Encoders
Wilfrid Laurier University

Terry Sturtevant

Wilfrid Laurier University

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Introduction

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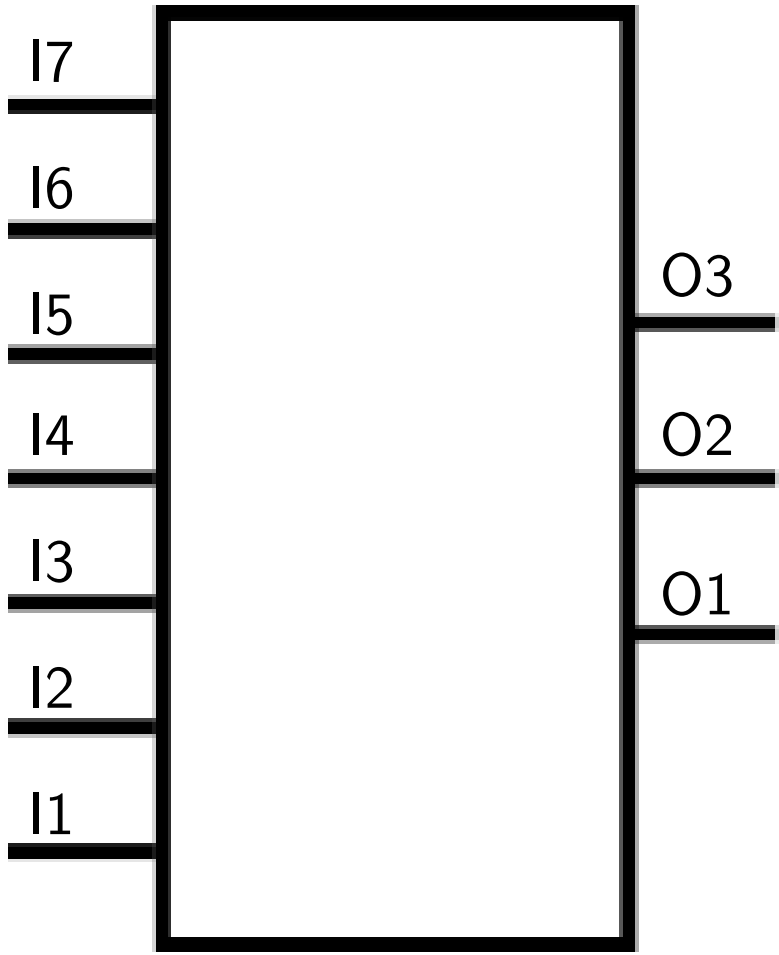
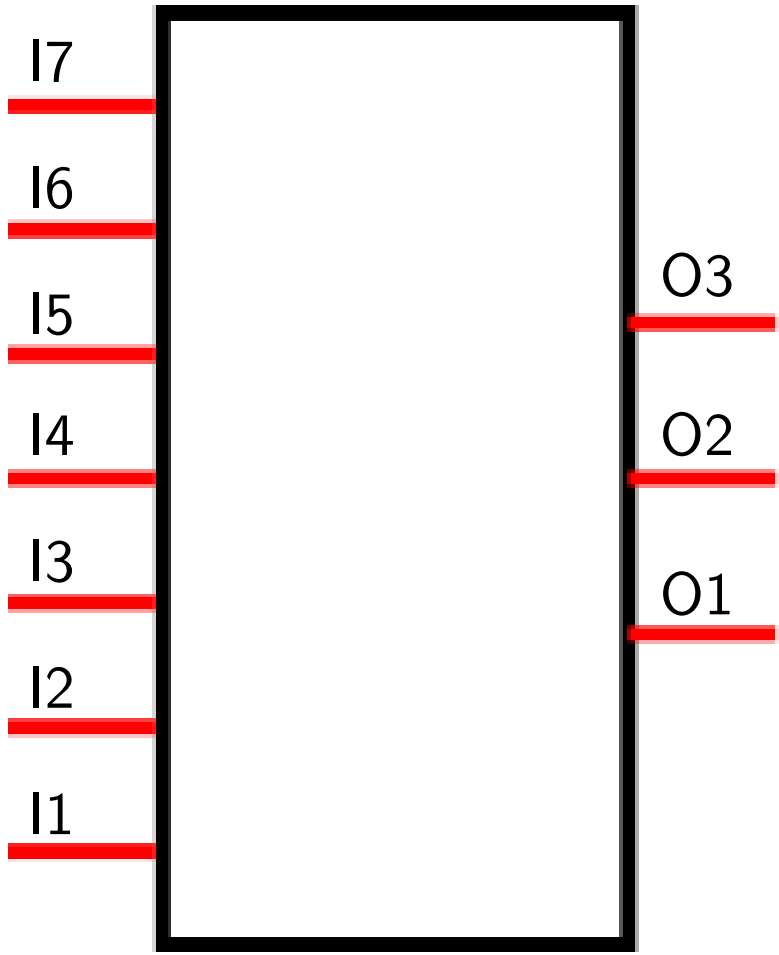
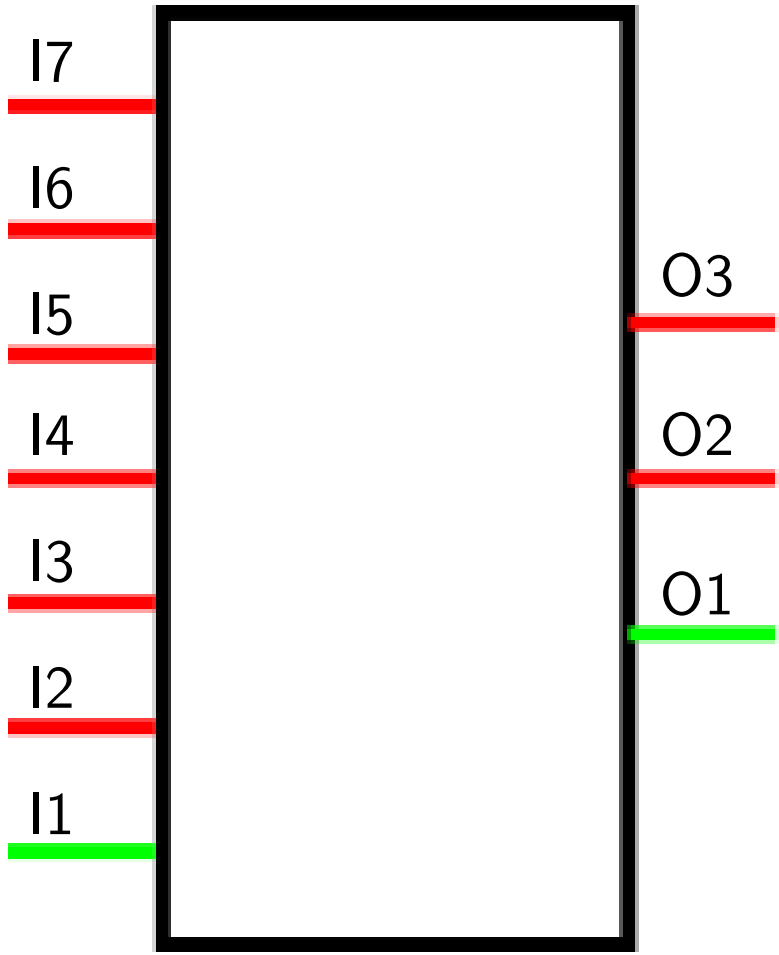
  (Note the lowest input is numbered 1, not 0.)



