Universidad de los Andes
Facultad de Ingeniería

Ingeniería de Sistemas y Computación
ISIS-1106 Lenguajes y Máquinas
QP2 (INDIVIDUAL), 202120

We define the language ES over alphabet: (‘1’..’7’) ∪ {‘+’,’-’} below.

Strings in ES are of the form: $D_1\ O_1\ D_2\ O_2 \ldots O_{n-1} D_n$, where: $D_i \in$(‘1’..’7’) (a single digit) and $O_i \in$‘+’,’-’} (a single operator). These strings are used to build sets of digits: (‘1’..’7’), using ‘+’ to add elements and ‘-‘ to remove elements.

For example

- 3-2+4” builds {3,4}
- “1+2+3-2+2-1-3+4-2-4” builds ∅

ES only includes those expressions that build the empty set.

Strings in the language

- λ
- 1-1
- 1+2+3-2+4-3-1-4
- 1+1+1-1+2-1-1-2
- 1+2+1-1-2
- 1-6-1

Strings not in the language

- 1-1++2-2
- 1-1+2-2-
- 1+2+3-1-2
- 1+1-1-1+2
- 12-2-1

TASK:

Define a deterministic finite automaton to recognize this language and implement it in ECLIPSE-GOLD. Only hand in the gold file.

HINT: Use the partsOf automaton seen in class. In this case you have to remember 2 things: The current set that has been built and if you just read a number, a + or a -.