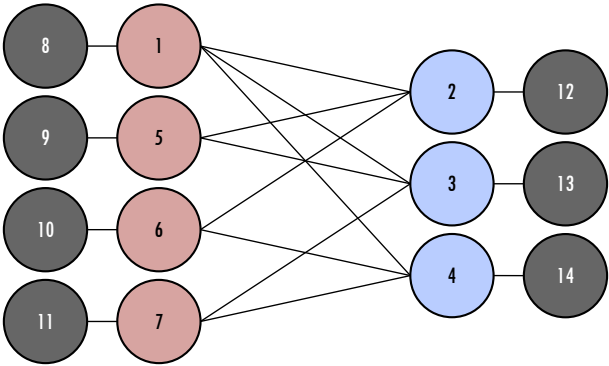# Manual validation summary – Steane

This document shows outputs by the algorithm for the declared input ZX graph.

The sample of outcomes is illustrative, not comprehensive. Random choices are involved. The range of possible outcomes is, while finite, potentially larger than shown here.
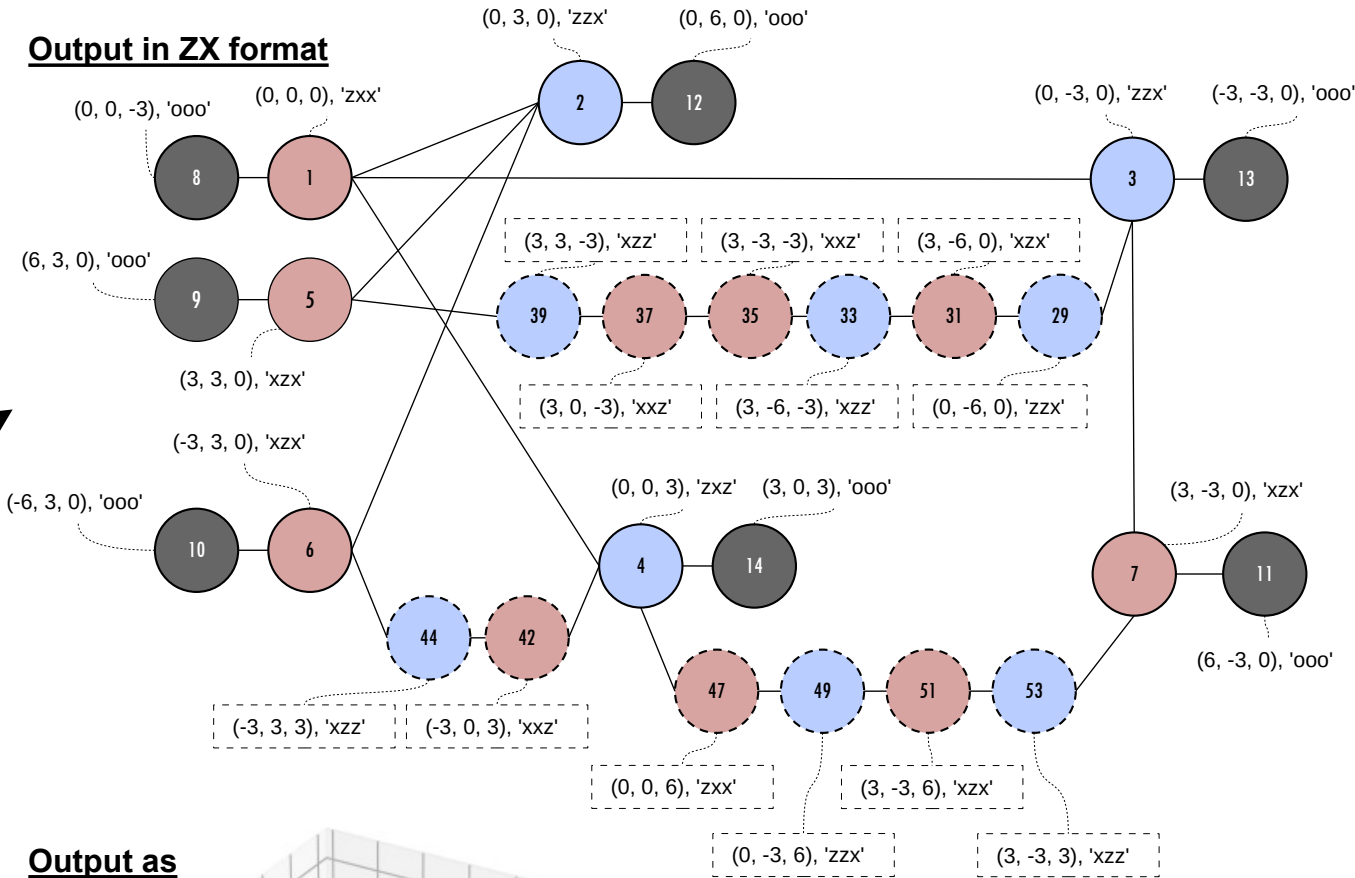
Inputs are not meant to reflect actual circuits. They are conceived to test the diversity of operations the algorithm needs to take overall.
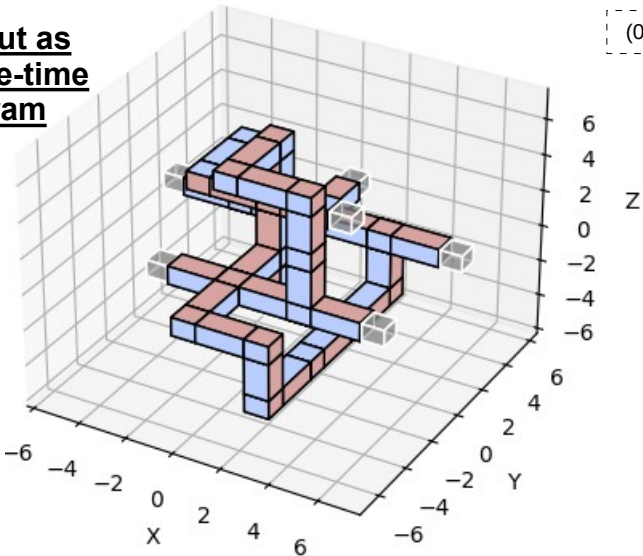
Input ZX graph

A

Output in ZX format

(0, 3, 0), 'zzx'   (0, 6, 0), 'ooo'

(0, 0, -3), 'ooo'   (0, 0, 0), 'zxx'

(0, -3, 0), 'zzx'   (-3, -3, 0), 'ooo'

8   1   2   12   3   13

(3, 3, -3), 'xzz'   (3, -3, -3), 'xxz'   (3, -6, 0), 'xzx'

(6, 3, 0), 'ooo'

9   5   39   37   35   33   31   29

(3, 3, 0), 'xzx'

(3, 0, -3), 'xxz'   (3, -6, -3), 'xzz'   (0, -6, 0), 'zzx'

(-3, 3, 0), 'xzx'

(0, 0, 3), 'zxz'   (3, 0, 3), 'ooo'

(-6, 3, 0), 'ooo'

(3, -3, 0), 'xzx'

10   6   4   14   7   11

(6, -3, 0), 'ooo'

44   42

47   49   51   53

(-3, 3, 3), 'xzz'   (-3, 0, 3), 'xxz'

(0, 0, 6), 'zxx'   (3, -3, 6), 'xzx'

(0, -3, 6), 'zzx'   (3, -3, 3), 'xzz'

Output as space-time diagram

Z

Y

X

○ X

○ Y

—— Simple edge

—— Hadamard edge

○○ Nodes in original ZX-graph

○○ Additional nodes needed to clear 3D paths