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1 BMF1-1

(1)

If $(\otimes c) \cdot \oplus / = \oplus / \cdot (\otimes c) \ *$ holds, then according to the defination, $(\otimes c) \cdot \oplus / [a, b] = \oplus / \cdot (\otimes c) \ * \ [a, b]$ means $(a \otimes b) \otimes c = (a \otimes c) \oplus (b \otimes c)$.

If $(a \oplus b) \otimes c = (a \otimes c) \oplus (b \otimes c)$ holds, then we can prove $(\otimes c) \cdot \oplus / = \oplus / \cdot (\otimes c) \ *$. step by step:

- $(\otimes c) \cdot \oplus / [] = [], \oplus / \cdot (\otimes c) \ * \ []$
- $(\otimes c) \cdot \oplus / [a] = a \otimes c, \oplus / \cdot (\otimes c) \ * \ [a] = a \otimes c$
- If x satisfied the rule $(\otimes c) \cdot \oplus / x = \oplus / \cdot (\otimes c) \ * \ x$,then

  $(\otimes c) \cdot \oplus / (x + +[a])$

  $=(\otimes c) * ((\oplus / x) \oplus a)$

  $\{using \ (a \oplus b) \otimes c = (a \otimes c) \oplus (b \otimes c)\}$

  $=((\otimes c) \cdot \oplus / x) \oplus \ (a \otimes c))$

  $\oplus / \cdot (\otimes c) \ * \ (x + +[a])$

  $=(\oplus / \cdot (\otimes c) \ * \ x) \oplus ((a \otimes c))$

  $=((\otimes c) \cdot \oplus / x) \oplus ((a \otimes c))$

  so

$$(\otimes c) \cdot \oplus / = \oplus / \cdot (\otimes c) \ *$$

is equivalant to

$$(a \oplus b) \otimes c = (a \otimes c) \oplus (b \otimes c)$$

(2)

Because $f = \oplus / \cdot \otimes / * \ tails = \odot \nrightarrow_e$ where $e = id_{\otimes}, a \odot b = (a \otimes b) \oplus e$,then satisfiy the rules:

$$f [] = e$$

$$f(x + +[a]) = \odot \nrightarrow_{\odot \nrightarrow_e \ x} a = f \ x \odot a$$

2 BMF1-2

In the `mss.hs`.

3 BMF1-3

$$
\begin{aligned}
S &= \oplus / \cdot f * \cdot segs \\
&= \oplus / \cdot f * \cdot + + / \cdot tails * \cdot \ inits \\
&= \oplus / \cdot (\oplus / \cdot f * \cdot tails) * \cdot \ inits \\
&= \oplus / \cdot (h \cdot \odot \not\twoheadrightarrow_e) * \cdot inits \\
&= \oplus / \cdot h * \odot \overline{\not\twoheadrightarrow} \ e
\end{aligned}
$$

(I can't write $\rightarrow$// e)