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Principles of AI Planning

Exercise Sheet 13

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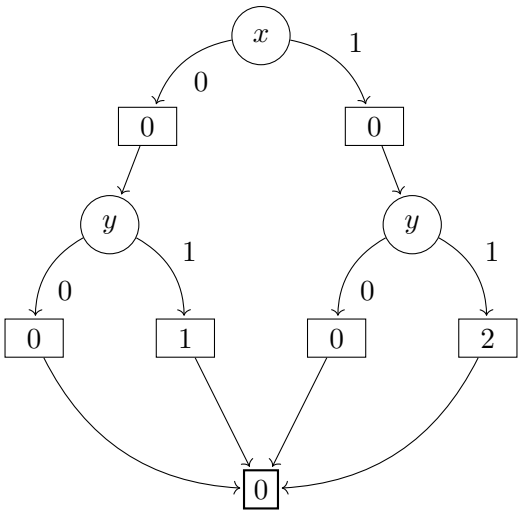
Exercise 13.1 - EVMDDs

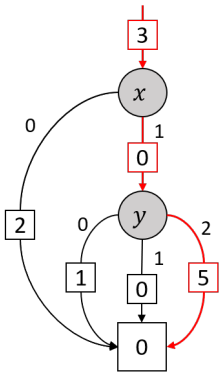
(a)



Exercise 13.2 - Evaluating states with EVMDDs

Exercise 13.3 - EVMDD sizes and variable orders

Consider a cost function represented by the EVMDD on the right.
Let s be a state with $s(x) = 1$ and $s(y) = 2$. To which value does the EVMDD evaluate for state s?
$cost(s) = 3 + 0 + 5 = 8$



Exercise 13.4 - EVMDD-based action compilation

Consider again the EVMDD from Exercise 13.3. Assume it encodes the cost c_{o_1} of operator $o_1 = \langle z = 1 \wedge u = 1, x := 0 \rangle$.

a) Give the EVMDD-based action compilation of o_1 using this EVMDD.

$O_1^{z=1 \wedge u=1} = \langle z = 1 \wedge u = 1 \wedge \sigma = 0 \wedge \alpha_{o_1} = 0, \sigma := 1 \wedge \alpha_{o_1} = 1 \rangle \qquad cost = 3$

$O_1^{1,x=0} =$