Planar case

A general term with $i <_1 j <_1 k$ has the form $\Gamma = Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4$, where Y_i's are clouds of $<_1$ and X_j's are clouds of $<_2$.We denote by ∂Y_i the summands of D_0Y_i in which we split a cloud of $<_2$ belonging to Y_i.

When we apply the differential D_3 to a monomial, the derived variables cannot be simply doubled, as Fox monomials can contain only one derived variable. This issue can be addressed by imposing a "splitting rule" for monomials containing more than one derived variable. One can verify that the following equation makes the two sides equal for any evaluation, providing a way to resolve double derivations:

$$M_1|\partial Y_i|M_2|\partial Y_i|M_3 = M_1|\partial Y_i|M_2|Y_i|M_3 + M_1|Y_i|M_2|\partial Y_i|M_3$$

This is a consequence of the fact that $D_0(M||N) = D_0(M)||N + M||D_0(N)$.

Putting all together, we have the following formulas:

$$\begin{aligned}
&D_1^iD_2^{jk}(Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4) = \\
&= Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|Y_4 \\
&+ Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4
\end{aligned}$$

$$\begin{aligned}
&D_1^jD_2^{ik}(Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4) = \\
&= Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4
\end{aligned}$$

$$\begin{aligned}
&D_1^kD_2^{ij}(Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4) = \\
&= Y_1|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|Y_3|X_5kX_6|Y_4 \\
&+ Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|Y_4||Y_1|X_1iX_2|Y_2|X_3jX_4|Y_3|X_5kX_6|Y_4||Y_1|Y_2|Y_3|X_5kX_6|Y_4
\end{aligned}$$

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\begin{aligned}
&D_2^{ij} D_1^k(Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4) = \\
&= Y_1|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4 \\
&+ Y_1|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|Y_2|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|Y_3|X_5 k X_6|Y_4
\end{aligned}
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\begin{aligned}
&D_2^{ik} D_1^j(Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4) = \\
&= Y_1|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|Y_4
\end{aligned}
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\begin{aligned}
&D_2^{jk} D_1^i(Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4) = \\
&= Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|Y_3|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|Y_4
\end{aligned}
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\begin{aligned}
&D_0 D_3^{ijk}(Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4) = \\
&\partial Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|\partial Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|\partial Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|\partial Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||\partial Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|\partial Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|\partial Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|\partial Y_4 \\
&+ Y_1|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|Y_2|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|Y_3|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 X_6|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|X_5 X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|Y_3|Y_4||Y_1|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 X_6|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|X_5 X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|Y_2|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|X_3 X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 X_4|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_1 X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 X_2|Y_2|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|Y_4||Y_1|Y_2|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|X_3 X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 X_4|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_1 X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 X_2|Y_2|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4
\end{aligned}
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\begin{aligned}
&D_3^{ijk} D_0(Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4) = \\
&\partial Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|\partial Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|\partial Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|\partial Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||\partial Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|\partial Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|\partial Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|\partial Y_4 \\
&+ Y_1|Y_2|Y_3|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 X_6|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|X_5 X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 X_6|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|X_5 X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|Y_2|Y_3|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|X_3 X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 X_4|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_1 X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 X_2|Y_2|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 j X_4|X_3 X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_3 X_4|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 i X_2|Y_2|X_1 X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4 \\
&+ Y_1|X_1 X_2|Y_2|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4||Y_1|X_1 i X_2|Y_2|X_3 j X_4|Y_3|X_5 k X_6|Y_4
\end{aligned}
$$