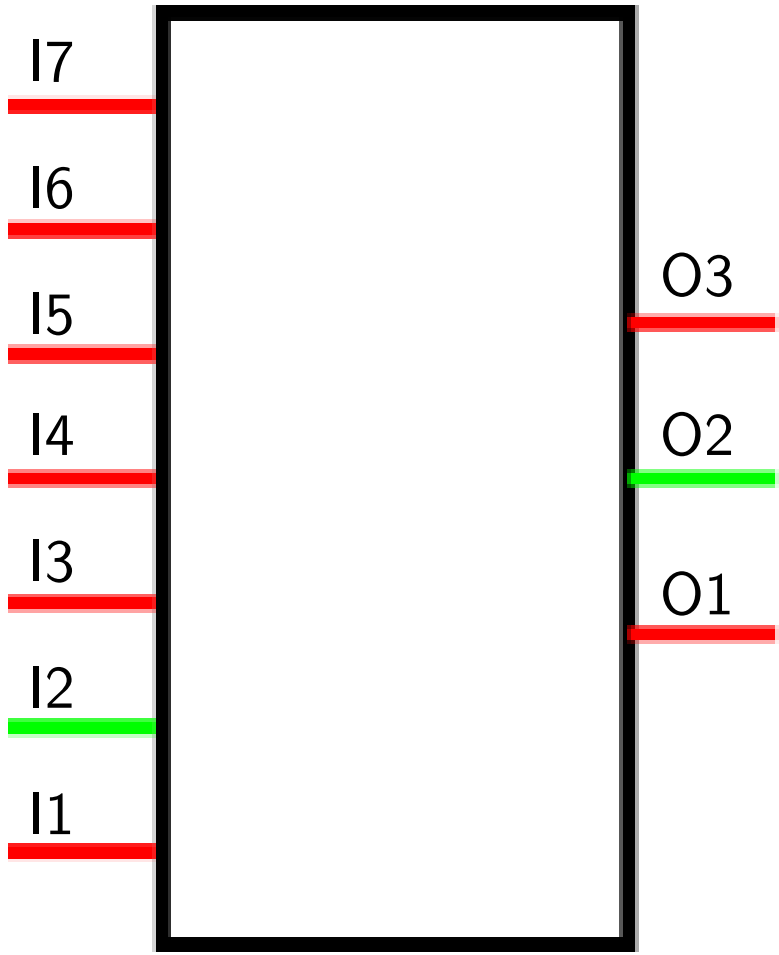
Here's a 3 bit encoder.



