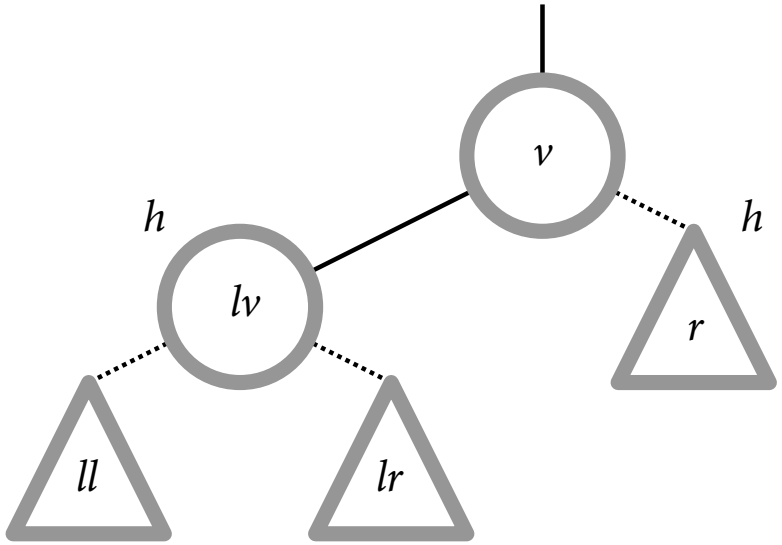
```
Node* balance(Node* root, int dir) {
  if (red(root.left)) {
    if (red(root.right)) {
      root.left  = blacken(root.left);
      root.right = blacken(root.right);
      root.black = false;
    }
    else {
      if (red(root.left.left)) {
        root = rb.rotate.single(
          root, RIGHT);
      }
      else {
        if (red(root.left.right)) {
          root = rb.rotate.dbl(
            root, RIGHT);
        }
        else {
        }
      }
    }
  }
  else {
  }
  return root;
}
```



```
Node* balance(Node* root, int dir) {
