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### a) Die folgende Klassenimplementierung enthält 2 Syntax Fehler, finden und
verbessern sie diese.
### b) Welche drei Fehler des SearchTree's treten erst zur Laufzeit auf? Korrigieren
sie diese.
### c) Welcher Semantische Fehler steckt in der Implementierung? (Docstrings beachten)

class SearchTree:
    """Implements a search tree for sortable objects.
    """

    def __init__(self, items=None):
        """Initializes tree with elements from items (for
        example a list).
        """
        self.tree = None
        for entry in items:
            self.tree = self._helper_add(self.tree, entry)

    def add(self, item):
        """Insert an item in the tree. Do nothing if tree
        already contains the item.
        """
        self.tree = self._helper_add(self.tree, item)

    def _helper_add(self, tree, item):
        if tree is None:
            return [item, None, None]
        if tree[0] > item:
            tree[2] = self._helper_add(tree[2], item)
        elif tree[0] < item:
            tree[3] = self._helper_add(tree[3], item)
        return tree

    def __contains__(self, item):
        """Check if an item is in the tree
        """
        return self._helper_contains(self.tree, item)

    def _helper_contains(self, tree, item):
        if tree is None:
            return False
        elif tree[0] == item:
            return True
        elif tree[0] > item:
            return self._helper_contains(tree[1], item)
        else:
            return self._helper_contains(tree[2], item)

    def tolist(self):
        """Compute ordered list of all entries.
        """
        self._tmplist = []
        self._helper_tolist(self.tree)
        return self._tmplist

    def _helper_tolist(self, node):
        if node is not None:
            self._helper_tolist(node[1])
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        self._tmplist.append(node[0])
        self._helper_tolist(node[2])
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