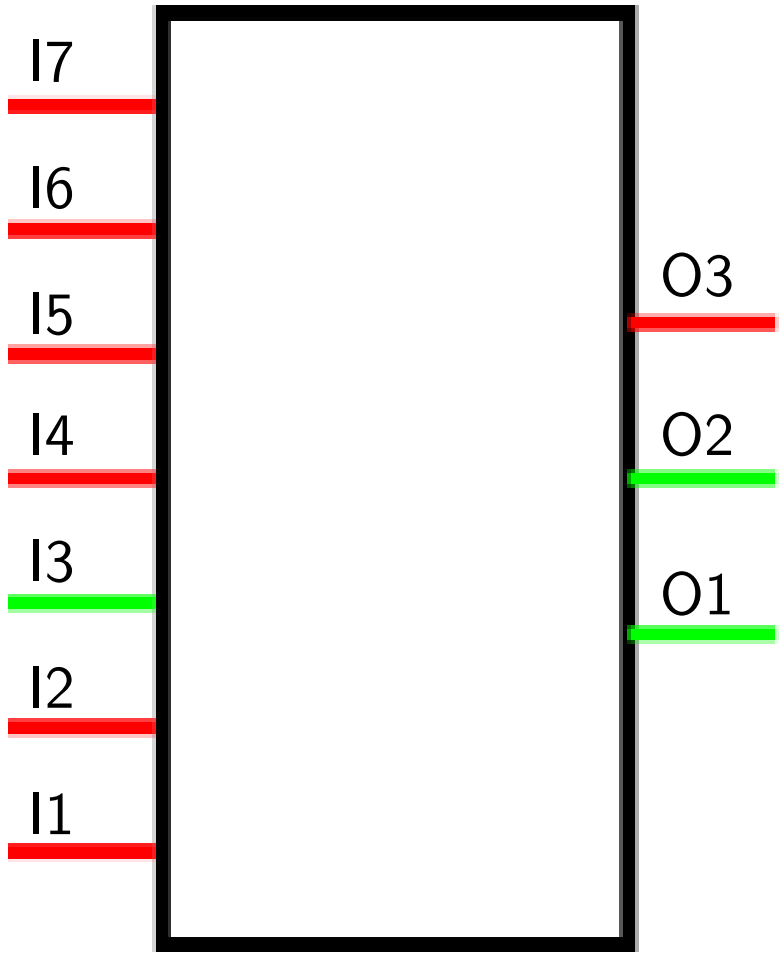
No input active; outputs 000; i.e. binary 0



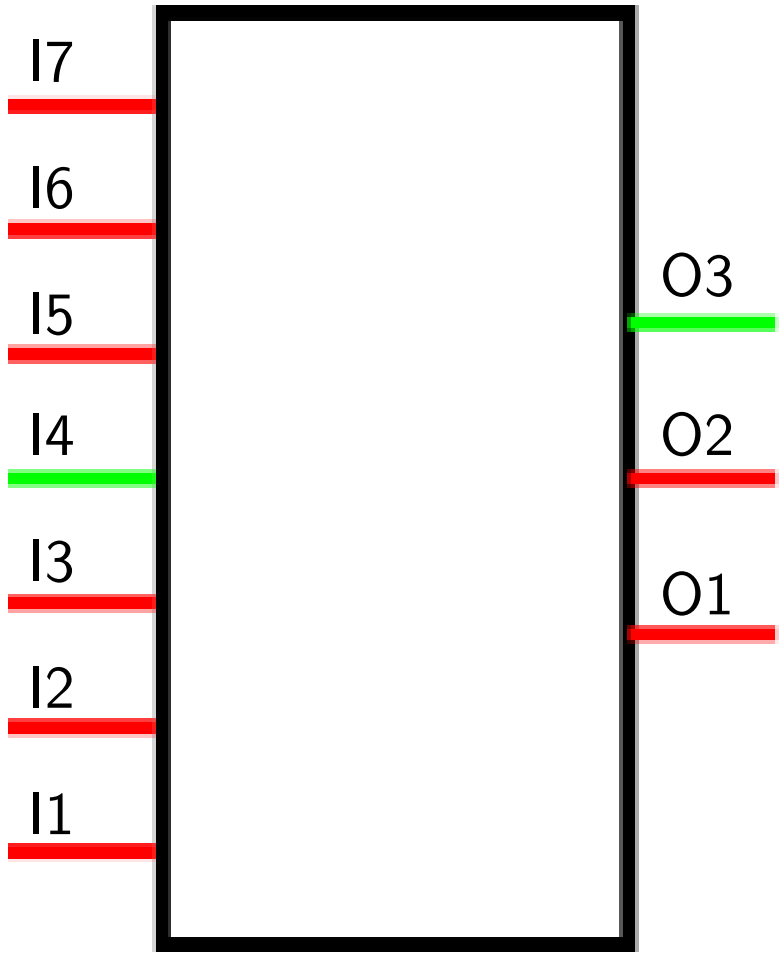
Input I1 active; outputs 001; i.e. binary 1



