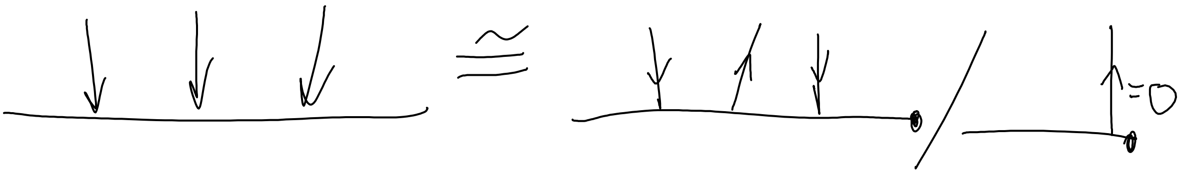
April 26

April-26-10
2:34 PM

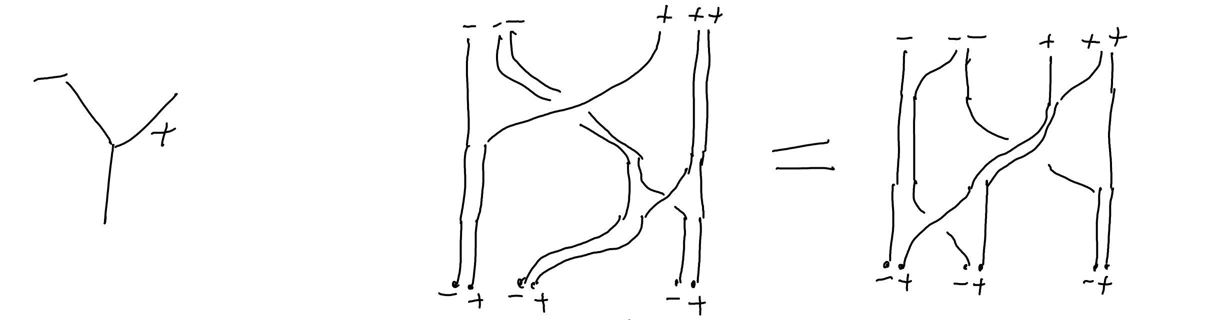


$$\begin{tikzcd} & U(g) \arrow[dl, shift left, "g_- \to 0"'] \arrow[dr, "u \mapsto u1_+"] & \\ U(g_+) \arrow[ur, shift left, "\text{inclusion}"'] \arrow[rr, shift left] & & M_+ := U(g)1_+ \arrow[ll, shift left] \end{tikzcd}$$

Note: In the w case,
$g_+ \oplus g_- \xrightarrow{g_- \to 0} g_+$
is a Lie alg. map, but
$g_+ \oplus g_- \xrightarrow{g_+ \to 0} g_-$
isn't.

In a general bi-algebra, there's only one way to map $U(g) \to U(g_+)$ or $U(g) \to U(g_-)$, and this is via M_+ & M_- [i.e., using PBW followed by a projection]. The "other" map $U(g) \to U(g_+)$ that exists in the w-case is a coincidence.

Question. Is it possible to repeat the EK argument in the w case, with U(g+) replacing M+?



$$\Rightarrow \Phi (1\otimes\Delta)J \cdot J^{23} = (\Delta\otimes 1)J \cdot J^{12}$$