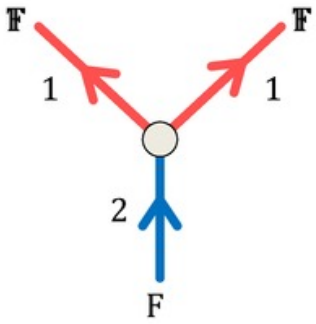
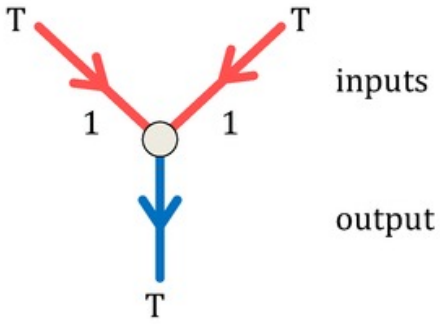
Gadget Framework

Hypersurreal • 9 Dec 2023

AND vertex

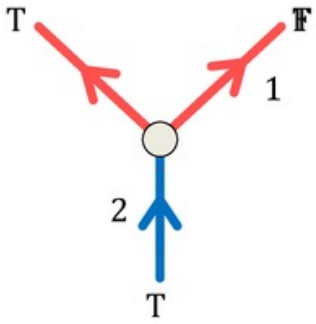


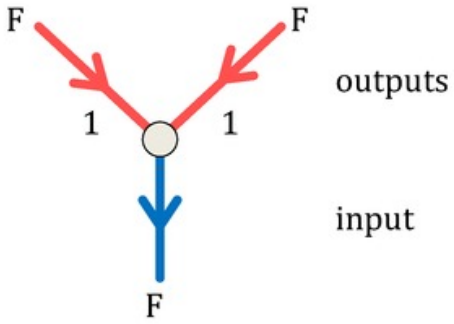
not your usual AND gate!



Rule: at least 2 units incoming at a vertex

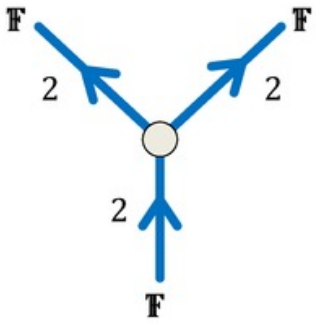
SPLIT vertex



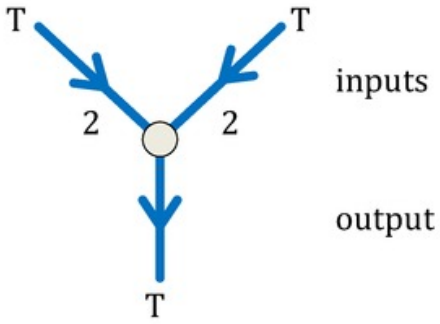


Rule: at least 2 units incoming at a vertex

OR vertex

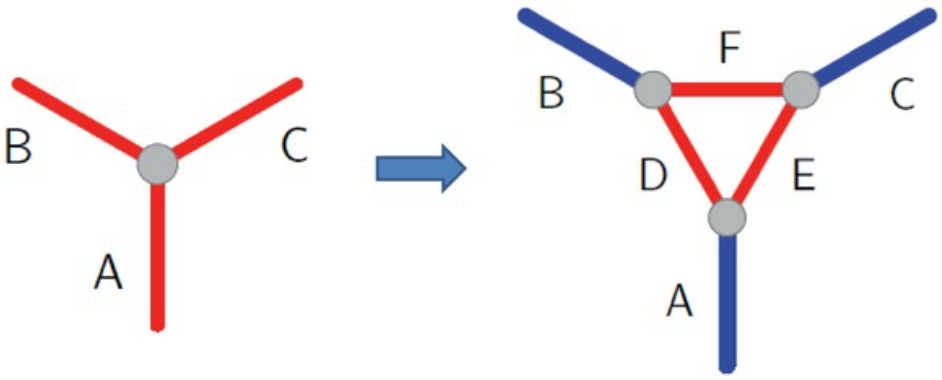


not your usual OR gate!

