Are they equal?
2 rewrites needed

- portName==""
  implies not a port

- portName!="
  implies pin is port

Diagram:

Pin
  - name
  - portName

Port
  - portName

A
  - x
  - y

1

B
  - x
  - y

1

Diagram:

Pin
  - name
  - portName

A
  - x
  - y

1

A
Apply port rewrite
Are they equal?
Push down fields + eliminate Abstract Pin class
Eliminate all Gates subclasses + add gateType + make Gate non-abstract

Note conservation of associations none were lost— but one association went from ◆ to ◇
Remove Redundant (and equivalent) associations
A wire connects 1 output to 1 input (given in problem description)

- Each wire connect Opin to precisely 1 Lpin Or 1 Rpin, never both
Merge Lpin and Rpin classes – no need to distinguish them.

- Each wire connect Opin to precisely 1 Lpin Or 1 Rpin, never both
Merge 2 associations as they are now indistinguishable
Assume pin ‘name’ = ‘portName’; drop unneeded field
Assume each Gate has precisely 1 output pin
What’s left? Make 2 assumptions that add the circled cardinalities
Are they equal?
2 rewrites (at least)
2 more rewrites

Where we Are going
Where are we???
2 more rewrites
Finally

Where we Are going