

# 99 questions/Solutions/56

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(\*\*) Symmetric binary trees

Let us call a binary tree symmetric if you can draw a vertical line through the root node and then the right subtree is the mirror image of the left subtree. Write a predicate `symmetric/1` to check whether a given binary tree is symmetric. Hint: Write a predicate `mirror/2` first to check whether one tree is the mirror image of another. We are only interested in the structure, not in the contents of the nodes.

```
mirror Empty      Empty      = True
mirror (Branch _ a b) (Branch _ x y) = mirror a y && mirror b x
mirror _          _          = False

symmetric Empty      = True
symmetric (Branch _ l r) = mirror l r
```

Even simpler is

```
symmetric t = mirror t t
```

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