

Binary Tree Housekeeping

```
// clears existing tree
template <typename Object>
void BinaryTree<Object>::clearRecurse(const NodePtr v) {
    if (v!=NULL) {
        if (v->left!=NULL) {
            clearRecurse(v->left);
            clearRecurse(v->right);
        }
        delete v;
    }
}

// clones an existing tree
template <typename Object>
typename BinaryTree<Object>::NodePtr BinaryTree<Object>::cloneRecurse(const BinaryTree<Object>& orig, const NodePtr v) {
    NodePtr n = new Node(v->element);
    if (v->left!=NULL) {
        n->left = cloneRecurse(orig,v->left);
        n->left->parent = n;
        n->right = cloneRecurse(orig,v->right);
        n->right->parent = n;
    }
    return n;
}

// Copy Constructor
template <typename Object>
BinaryTree<Object>::BinaryTree(const BinaryTree<Object>& orig) {
    sz = orig.sz;
    rt = cloneRecurse(orig,orig.rt);
}

// Overloaded Assignment Operator
template <typename Object>
BinaryTree<Object>& BinaryTree<Object>::operator=(const BinaryTree<Object>& orig) {
    if (this != &orig) {
        clearRecurse(rt);
        rt = cloneRecurse(orig,orig.rt);
    }
    return *this;
}

// Destructor
template <typename Object>
BinaryTree<Object>::~BinaryTree() {
    clearRecurse(rt);
}
```