csc324 Quiz #4 — Solutions Monday 15 November 1999

Duration: 15 minutes

Aids allowed: None

Family Name: ____________________ **Lecturer:** Diane Horton

First Name: ____________________ **Tutor:** ____________________

Student #: ____________________

Grade: __________

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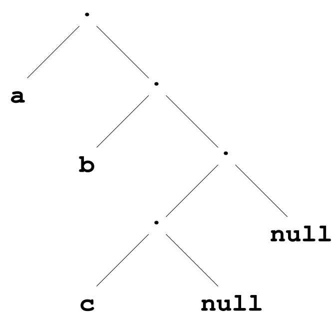
1. Draw the tree representing the Prolog list `[a, b, [c]]`.



2. How many nil/null values are in the tree representing the Prolog list `[d, [e, [f]], g]`?

Answer: `3, one for every list or sublist.`

3. For each of the following Prolog lists, write another list that it would unify with, but that does not use the symbol "`|`". If the list would not unify with *any* other because it is ill-formed, write "ill-formed".

List	Unifies with:
`[a,b|c,d]`	`ill-formed, because what's after the "|" is not a list.`
`[a,b|[c,d]]`	`[a,b,c,d]`
`[[a,b]|c,d]`	`ill-formed, because what's after the "|" is not a list.`
`[[a,b]|[c,d]]`	`[[a,b],c,d]`

4. Here is a Prolog predicate:

```
mystery( [_|Rest], Y ) :- mystery( Rest, Y ).
mystery( [X], X ).
```

Complete the following sentence: `mystery(A, B)` succeeds iff `A` is a list and ...

`B is the last element of A (at the top level).`