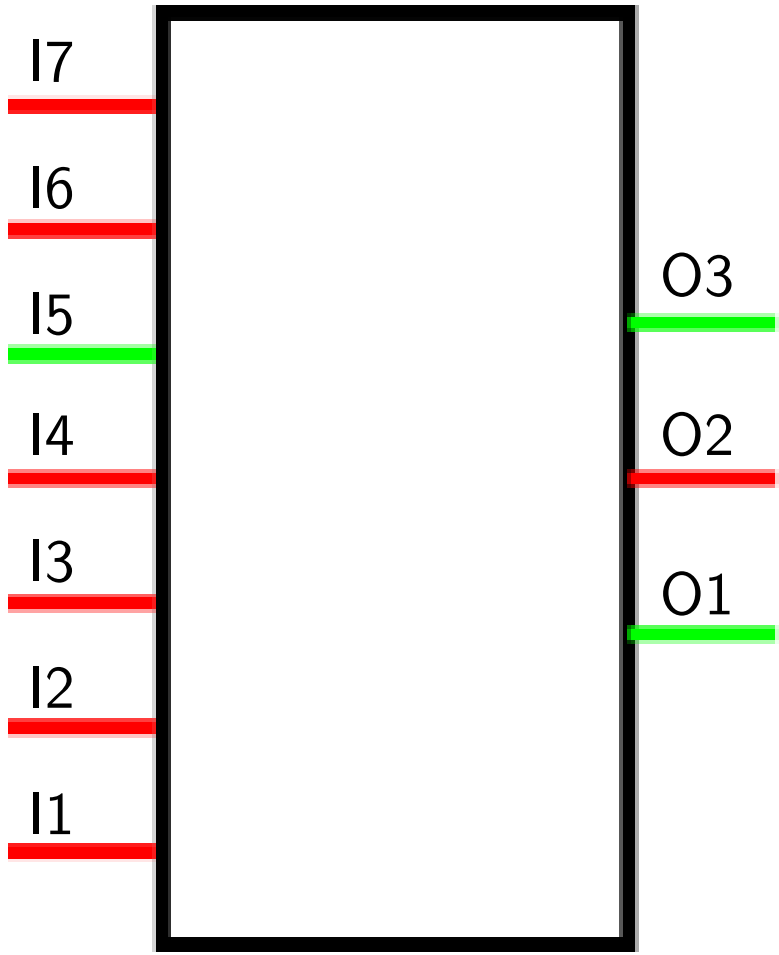
Input I2 active; outputs 010; i.e. binary 2



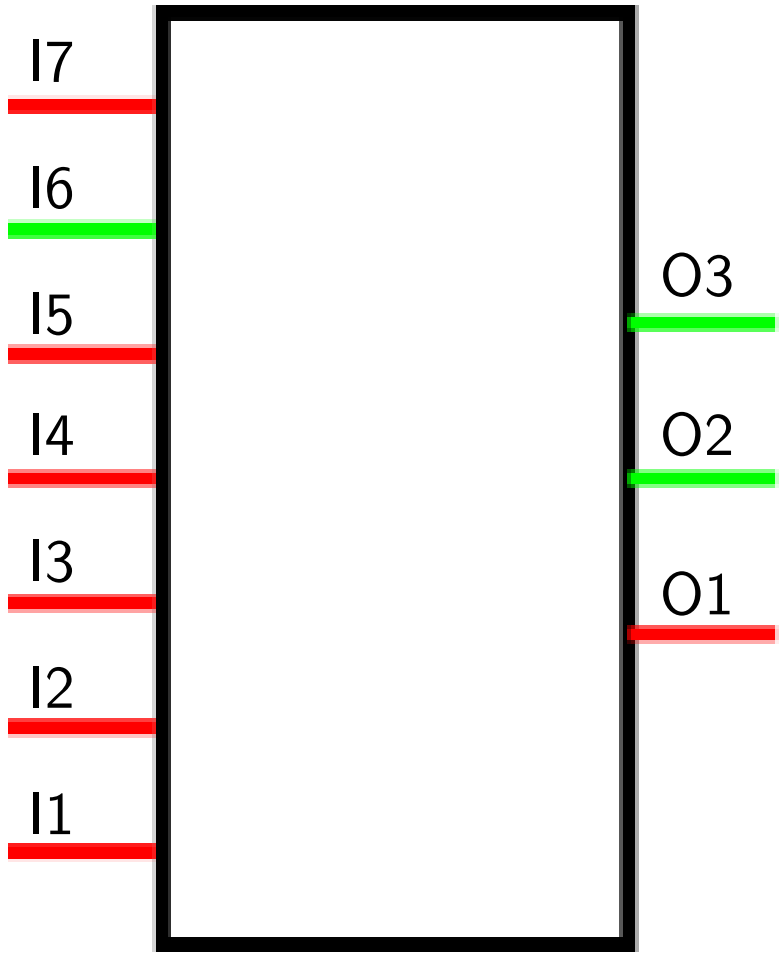
Input I3 active; outputs 011; i.e. binary 3



