第三题，由于老师没有给出树的定义，所以我自己整个都实现了，方便测试。有关题目的核心部分，如下：

```
template<typename T>
void BinaryTree<T>::PrintAllPath() const {
    std::vector<T> path;
    std::vector<std::vector<T> > all_path;
    FindAllPath(root_, path, all_path);
    bool first_path = true;
    for (const auto& path: all_path) {
        if (first_path) {
            PrintPath(path);
            first_path = false;
        } else {
            std::cout << ",";
            PrintPath(path);
        }
    }
    std::cout << std::endl;
}
```

```
template<typename T>
void BinaryTree<T>::FindAllPath(
    const TreeNode<T>* current_root,
    std::vector<T>& path,
    std::vector<std::vector<T> >& all_path) {
    if (!current_root) {
        return;
    }
    path.push_back(current_root->value_);
    if (!current_root->left_ && !current_root->right_) {
        if (!path.empty()) {
            all_path.push_back(path);
        }
    } else {
        FindAllPath(current_root->left_, path, all_path);
        FindAllPath(current_root->right_, path, all_path);
    }
    path.pop_back();
}
```