**COMP 681 Formal Methods Spring 2008 Recitation 17**

The following algorithm searches the binary search tree rooted at `x` for a node whose `key` filed is equal to `v`. If there is such a node in the tree, it returns it; otherwise, it returns `NIL`. Prove the correctness of this algorithm using strong induction. Be sure to attach the appropriate assertions.

```
BST-SEARCH(x, v)
1  if x = NIL
2     then  return NIL
3  if key[x] = v
4     then  return x
5     else if key[x] < v
6          then  return BST-SEARCH(left[x], v)
7          else  return BST-SEARCH(right[x], v)
```