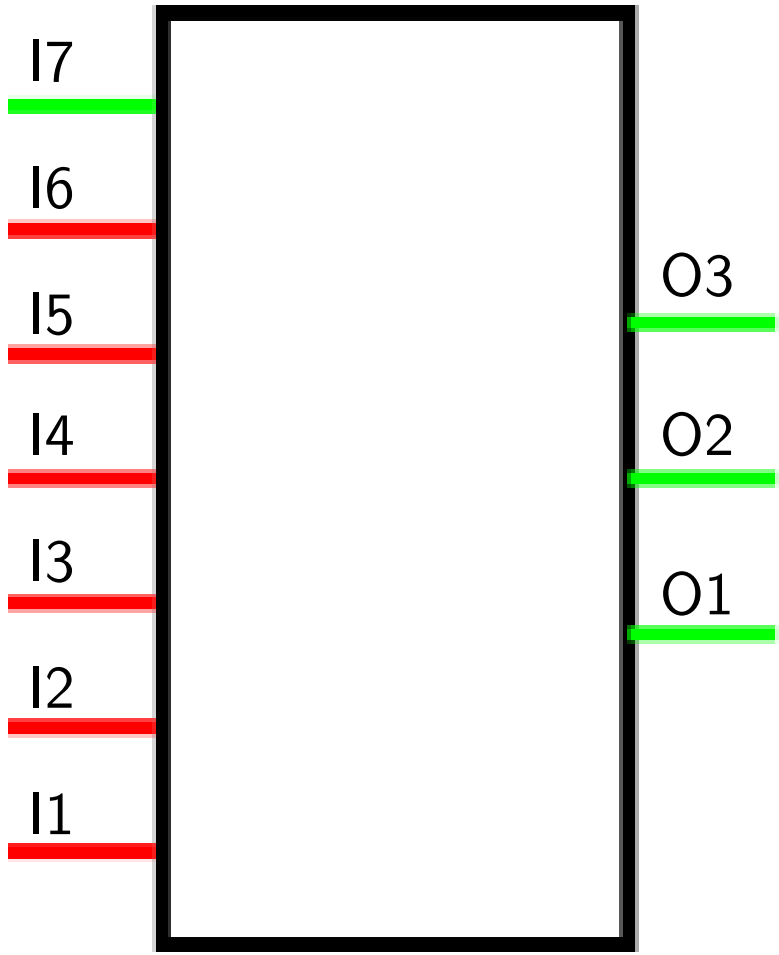
Input I4 active; outputs 100; i.e. binary 4



