Montreal Talk I Real Time

June-24-13
8:49 AM

\[
(V \otimes W)_k = \bigoplus_{i+j=k} V_i \otimes W_j
\]

\[
q \dim (V \otimes W) = (q \dim V) \cdot (q \dim W)
\]

\[
f = \sum a_i q^i, \quad g = \sum b_j q^j
\]

\[
(f \cdot g) = \sum_{i+j=k} \left( \sum a_i b_j \right) q^k
\]

\[
\int x_i \wedge dx^j = -\int dx^i \wedge dx^j
\]

\[
V \cdot V \cdot V \rightarrow V \bigcirc V
\]

\[
\xrightarrow{\circ \otimes \circ} V \otimes V
\]

\[
m \downarrow
\]

\[
\xrightarrow{\circ \otimes \circ \otimes \circ} V \otimes V
\]

\[
m \downarrow
\]

\[
\xrightarrow{\circ \otimes \circ} V
\]

\[
(m \otimes m) = (m \otimes 1) \parallel m
\]

\[
m : V \otimes V \rightarrow V
\]

2013-06 Page 1
$m \otimes (l \otimes m) = m \otimes (m \otimes 1)$ \quad \text{``product''}

$m$ \hspace{1cm} \text{is associative, commutative}

$\Delta$ \hspace{1cm} \text{is coassoc., co-commut.}

$\text{co-product}$

\[ \begin{array}{c}
\hline
\end{array} \]

$m \otimes 1 \hspace{1cm} 1 \otimes m$

\[ \begin{array}{c}
\hline
\end{array} \]

\hspace{1cm} \text{``$m \otimes \Delta$ are compatible as above''}

\hspace{1cm} \text{``Frobenius algebra''}

log=[1372078791960,
[101177, [1,1], "Handout view 2: Why bother?"],
[152255, [1,2], "Handout view 3: J has an extra Dim!"],
[191862, [1,3], "Handout view 4: Perhaps also the rest?"],
[222847, [1,4], "Handout view 5: Story/Theorem"],
[340643, [1,5], "Handout view 6: Queries"],
[502094, [1,2], "Handout view 3: J has an extra Dim!"],
[512469, [1,6], "Handout view 7: The Philosophy Corner"],
[540229, [1,7], "Handout view 8: What is Categorification?"],
[617603, [1,8], "Handout view 9: Categorifying N"],
[807813, [1,9], "Handout view 10: Categorifying Z"],
[1047110, [1,10], "Handout view 11: Categorifying into Complexes"],
[1275432, [1,11], "Handout view 12: Categorifying Laurent Polynomials"],
[1720826, [1,12], "Handout view 13: The Jones Polynomial"],
[1901758, [1,13], "Handout view 14: Jones Example"],
[2048787, [1,12], "Handout view 13: The Jones Polynomial"],
[2056586, [1,13], "Handout view 14: Jones Example"],
[2127499, [1,12], "Handout view 13: The Jones Polynomial"],
[2132543, [1,13], "Handout view 14: Jones Example"],
[2195806, [1,14], "Handout view 15: R2 for Jones"],
2013-06 Page 2