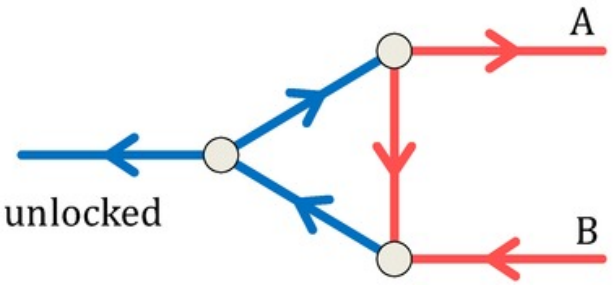


Rule: at least 2 units incoming at a vertex

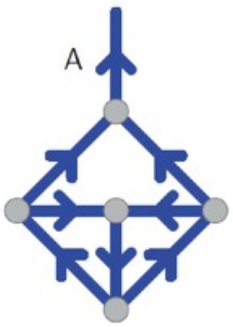
CHOICE vertex



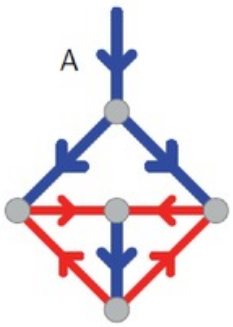
Latch



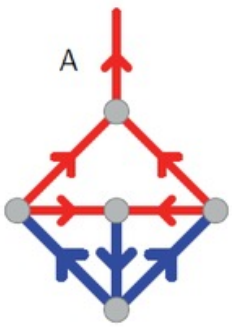
Wire Terminators



unconstrained blue terminator

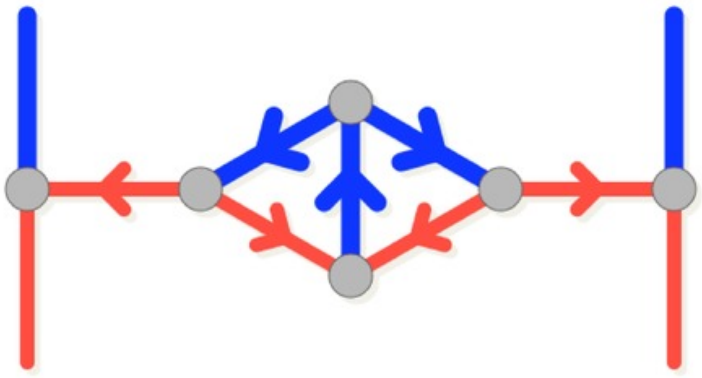


forced-inward blue terminator



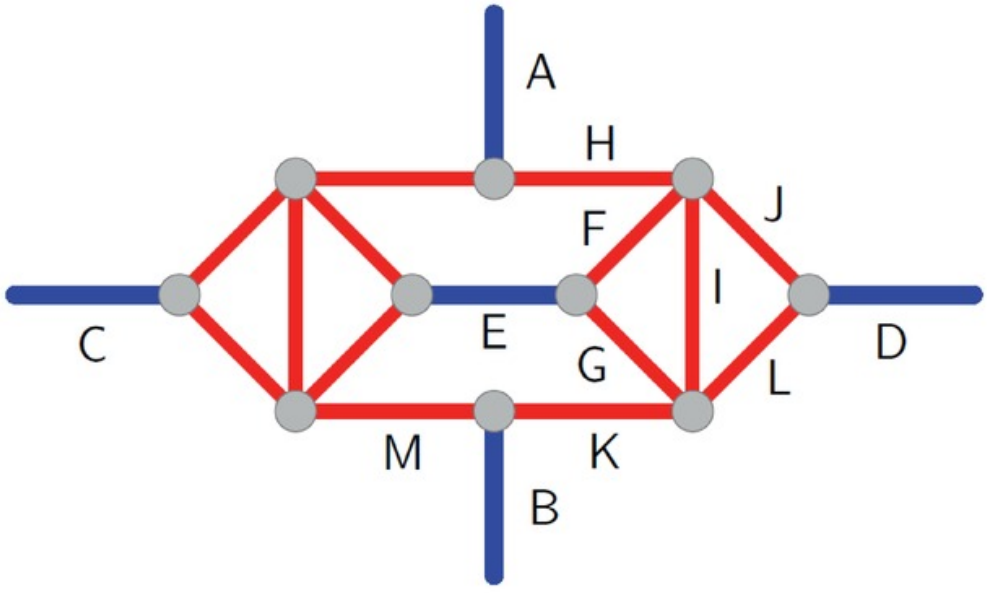