Input I5 active; outputs 101; i.e. binary 5



Input I6 active; outputs 110; i.e. binary 6



Input I7 active; outputs 111; i.e. binary 7

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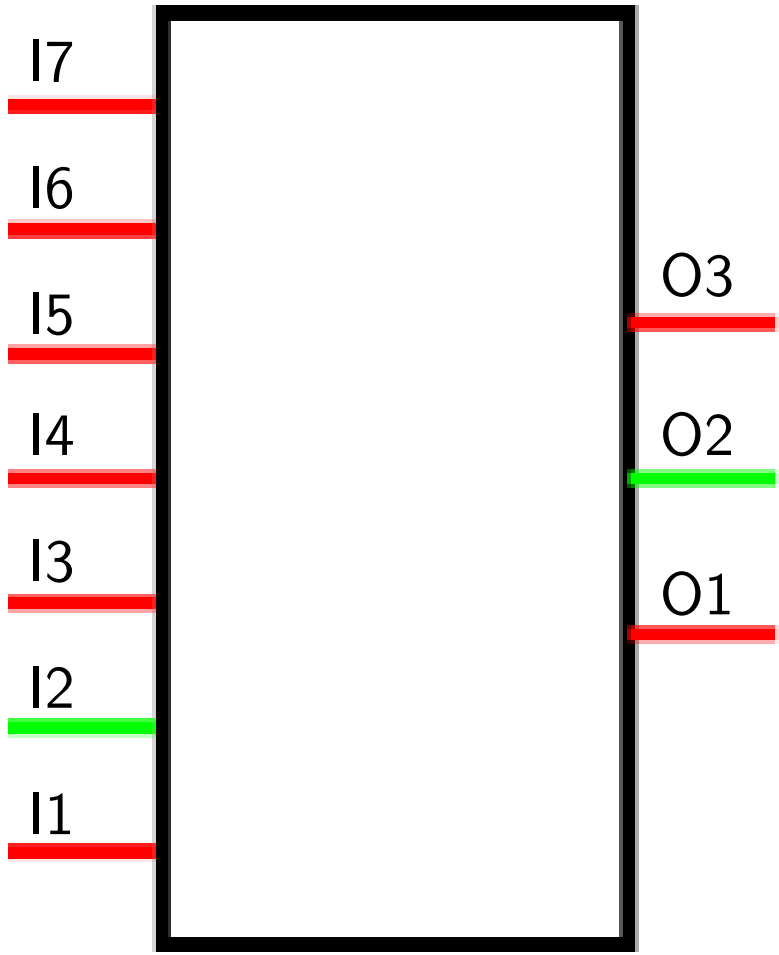
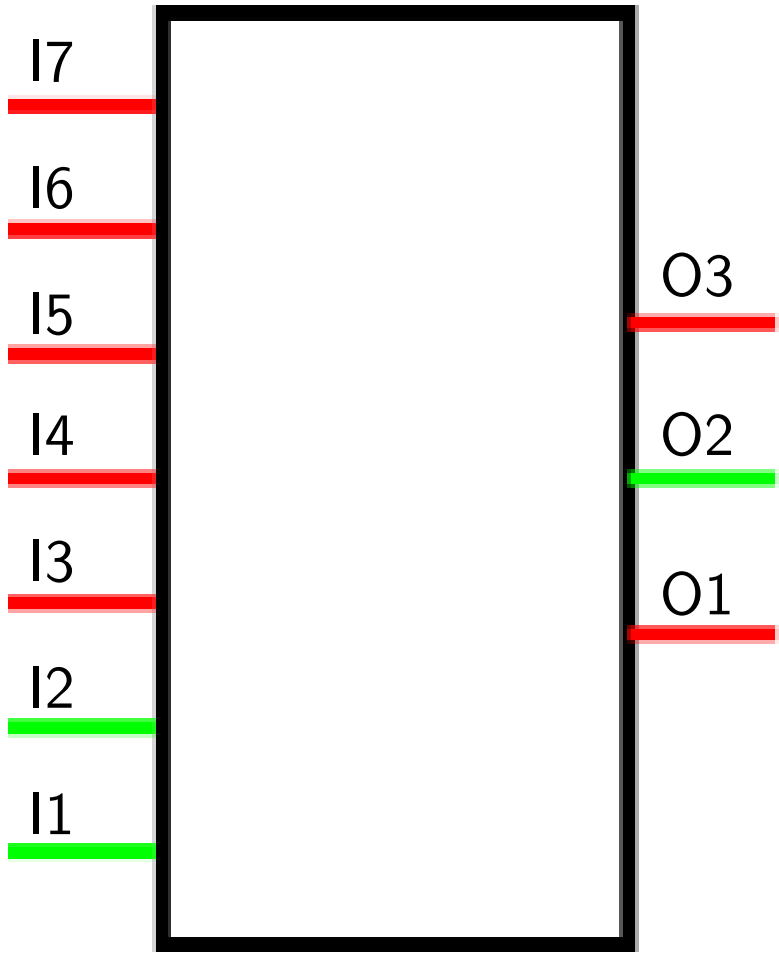
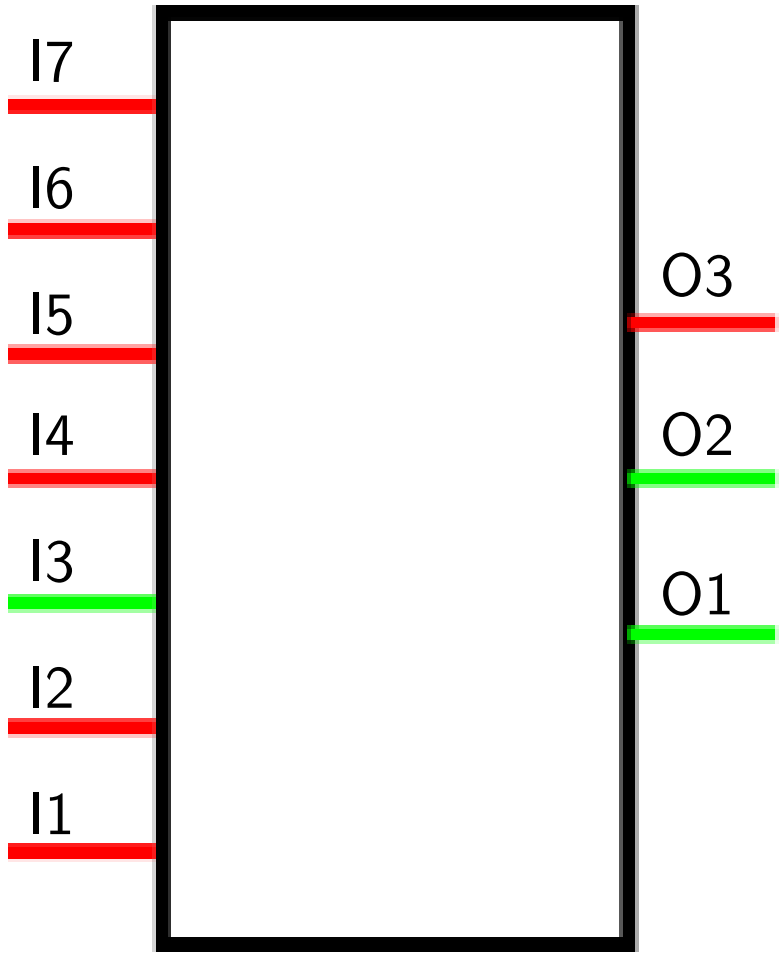


