# Basic format for describing DFAs

In order to describe a DFA we write its alphabet in the first line, and in each of the following lines we define a state by giving the following information: (i) the state name, (ii) the state reached after reading each alphabet symbol, in the order specified in the first line, and (iii) a symbol **+** when the state is accepting. Note that there is no way for specifying the initial state since, by default, it is the first one to appear.

In order to conclude, we give an illustrative example. Consider the minimum DFA recognizing the language over the alphabet {**a**, **b**} with at least one occurrence of **a**:
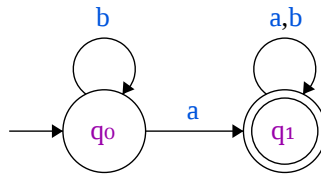
The previous DFA can be described with the basic format as follows:

	a	b	
q0	q1	q0	
q1	q1	q1	+

Note that the alphabet symbols are **a** and **b**, and the states are **q0** and **q1**. Moreover, **q1** is an accepting state since it is marked with **+**, and **q0** is implicitly assumed to be the starting state since it is the first one to appear. Finally, note that this format is roughly equivalent to the automaton's transition matrix, where the columns are indexed by alphabet symbols and the rows are indexed by states.