b) $a (\epsilon \mid b)^* \mid c^*$



2. Write regular expressions for the following languages:

(a) All strings of lowercase letters that contain the five vowels in order. For example, the string “abecfijoqpuv” is in the language, while the strings “bcfjqpv” and “ebcafijoqpuv” are not in the language.

Consonant \rightarrow [b-d f-h j-n p-t v-z]

String : (Consonant|a)*a(Consonant|e)*e(Consonant|i)*i(Consonant|o)*o(Consonant|u)*u
(Consonant)*

(b) All strings of a's and b's that do not contain the subsequence abb. For example, the strings “aab” and “bab” are in the language, while the strings “aabb” and “abab” are not in the language.

String : $b^*a^*(\epsilon|b)a^*$