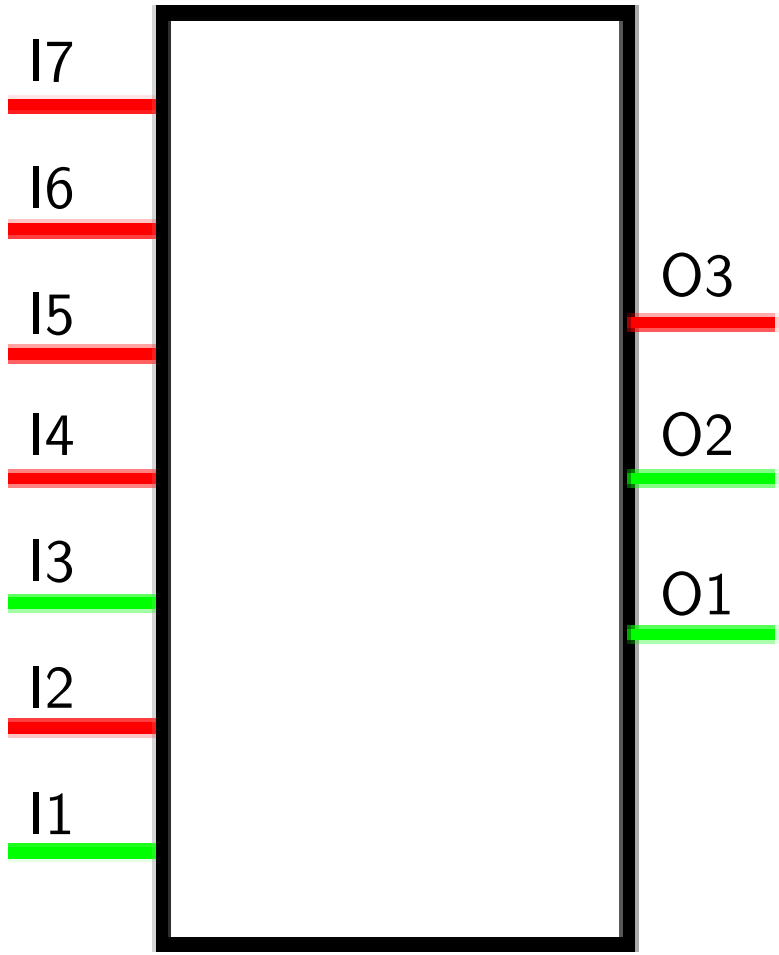
Input I2 active; outputs 010; i.e. binary 2



