

>1) We recommend that co-associativity and co-multiplication be directly illustrated for trees 1.2.2.

$$\begin{aligned}
 (\Delta \otimes 1)(\Delta(F \text{ tree})) &= (\Delta \otimes 1)(1 \otimes F \text{ tree} + F \text{ tree} \otimes F \text{ tree} + F \text{ tree} \otimes 1). \\
 &= 1 \otimes 1 \otimes F \text{ tree} + 1 \otimes F \text{ tree} \otimes F \text{ tree} + F \text{ tree} \otimes 1 \otimes F \text{ tree} \\
 &\quad + 1 \otimes F \text{ tree} \otimes 1 + F \text{ tree} \otimes F \text{ tree} \otimes 1 + F \text{ tree} \otimes 1 \otimes 1. \\
 &= (1 \otimes \Delta)(\Delta(F \text{ tree}))
 \end{aligned}$$

>2) Remark 2.2 could be expanded with a picture of the resulting sum.

Just need an example of a coproduct of a painted tree. We should put this in or near 4.1 and just direct the reader to that section in Remark 2.2. I don't have time to put in the F's just now--but maybe Frank was going to do that anyway.

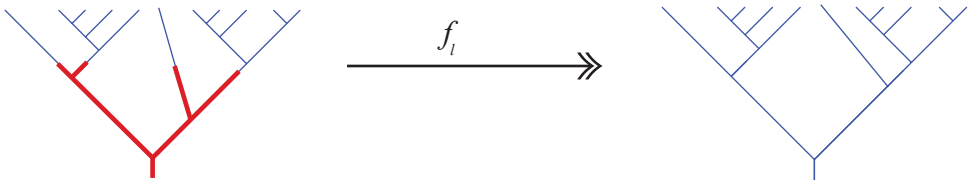
$$\Delta(\text{tree}) = \text{tree} \otimes 1 + 1 \otimes \text{tree} + \text{tree} \otimes \text{tree} + \text{tree} \otimes 1 + 1 \otimes \text{tree}$$

>3) A diagrammatic illustration involving painted trees could benefit the cofreeness theorem 2.4.

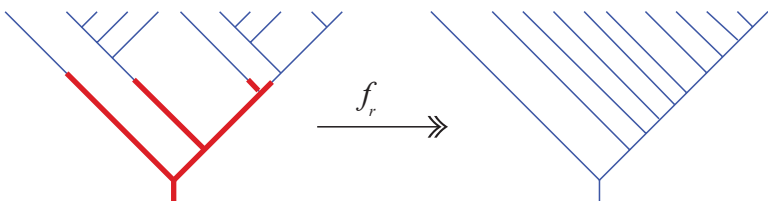
We already have nice examples in 4.1 p15, we should just direct the reader to that section.

>4) An example for Theorem 3.1 could clarify the notion of a connection on a Hopf module.

These examples of connections are really for Theorems 3.9 and 3.10.  
 $\text{SSym} \circ \text{YSym} \rightarrow \text{YSym}$ :



and:  $\text{CSym} \circ \text{YSym} \rightarrow \text{CSym}$ :



I suppose it would be nice to have a running example showing all the actions: star, mu, etc.