

Introduction to Logisim

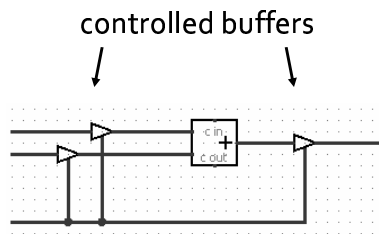
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CS 3410
Week of 9/1 – 9/5, 2008

Overview

- Logisim example
 - 1-bit full adder
 - 2-bit full adder
- Logisim tips

Do Not Use Controlled Buffers

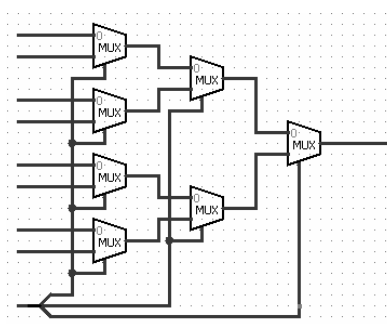
- Has unexpected behavior
- Uses special tri-state logic
- Causes Logisim wires to have unknown values



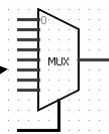
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Always Use Library Elements

- Do not build elements that already exist
- Remember most elements are customizable
 - Number of inputs
 - Bit depth



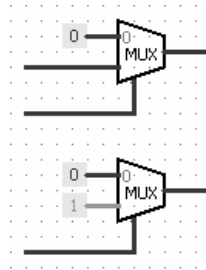
This big mess equals this element.



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Do Not Use Constants

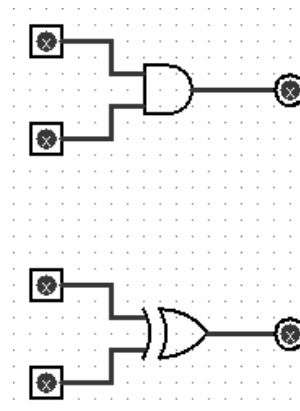
- Almost never necessary
- Use only when component has an unused input
- Optimize away using truth tables



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Avoid Small Sub-circuits

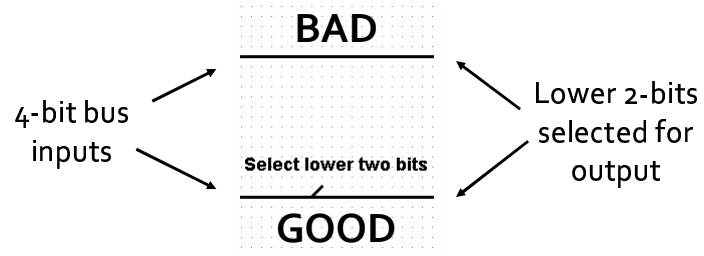
- Make sub-circuits that have a useful meaning
- Why?
 - Lots of identical sub-circuit icons is confusing
 - Extra time spent naming sub-circuit I/O
 - Logisim performs poorly when many sub-circuits are nested



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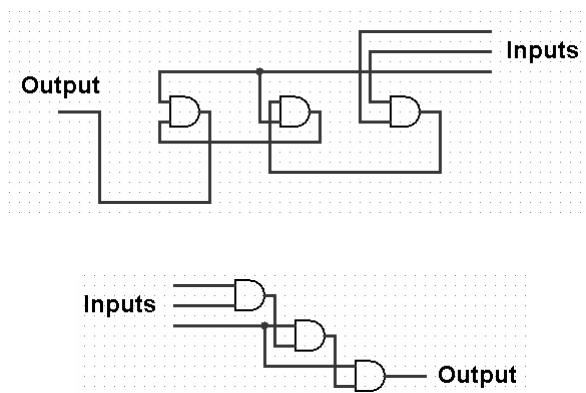
Label Splitters

- Just so the me and graders (and you) stay sane.



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Think About Layout



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Overall

- Organization is key
 - For you and for us
 - We must be able to understand your code easily
- Logisim simulation can be buggy
 - Too few sub-circuits or too many sub-circuits