  if (red(root.left)) {
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          root, RIGHT);
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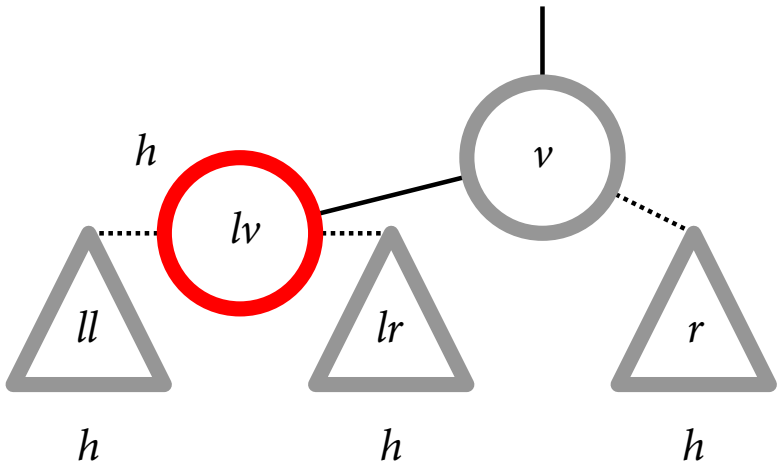
        if (red(root.left.right)) {
          root = rb.rotate.dbl(
            root, RIGHT);
        }
        else {
        }
      }
    }
  }
  else {
  }
  return root;
}
```



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Node* balance(Node* root, int dir) {
  if (red(root.left)) {
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      root.left  = blacken(root.left);