unconstrained red terminator

Red-Blue Conversion

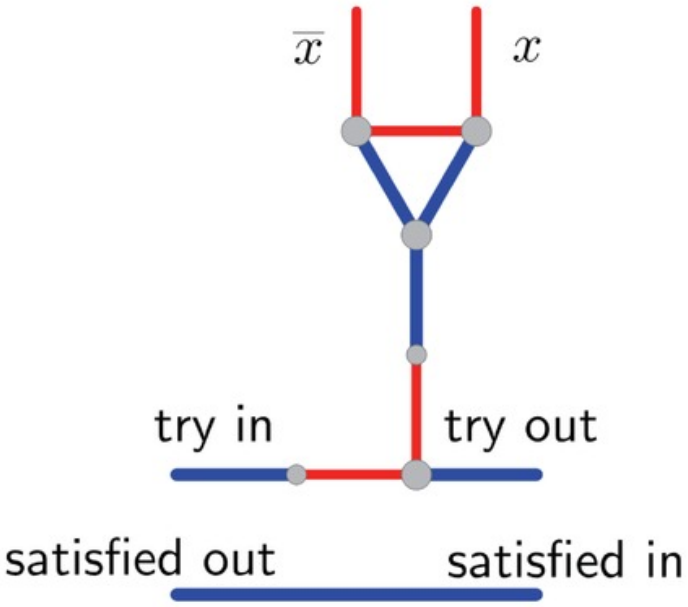


assume an even number of conversions

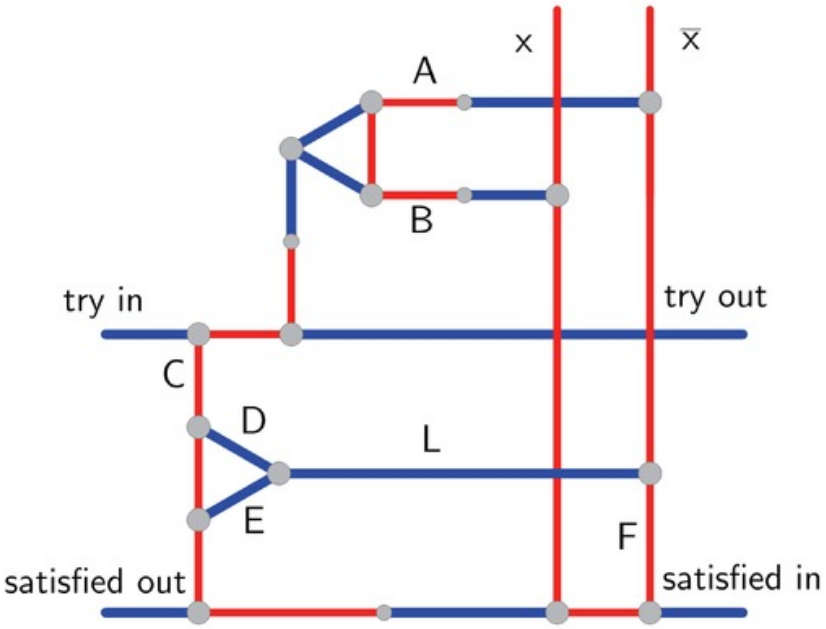
Crossover Gadget



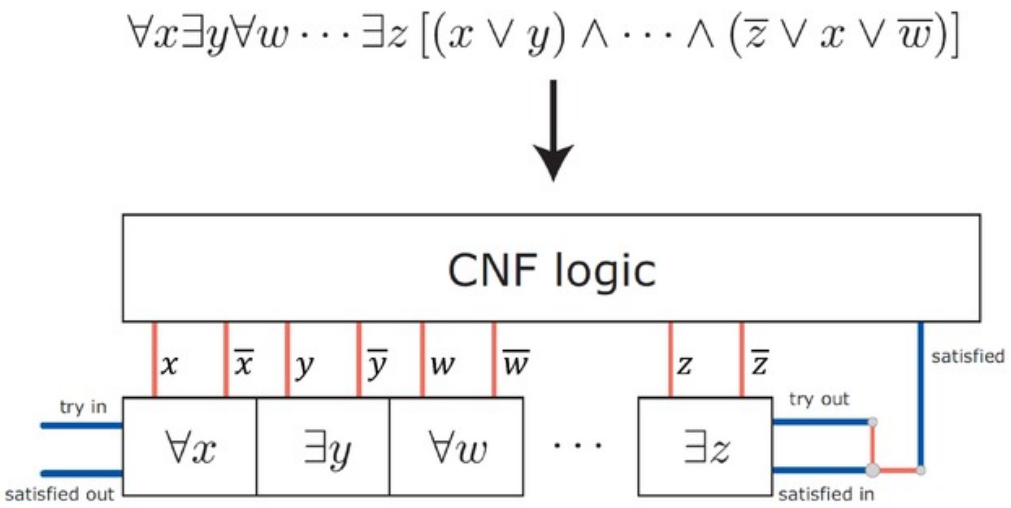
Existential Quantifier



Universal Quantifier



Quantified Boolean Formulas (QBF/QSAT)



Source: Visual Overview of Algorithmic Lower Bounds - Demaine