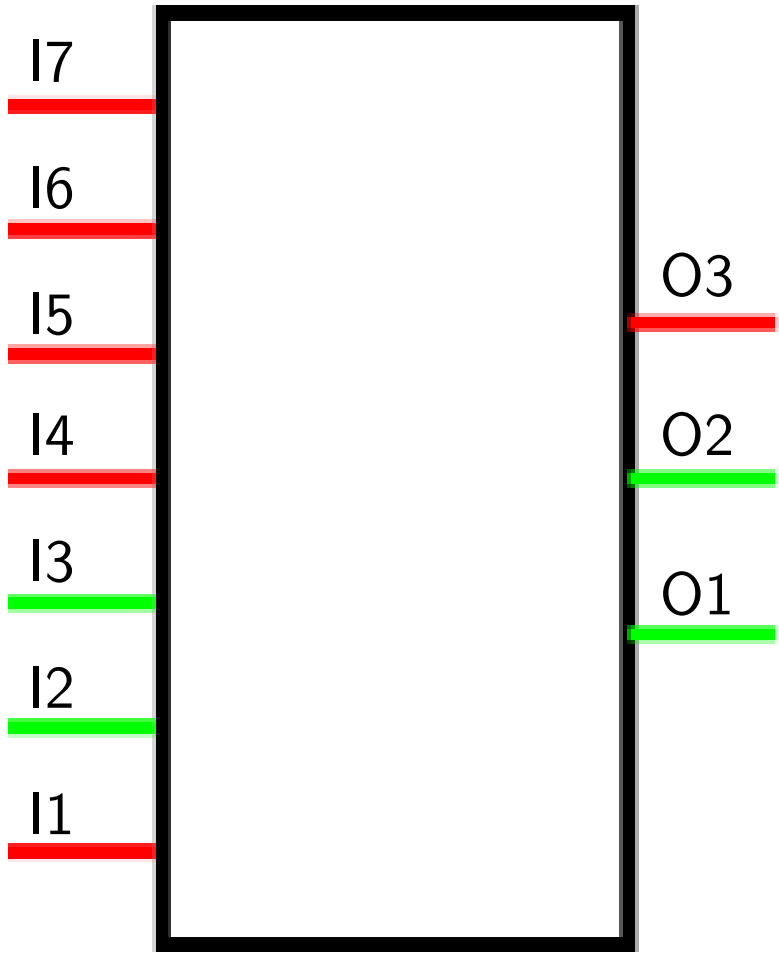
Input I2 active; outputs 010; i.e. binary 2 *regardless of I1*



Input I3 active; outputs 011; i.e. binary 3



Input I3 active; outputs 011; i.e. binary 3 *regardless of I1 and I2*



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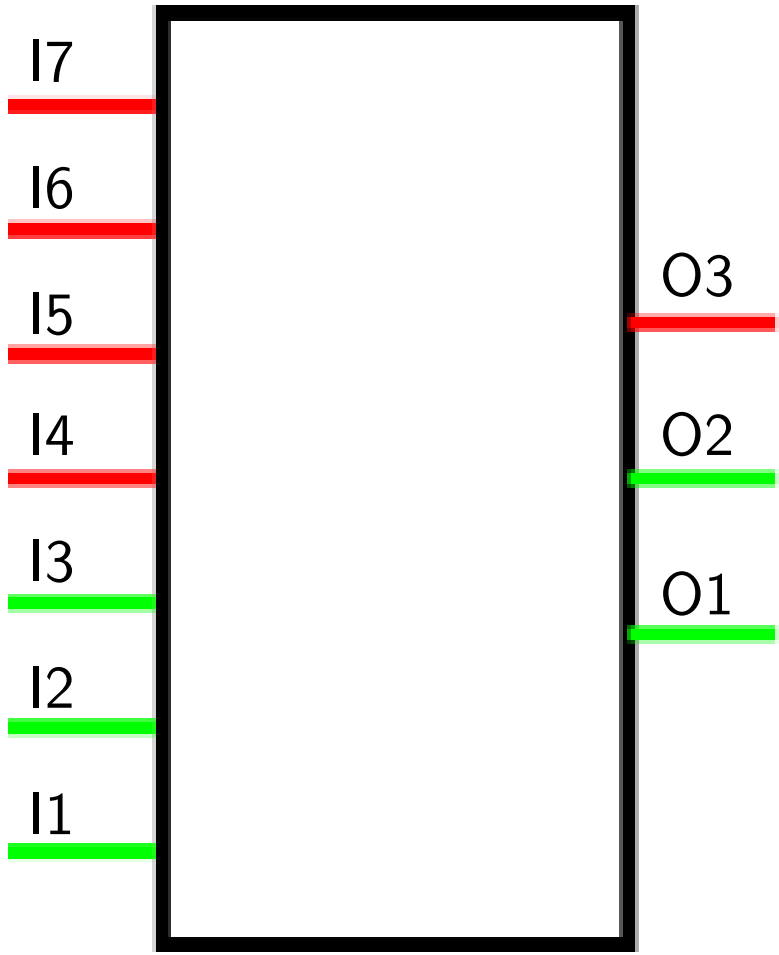

Input I3 active; outputs 011; i.e. binary 3 *regardless of I1 and I2*

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For a *non-priority* encoder, the behaviour when more than one input is active needs to be specified.