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        else {
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      }
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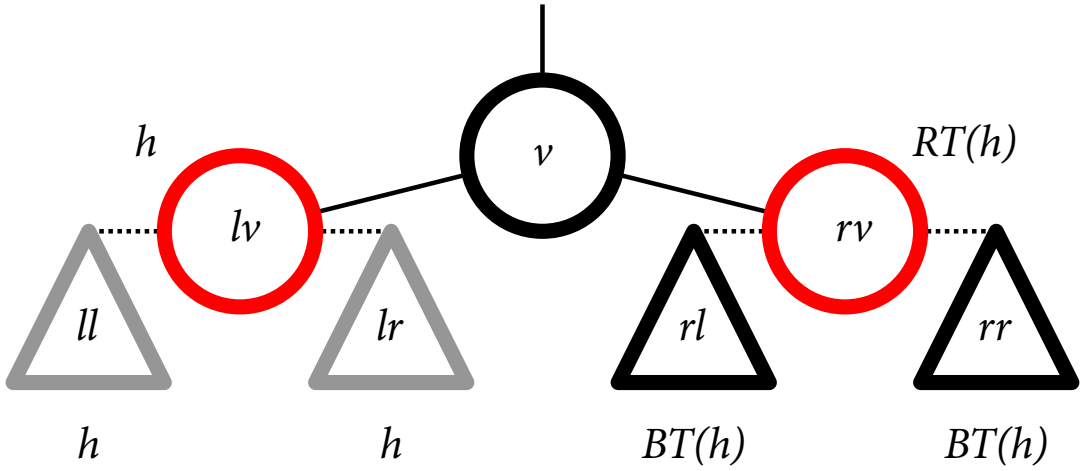
}
```



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}
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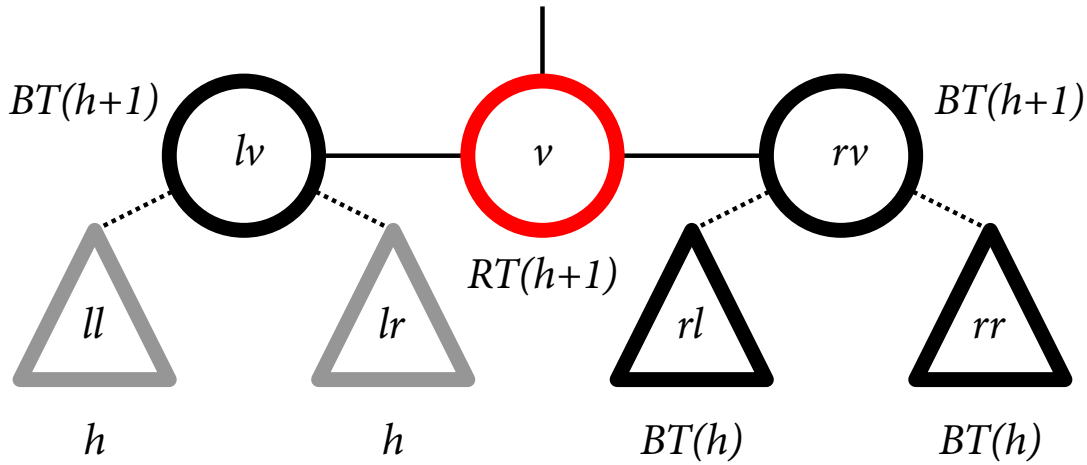

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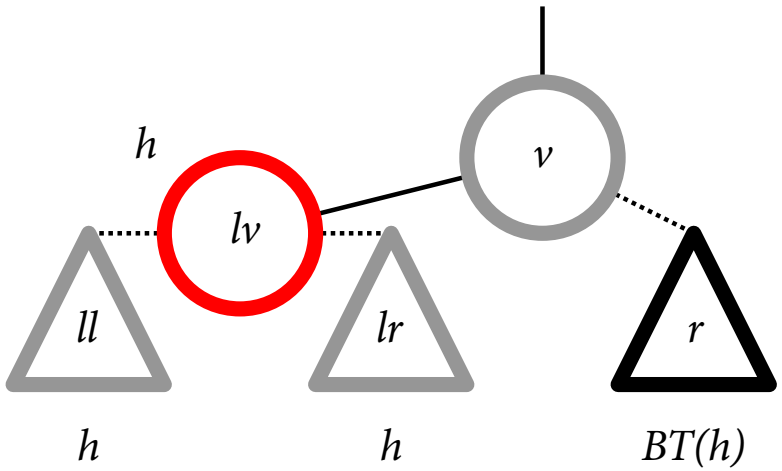

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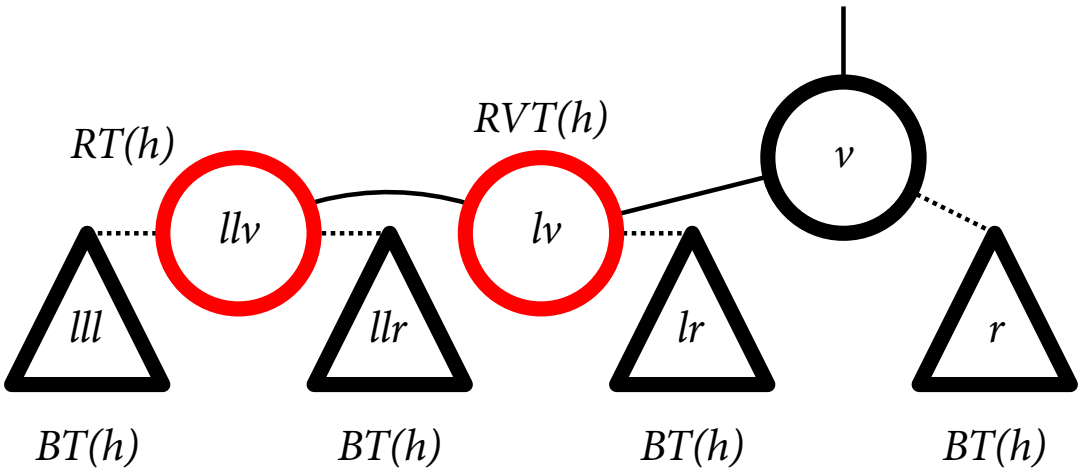

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}
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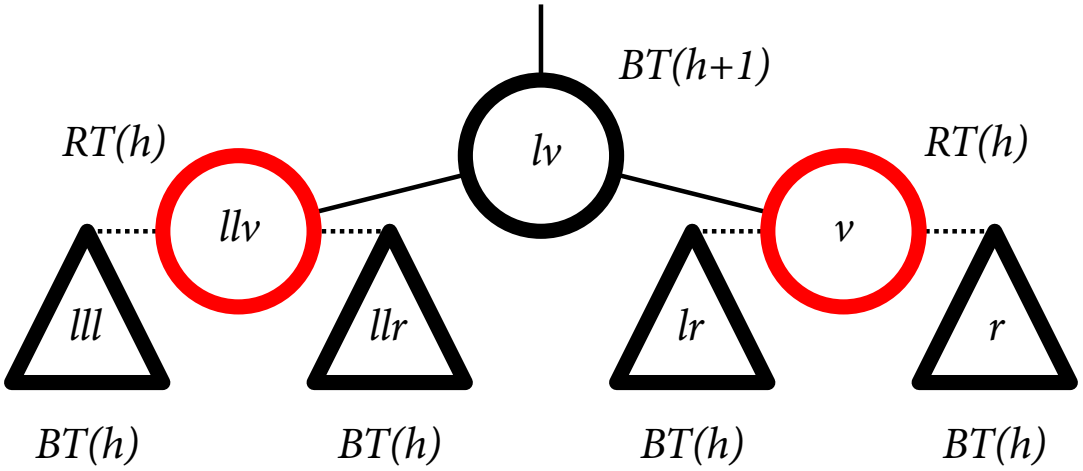

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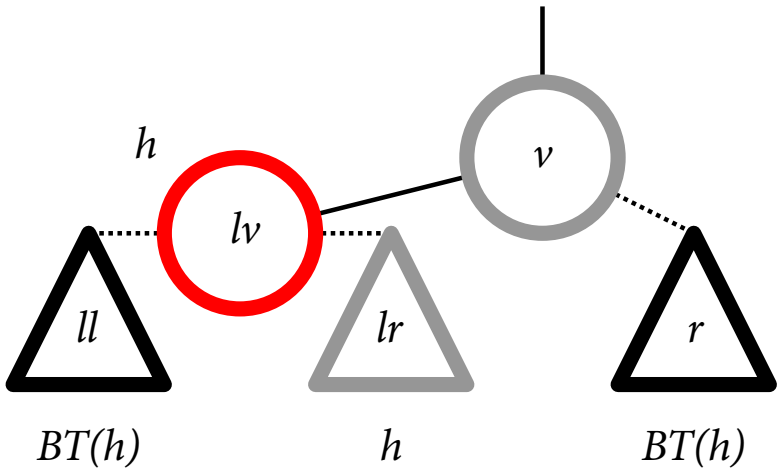

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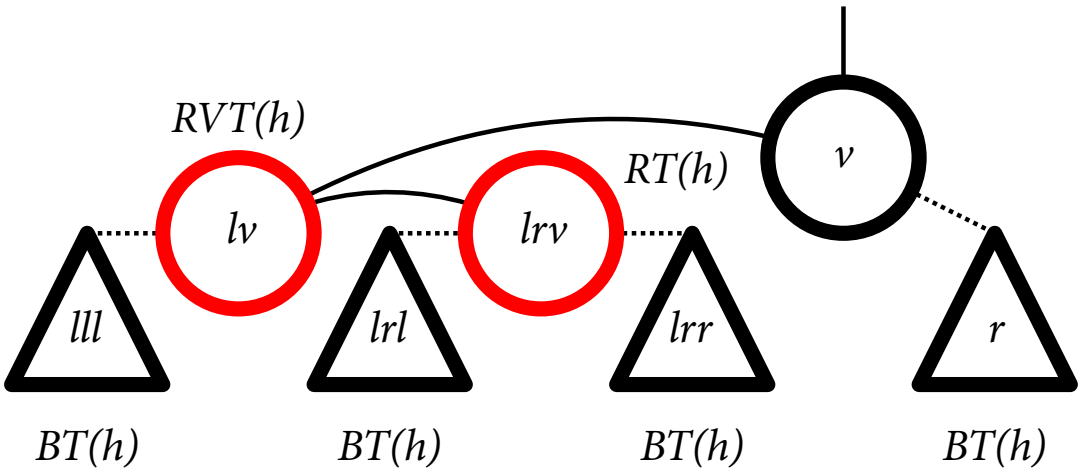

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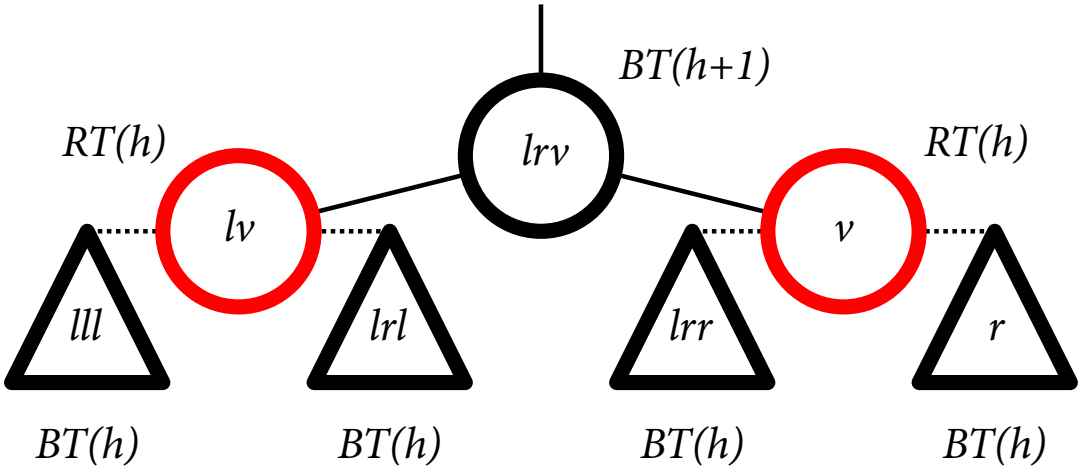

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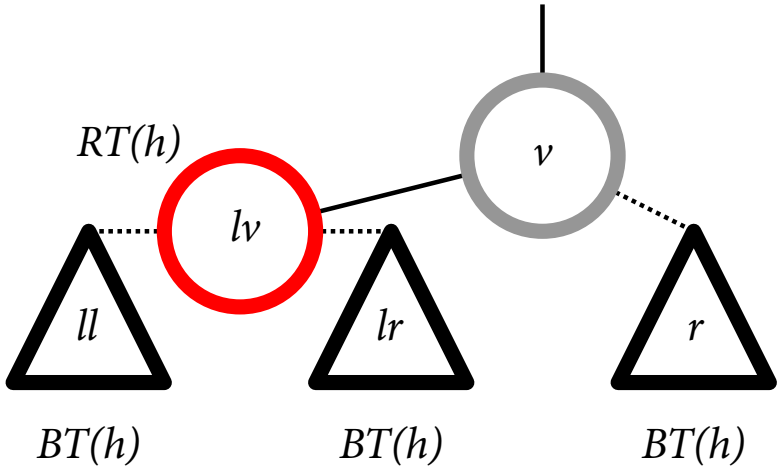

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